



8-1-1968

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A STUDY OF COMMUNICATION
PATTERNS OF TEACHERS USING TEACHER AIDES
AS COMPARED TO THOSE NOT USING TEACHER AIDES

by

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A Dissertation
Submitted to the Faculty
of the
University of North Dakota
for the Degree of
Doctor of Education

Grand Forks, North Dakota

August
1968

This dissertation submitted by Richard W. Kunkel in partial fulfillment of the requirements for the Degree of Doctor of Education from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

Chairman

Dean of the Graduate School

Permission

Title: A Study of Communication Patterns of Teachers Using Teacher Aides as Compared to Those not Using Teacher Aides.

Department: Department of Education

Degree: Doctor of Education

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ABSTRACT

Problem

The purpose of this study was to determine whether the use of teacher aides would show any change in teachers' patterns of communication.

Procedure

Teachers of three schools, paired with three other schools by factors such as plant facilities, student enrollment and student/teacher ratio, served as the control group. The teachers of the three other schools served as the experimental group with teacher aides employed as the criterion measure. Ten trained observers in interaction analysis recorded the verbal classroom behavior of these teachers in the fall and again in the spring of the school term to indicate whether a change in verbal behavior was found as a result of utilizing teacher aides. The data was studied by recording the observations in ten-column by ten-row matrices. The statistical techniques employed in the analysis of the data were t tests for comparing mean changes between the fall and spring observations and analysis of covariance for differences between the control and experimental teachers.

Results and Conclusions

The findings of this study support the following general conclusions:

1. The employment of teacher aides causes little change in teachers' classroom behavior in areas such as asking questions, lecturing, accepting feelings of students; praising or encouraging students, giving directions, allowing self-initiated student talk or in the amount of silence or confusion when tested as individual units.

2. Teachers using teacher aides allowed student talk in response to questions more than those teachers not using teacher aides.

3. An increase of indirect teacher response following student talk was found in those schools using teacher aides.

4. The amount of silence or confusion in the classroom following student or teacher talk showed no change when teacher aides were utilized.

5. No difference was found in the use of extended indirect or extended direct influence by teachers using teacher aides.

6. Direct teacher response following student talk did not change with the addition of teacher aides.

7. Differences were not found in teachers indirect/direct ratio nor in their revised indirect/direct ratio of communication when teacher aides were utilized.

8. In general, teacher aides have very little effect on changes in verbal behavior of classroom teachers. Teachers must have the desire for change and be willing to accept professional guidance in bringing about changes in their classroom verbal behavior.

CHAPTER I

INTRODUCTION

There are certain responsibilities which are not educational in nature that can be handled more profitably by someone other than a teacher. A teacher, expected to be a professional person, expending abilities and energy in the process of education, should not be encumbered by the responsibility of such things as lunch reports, taking attendance, grading papers, gathering materials, and operating ditto machines.

This study was to determine whether the use of teacher aides will show any change in a teacher's pattern of communication. In the employment of teacher aides, one of the basic objectives should be the improvement of the professional service of the teacher. The use of teacher aides should not be seen as an economy measure by increasing classroom loads. It should, rather, be directed at finding ways of helping teachers do an improved job in meeting the individual needs of each student.

The study was one of several generated by a United States' Office of Education project (ESEA Title III) which was approved for operation in the Grand Forks Public School District. The Project, "Implementation of the Teacher and

His Staff Concept," was funded for initial operation during the 1967-1968 school year.

Nature and Explanation of the Problem

The schools of America have been plagued for a number of years by the difficulty of adequately staffing its classrooms with professionally trained personnel. As a consequence, schools have attempted to alleviate the situation by utilizing teacher aides to bring about the most efficient use of the professional team.

The National Education Association completed a survey in September, 1967, which showed that nearly one of every five elementary and secondary classrooms in the United States had, as a minimum, part-time assistance from a teacher aide.

Although teacher aides have been used to some extent in the past few years with seemingly outstanding success, reviews of literature show that very little formal statistical research has been carried out which supports this thesis. The lack of such research seemed to indicate the need for this study.

Schmidhauser (1967), in his recommendations for future research, indicates that a study is needed to answer the following question: "To what extent does the assistance obtained from nonprofessional classroom helpers give teachers more teaching power? In other words, do teachers with helpers do what they do better than they did before?" Although this study is not directly related to this question, it is felt that some related implications can be drawn from it.

One part of the success obtained in today's classrooms is the effective interaction between the teacher and her pupils. Teachers interact with students a large number of times every day. Prescott (1957) says that everyone of these interactions is evaluative, requiring a judgment and a feeling about the situation. These accumulating decisions create the conditions under which the students live and learn at school.

With the assumption that teacher aides will allow teachers more time to interact more effectively with their children, Flanders' system of interaction analysis was chosen to give a quantitative and reliable account of the type of verbal behavior in the classroom. Hagstrom (1962) made a report on the use of elementary school teachers' time, and found, in a sample of twenty teachers, that:

At any one time not more than 16 of the 20 teachers were likely to be engaged in highly skilled interaction with pupils. Usually the number of teachers actually engaged in teaching was below this number. During every round (of observation), at least one teacher was observed engaging in some kind of routine, technical, supporting work.

Objectives

This study seeks answers to the following questions:

1. Does the availability of teacher aides influence the basic communication patterns of selected classroom Teachers?
 - a) Is there a significant change from the autumn to the spring interaction analysis observation

in the number of tallies in each of the ten categories of classroom behavior for the experimental teacher group and/or for the control teacher group?

- b) Does the concentration of tallies in the "content cross" area of the matrix change when teacher aides are utilized?
 - c) Does the extended indirect influence change as a result of using teacher aides?
 - d) Does the teacher's extended direct influence change as a result of using teacher aides?
2. Does the pattern of student/teacher interaction change as a result of using teacher aides?
- a) Is there a significant change in the total student verbal participation when teacher aides are used by teachers?
 - b) Is there a significant change in indirect teacher response following student talk when teacher aides are used by the teacher?
 - c) Is there a significant change in direct teacher response following student talk when teacher aides are used by the teacher?
 - d) Is there a significant change in the amount of silence or confusion following student or teacher talk as a result of using teacher aides?

3. Does the availability of teacher aides influence the direct or indirect verbal practices of classroom teachers?
 - a) Does the teacher's indirect/direct ratio of communication change as a result of teachers using teacher aides?
 - b) Does the revised teacher's indirect/direct ratio change as a result of using teacher aides?

Operational Definitions

Teacher Aide:

The Grand Forks Public School District has devised two categories in the hiring of teacher aides for its schools. It has utilized these categories:

1. Clerical Assistants - These personnel have such activities as; typing, filing, collecting monies from students, correcting objective tests, and assisting in supervising students.
2. Classroom Assistants - These personnel have such activities as; maintaining the physical appearance of the classroom, assisting pupils with clothing and personal problems, operating audio-visual equipment, and assisting in the supervision of children.

No differentiation will be made in this study since all teachers had equal access to both types of aides and only the general category of teacher aide will be used.

Teacher aide will be used synonymously with such terms as paraprofessional, subprofessional, and the general term, aide.

Direct Influence:

Direct influence consists of stating the teacher's own opinion or ideas, directing the pupils action, criticizing his behavior, or justifying the teacher's authority or use of that authority.

Indirect Influence:

Indirect influence consists of soliciting the opinions or ideas of the pupils, applying or enlarging on those opinions or ideas, praising or encouraging the participation of pupils, or clarifying and accepting their feelings.

Indirect/Direct Ratio:

The ratio of indirect teacher statements to direct teacher statements. An I/D Ratio of 1.0 means that for every indirect statement there was one direct statement: an I/D Ratio of 2.0 means that for every two indirect statements there was only one direct statement.

Revised Indirect/Direct Ratio:

A Revised I/D Ratio is employed in order to find out the kind of emphasis given to motivation and control in the classroom. This ratio eliminates the effects of the two categories 'asking questions' and 'lecturing,'

and gives evidence about whether the teacher is direct or indirect in his approach to motivation and control.

Extended Indirect Influence:

Emphasis that the teacher gives to using student ideas, extending and amplifying student statements, and accepting and enlarging upon student feelings.

Extended Direct Influence:

Indicates the teacher's emphasis on criticism, giving lengthy direction, or moving from one of these types of influence to the other.

Content Cross:

Tallies in this area of the matrix represent teacher statements consisting primarily of lecture; statements of opinion, ideas, and information; and teacher questions about information and content that he has presented. A heavy concentration of tallies in this area indicates an emphasis on the content.

Scope and Limitations

The study was limited to data from an experimental project conducted in the Grand Forks Public School District. The data were gathered by a team of ten University of North Dakota doctoral students who have had extensive training in the techniques of interaction analysis. Although a reliability coefficient of .92 was obtained by these ten observers, some discrepancy could exist in their data collection.

An important factor that existed which could considerably contaminate the data was the fact that one of the three control schools made rather extensive use of volunteer teacher aides. Although a serious attempt was made to control all variables, it is apparent that teacher competency would be a factor that could weigh heavily upon the outcome of the research.

Such factors as size of school enrollments, condition of school plants, and socio-economic status of students were very closely related in both the control and experimental schools.

CHAPTER II

REVIEW OF THE LITERATURE

Teacher Aide Selection and Training

The literature on the selection and preparation of teacher aides has emerged rapidly in the past several years. With the commencement of the Elementary and Secondary Education Act of 1965 and the impetus given to the hiring of classroom assistants, it became apparent that additional study should be made concerning the selection and training of these para-professionals. Anderson (1967), of Harvard University, has this to say concerning the hiring of teacher aides:

Although it seems clear that nonprofessionals can and should be used more widely in the schools than they have been, it remains to be learned whether a proportionate reduction in the professionally certified staff is warranted or desirable. The waste of talent of certificated teachers on routine and minor tasks becomes more evident as teachers' total responsibilities are examined. However, where the line should be drawn between professional and nonprofessional tasks is by no means clear at this point. Questions must also be raised with respect to the recruitment, selection, training, and supervision of nonprofessional workers in a variety of roles.

Bowman and Klopff (1966) and Branick (1966) carefully examine the problem of aide selection and describe a set of performance requirements necessary for a competent teacher aide. Rivers (1966) states that "Success of the program of

teacher aides will depend to a great degree on the ability and willingness of the teacher to establish rapport with the aide." One implication which may be drawn from this is that teachers should be involved in the selection process of the aides with whom they will be working. The author found this to be of much significance in his limited work this past year in his program of teacher aide implementation. Continuous in-service training is an essential element in the success of an effective teacher aide program as revealed in most of the articles pertaining to the training of these subprofessionals.

Heinemann (1963) feels that before aides are hired, performance tasks must be clearly defined, and these tasks should be clearly described in school board policies. He further contends that they be adequately prepared and properly compensated for their work.

Teacher Aide Utilization

Notwithstanding the present lack of sophistication in research design which might provide hard data verification that teacher aides make a contribution to classroom productivity, the idea has won increasing acceptance. The periodical literature of the education profession is full of descriptive and testimonial articles concerning these aides. A six-state survey by Singer (1962) located a total of 70 school districts, with New York, Illinois, and California being the most active, in which lay non-professional were used in some role supportive to

classroom teachers.

Thompson (1963) sees the teaching professional benefiting from the use of aides when he states: "When teachers escape from the fatigue of inconsequentialities, from the boredom and monotony of repetitive motor skills, they stride forth to realize full potentiality."

Cutler (1964) states that in districts where aides have been in use for a trail period, resistance has diminished, and teacher recruitment takes a turn for the better.

In an attempt to determine the usage of teacher aides in our fifty states, letters were sent to all state departments of education in the various states. Approximately 80 per cent of the state departments responded, and these responses indicated variations from no provision for teacher aides to extensive guidelines for their use. As an example of one of these guidelines, the tentative program as set up by the Utah State Board of Education in September of 1966 is given:

In the employment of classroom assistants, one of the basic objectives of the program should be the improvement of the professional service of the teacher. There should be no intent to infringe upon professional responsibilities; in other words, trained classroom assistants should not be allowed to assume the professional duties of the teacher.

The philosophy that dictates the use of classroom assistants contends that if the teacher is free to teach, he will be able to use more fully those competencies for which he was trained. In this program the teacher directs adults as well as children and thus becomes a more important member of the school team with attendant professional satisfactions not previously available.

The use of classroom assistants should not be aimed at saving money by increasing classroom loads. Rather, it should be directed at discovering ways of helping teachers do a better job in meeting the individual needs of each student. A program utilizing classroom assistants may cost as much or more per pupil than the more traditional staffing plan.

Classroom assistants are para-professional employees who work under the direction of a certificated teacher. In this regard, they may be assigned clerical and other duties providing these activities do not include teaching in a group situation or individual tutoring.

Classroom assistants should never be given sole responsibility for the classroom unless they are properly certificated. They should neither administer discipline nor conduct special classes for exceptional groups (e.g. remedial classes for pupils in reading and arithmetic).

The responsibility of classroom assistants is limited to assisting the teacher. They should not, therefore, be used as substitute teachers unless they are properly certificated.

Some types of tasks that might legitimately be performed by a classroom assistant include the following:

1. Taking roll and reporting absences according to established procedures.
2. Correcting objective tests and other types of student assignments in which a scoring key is utilized and/or judgment factors are not involved.
3. Typing and preparing stencils.
4. Monitoring students in study situations for purposes of maintaining effective disciplinary control.
5. Recording grades in the roll book or on report cards.
6. Copying data on forms and records.
7. Collecting, recording, and accounting for fund collections.
8. Securing and distributing supplies.

9. Duplicating, assembling, and distributing tests and other hand-out materials.
10. Housekeeping duties including arranging of desks or chairs, preparing the chalkboard, watering plants, etc.
11. Mounting pictures and making visual aids for use by the teacher.
12. Acting as room librarian.
13. Operating projectors, record players, and other audio-visual equipment.
14. Arranging bulletin board and other displays as directed by the teacher.
15. Supervising the playground during the lunch hour and recess periods.
16. Labeling and filing materials used in lesson development.
17. Copying material on the chalkboard.
18. Relaying messages to the principal, other teachers, and parents.
19. Delivering materials to other rooms.
20. Repairing torn books and other damaged materials.
21. Cutting paper, sharpening pencils, assembling materials for games, and inventorying or counting materials.
22. Playing the piano for rhythm activities and singing or for physical education classes.
23. Making out lists (names, supplies, etc.).
24. Assisting in supervising the lunchroom, hallways, assemblies, etc.

Research clearly indicates that a number of critical questions remain unanswered regarding the provision of paraprofessional support for classroom teachers. Regardless of these differences, the importance of complete involvement by teacher

aides in any areas of the learning situation receives endorsement by experiences supervisory and administrative personnel. MacLennan (1966), a psychologist, has described the development and function of a program to train aides, mainly unemployed high school dropouts, at the Center for Youth and Community Studies, Howard University, Washington, D.C. Dr. MacLennan concluded that the program had been a success and emphasized the importance of job orientation for training and the need for effort on the part of professional staff members to include aides in responsible ways in many aspects of the work. Brunner (1966) is emphatic in her statement that:

If teacher aides are to function in educational programs, the professional staff must assume responsibility for assisting them in expanding their knowledge of the children and the community, the experiences in which they participate, and their role in increasing opportunities for learning for children.

As a conclusion to this section on teacher aide utilization, the author would like to insert a copy of the activities performed by a teacher aide in a North Dakota Elementary School. This summary is reported exactly as written by the teacher aide, and this report follows:

As a teachers' aide, my job, for the most part, would be different each day; but, some jobs had to be the same such as:

8:30-8:55 Playground duty

8:55-9:45 Served chocolate milk in cups and brought them into each room on a tray. Many times the class would continue with very little interruption.

9:45-11:15

I would dust and straighten the lounge, make coffee and get something for lunch from the kitchen, fill the shelves with paper and get whatever was needed from the office storage room.

I was available then to go into the rooms to help with some of the slow learners, fill out SRA charts, give spelling words, or just give general assistance to the teacher. My desk was in the elementary library so that if there were no work needed by a teacher, I would be available to help the children with books or other reference material.

For work needed by the teachers that could be completed outside the classroom, the teachers would leave their work in a folder and designate the time that it was needed and I would then work on these assignments. I would then prepare bulletin board materials as directed by the teachers with the help of high school students under my direction. I would also type and ditto worksheets, do other clerical duties, correct papers, fill out purchase orders, or whatever the day happened to call for.

During the year, I have collected the films from each elementary classroom and filed them into a rack in the centralized library. I made a manual and put each film into a category, so that each teacher would have a copy of the films available.

I also filed the reels for the viewmaster, phonograph records, tapes, and transparencies and placed this in the same manual.

I would set up the film projector for films and occasionally show the films for the teachers.

I tested the pupils' eyes for all of the elementary grades and completed the reports necessary.

During the winter months, the Elementary Department held an art show and I displayed the

work for the teachers. They turned the materials in to me a few days prior to the show so that I could sort the materials and organize them for display.

Countless small jobs that I performed like helping with zippers that were stuck, helping to dress the small children for the cold outdoors, removing slivers from fingers, sitting with ill children until their parents called for them were all part of my routine day. To add variety to my days, I even performed such a duty as catching a snake that had crawled from its cage and then returned it to the cage.

- 11:15-11:45 Help my first graders with their lunch before eating my lunch.
- 11:45-12:25 Noon playground duty.
- 12:50-2:00 Read stories to students or listened to individual students as they read stories to me.
- 2:00-2:30 Served chocolate milk to the elementary grades.
- 2:30-4:30 I would finish the work that was needed for the next day and continue with miscellaneous jobs as outlined previously.

→ The Influence of Teacher Aides on Teacher-Time Utilization

The reporting of teacher-time utilization developments by educators has been very positive. Pino (1966), an administrator of a large school district, states:

In the four years that the program has been operating, we feel we have made good progress in helping our teachers to become more efficient and effective. At the same time, we have managed to retain the personal touch so necessary to good teaching.

Likewise, Grayson (1961) says that the presence of an aide in the classroom unquestionably increased his teaching efficiency

and broadened the scope of the curriculum. Danemark (1966) feels that when teacher aides are available to the teacher, the teacher typically has greater opportunity to diagnose the problems of each pupil and work with them individually.

Staffort (1962) made a study to determine what changes would take place in teacher time utilization between classrooms where aides were present and classrooms where aides were not present. This somewhat well-known Bay City (Michigan) Project indicated that teacher activity became more professional in nature when aides were made available to the teachers. (See tables 1 - 5 below).

Park (1967), in his work at Central Michigan Colleges, has made an extensive study to examine teacher-time utilization when teacher aides are available. This study made use of five years of observation in 25 Michigan Public Schools. The length of time teachers devoted to certain activities was timed carefully both before and after the addition of teacher aides to the staff. The report indicated that in the time period of two years when aides were employed, teachers had reduced the percentages of time devoted to routine duties to the extent that time spent:

Correcting papers was reduced by 84 per cent; enforcing discipline, 36 per cent; taking attendance, 76 per cent; preparing reports, 25 per cent; supervising children moving between classes, 61 per cent; monitoring written lessons, 83 per cent.

Park continued by asking:

What did teachers do with all that new found time?
They increased time spent on lesson preparation by

TABLE 1

DIFFERENCES IN TIME UTILIZATION: WITHOUT-AIDE AND WITH-AIDE
TIME IN MINUTES DAILY

Activity	Without-aide Mean	$\sigma\bar{X}$	With-aide Mean	$\sigma\bar{X}$	Mean Difference	σ Difference	t
Lesson Plans	9.5	1.8	17.5	3.8	8.0	4.2	1.9*
Assignments	5.6	0.5	7.8	2.3	2.2	2.4	0.9
Group Planning	4.8	0.7	10.0	2.5	5.2	2.6	2.0*
Counseling	5.2	0.7	4.2	0.9	-1.0	1.1	0.9
Write on Board	3.2	0.5	3.2	1.3	0.0	1.4	0.0
Written Lesson	13.5	1.9	4.6	1.7	-8.9	2.6	3.4**
Report Cards	0.0	0.0	0.0	0.0	0.0	0.0	-
Recitation	104.3	5.7	137.1	7.8	31.5	9.6	3.3*
Directed Study	64.3	5.0	49.8	9.9	-14.5	11.1	1.3
Desk to Desk	22.9	2.6	24.0	4.2	-1.1	4.9	0.2
Correct Papers	11.1	1.6	4.0	1.5	-7.1	2.2	3.2**
Pupil Control	2.7	0.5	1.8	0.4	-0.9	0.6	1.5
Take Roll	2.4	0.2	0.4	0.2	-2.0	0.3	6.7**
Opening	5.8	0.6	2.7	0.5	-3.1	0.8	3.9**
Interruptions	9.8	1.2	9.4	1.9	-0.4	2.2	0.2
Housekeeping	11.0	1.2	10.3	2.0	-0.7	2.3	0.3
Making Reports	4.6	1.4	0.0	0.0	-4.6	1.4	3.3*
Dictation	4.4	1.4	4.1	2.0	-0.3	2.4	0.1
Read to Group	9.9	1.7	9.7	2.0	-0.2	2.6	0.1
Transition	23.2	1.3	12.3	2.0	-10.9	2.4	4.5*
Supervision	27.5	2.4	27.9	3.5	0.4	4.2	0.1
Free Time	14.1	2.1	18.7	2.4	4.6	3.2	1.4

* Statistically significant increase

** Statistically significant decrease

TABLE 2

CHANGE IN TIME UTILIZATION FOR ACTIVITIES REQUIRING PROFESSIONAL TRAINING
(PUPIL CONTROL NOT INCLUDED)

	Without-aide (N=80)	With-aide (N=18)	Difference
Mean Daily Time	254.0	288.0	34.0
$\sigma\bar{X}$	30.0	32.6	
σ Difference			44.3
τ			0.8

Interpretation: In direction expected, but not a significant overall increase.

TABLE 3

CHANGE IN TIME UTILIZATION FOR ACTIVITIES INCONGRUOUS WITH PROFESSIONAL TRAINING

	Without-aide (N=80)	With-aide (N=18)	Difference
Mean Daily Time	89.0	51.0	36.4
$\sigma\bar{X}$	9.9	12.4	
σ Difference			15.8
τ			2.3

Interpretation: Significant Decrease

TABLE 4
AIDE TIME UTILIZATION
(TIME IN MINUTES)

Activity	Mean	$\sigma\bar{X}$	Activity	Mean	$\sigma\bar{X}$
Lesson Plans	7.8	3.2	Pupil Control	0.1	0.1
Assignments	0.0	0.0	Taking Roll	4.9	0.7
Group Planning	0.0	0.0	Opening	1.4	0.4
Counseling	0.7	0.4	Interruptions	6.6	1.6
Write on Board	0.7	0.6	Housekeeping	90.4	11.4
Written Lessons	0.0	0.0	Making Reports	12.6	3.0
Report Cards	7.2	4.6	Dictation	1.0	1.0
Recitation	0.0	0.0	Read to Group	5.8	2.8
Directed Study	61.2	8.0	Transition	3.3	1.1
Desk to Desk	16.4	3.8	Supervision	51.4	0.5
Correct Papers	81.0	12.9	Free Time	7.2	0.2

TABLE 5
ACTIVITY TIME PER CHILD, WITHOUT- AND WITH-AIDE
(TIME IN MINUTES PER MEAN ENROLLMENT)

Activity	Without-aide (Mean enrollment=33)		With-aide (Mean Enrollment=48)	
	Teacher*	Teacher*	Aide	Total
Desk to Desk	0.69	0.50	0.34	0.84
Directed Study	1.93	1.04	1.27	2.31

* The difference between teacher times is significant for the activity Directed Study (t=3.4) but not for Desk to Desk (t=1.6).

105 per cent; recitation, 57 per cent; preparation of homework assignments, 20 per cent; moving about the classroom, desk to desk for individual coaching, 27 per cent.

Dietrich (1960) reported that a group of English teachers involved in a teacher aide pilot program of English theme reading suggested that aides improved their instruction by permitting:

1. More composition
2. Longer compositions
3. Quick return of papers
4. Better discussion of papers, since teachers had more time

Rioux (1966) seems to express the idea most advocated by present day writers and researchers concerning the contributions being made by teacher aides when he states:

Only as teachers and administrators see at first hand the contributions that can be made by subprofessionals, only as professionals are freed to be more professional, only as they witness the reliability of teaching aides, will headway be made in destroying the myth that subprofessionals usurp teachers' prerogatives and that all classroom related functions require professional training.

Teacher Aides and Their Effect on Teacher and Student Attitudes

Thompson (1963), in his work at Hamstead High School in Sunnyvale, California, described the improvement shown in teacher attitudes toward the teaching profession and, consequently, the improvement in teaching performance when aides were added to his school staff. He reported that when teachers

were unpressed by routine tasks, they were able to exhibit technique and content improvement to a very great extent. He states:

Some of this renewed enthusiasm probably arises from psychological feelings of support. But its main-spring consists simply of freeing teachers from the harness of detail and routine to do the job for which they were trained. For the first time, through aides, real opportunity appears for the teacher to provide fresh spontaneity to discussion, to distribute crisply correct test and syllabus, and to investigate new resources and create new materials right in the heat of the school year.

Cutler (1964) made a survey of schools using teacher aides and discovered that the professional position of teachers tends to be improved by the presence of teacher aides and teacher recruitment is usually much less difficult.

Goldstein (1966) believes that teacher aides are persons with whom both parent and children can often identify. He feels that this identification contributes to improved student attitudes and, thus, greater learning. Cloward (1967) substantiates Goldstein's contention when he says that there is a growing belief that important contributions to the educational development of culturally disadvantaged children can be made by other young people whose life experiences provide a basis for empathy with the people being served. The literature reviews disclosed no evidence that teacher aides created a negative attitude on the part of students.

Likewise, the reviews almost unanimously indicated

that teachers showed favorable attitudes toward aides after the programs were initiated and working effectively. Some teachers tended to be somewhat skeptical prior to the hiring of these paraprofessionals. Schmidhauser (1967) found that teachers almost unanimously agreed that in reporting to parents, the teacher should serve as the professional representative of the educational organization. These teachers also agreed that teachers should retain responsibility for diagnosing, planning, assigning, and recording functions. A few teachers, principally among those interested in administration work or who perceived themselves as leaders, saw themselves as directing the work of their helpers, and were willing to share or delegate professional functions since they believed that they continued to exercise the final decision-making authority.

Interaction Analysis

In the American system of education, the teacher is given the authority to direct the learning activities of his students. Jenkins (1960) feels that both the teacher and the students expect the teacher to take charge, to initiate learning activities, and to contribute information as needed in the learning process. What the teacher does with his power seems to make a lot of difference in the desired outcome. Anderson (1963) and his colleagues were the first to do systematic studies of spontaneous pupil and teacher behavior. These studies were based on the observation of "dominative" and

"integrative" behavior of teachers. The differences that were found between an integrative and dominative social contact were reported in the following manner:

A preliminary study showed that it was possible to devise reliable measures of behavior of young children. Behavior was recorded as "contacts" and divided into two groups of categories. If a child snatched a toy, struck a playmate, or commanded him or if he attempted to force him in some way, such contacts were included under the term "domination." By such behavior he ignored the rights of the companion; he tended to reduce the free interplay of differences and to lead toward resistance or conformity in responding or adapting to another.

Other contacts were recorded which tended to increase the interplay of differences. Offering a companion a choice or soliciting an expression of his desires were gestures of flexibility and adaptation. These tended in the direction of discovering common purposes among differences. Such contacts were grouped under the term "socially integrative behavior."

The findings of this study were based on preschool, primary and elementary classrooms extending over several years and involved five different teachers. The findings revealed the following observations:

- (1) The dominative and integrative contacts of the teacher sets a pattern of behavior that spreads throughout the classroom; the behavior of the teacher, more than any other individual, sets the climate of the class. The conclusion is that when either type of contact predominates, domination stimulates further domination, and integration stimulates further integration. It is the teacher's principal behavior pattern that spreads among pupils and is taken over by them even when the teacher is no longer in the room. Furthermore, the pattern a teacher develops in one year is likely to be continued by him the following year with different pupils.

- (2) When a teacher establishes a higher proportion on integrative contacts, pupils show more spontaneity and initiative, voluntary social contributions, and contributions to problem-solving.
- (3) When a teacher has a higher proportion of dominative contacts, the pupils are more easily distracted from school work and show greater compliance to, as well as rejection of, teacher domination.

Working with these earlier studies, Flanders (1960) developed a set of categories and a means of noting consecutive communication acts by numbers that could be entered in a matrix. He called this method "interaction analysis" which is a system for observing and coding the verbal interchange between a teacher and her pupils. Flanders made two general classifications for teacher talk; "direct" for those statements with which a teacher dominated the classroom and "indirect" for those statements which encouraged the participation by the students. The Flanders system is concerned with verbal behavior only, primarily because, according to Flanders, it can be observed with higher reliability than can nonverbal behavior. He further states that ". . . verbal behavior of an individual is an adequate sample of his total behavior."

Of the ten categories used, seven are assigned to teacher talk, two to student talk, and the tenth to silence or confusion. The Flanders system is outlined in Table V. Flanders found that teachers with the highest ratio of indirect influence (called the I/D ratio) were flexible enough to use

rather direct means on occasion, while the teachers with the lowest I/D ratios were more consistent in their pattern of influence. Teacher flexibility is a measure of the change a teacher makes in his verbal influence from one activity to another is indicated by the statements made, a change of class formation, or a change in the communication pattern.

Flanders (1963) made an attempt to achieve a better balance between the cognitive and affective factors of the curriculum by listing the objectives necessary in developing social skills essential for effective teaching. He described these social skills as follows:

- (1) The ability to accept, clarify, and make constructive use of ideas and feelings expressed by pupils
- (2) The ability to summarize, in a discussion, as a method of guiding inquiry
- (3) The ability to predict or at least speculate about, both the emotional as well as intellectual consequences of various alternatives when a decision is necessary
- (4) The ability to ask questions about feelings and attitudes in such a way that purely defensive responses are avoided
- (5) The ability to relate feelings and attitudes to intellectual tasks so that more realistic forces of motivation are created.
- (6) The ability to develop a sense of timing that is involved in knowing when to digress from the intellectual aspects of a task in order to face negative feelings realistically or make fuller use of positive feelings
- (7) The ability to ask broad or narrow questions and the insight to predict the consequences of suing either; and similar patterns of teacher behavior

which are rarely taught in teacher preparation.

In another study, Flanders (1965) made use of his ten categories, observation tally sheets, observation matrixes, and areas of matrix analysis (as shown in Table VI), and relied on the Darwin Chi-square test plus several other statistical procedures to make the following generalizations concerning teacher behavior:

First, although it represents less than five per cent of all verbal statements, "good" teachers expressed between five and ten times more statements which fell into category one and two.

Second, and most important, they react to and make use of ideas expressed by pupils more often in high scoring classrooms.

Third, high scoring teachers ask more questions.

Fourth, they need to give fewer directions and criticize pupils less often.

Fifth, usually pupils talk more in the high scoring classrooms. Pupils are more likely to express their own ideas, category nine.

Sixth, teachers in the high scoring classrooms possess what might be called flexibility of teacher influence. That is, they tend to have a wider range of roles or behavior patterns at their finger tips, so to speak . . . they are more indirect at first and become more direct later in the cycle of studying material.

Amidon and Giamatteo (1965) made a study to determine whether or not there are verbal behavior patterns which are characteristic of superior teachers. A comparison was made between those teachers rated by their supervisors as superior and the normative group of teachers selected at random. The

TABLE 6
AREAS OF MATRIX ANALYSIS

CATEGORY	CLASSIFI- CATION	CATE- GORY	1	2	3	4	5	6	7	8	9	10	TOTAL
ACCEPTS FEELING	INDIRECT INFLUENCE	1	Area E			"Content Cross"	Area F	Area H	Area I				
PRAISE		2											
STUDENT IDEA		3											
ASKS QUESTIONS	4												
LECTURES	DIRECT INFLUENCE	5	Area A			"Content Cross"	Area F	Area H	Area I				
GIVES DIRECTIONS		6											
CRITICISM		7											
STUDENT RESPONSE	STUDENT TALK	8	Area G ₁										Area G ₂
STUDENT INITIATION													
SILENCE		10											
		Total	Area A			Area B			Area C	Area D			
			Indirect Teacher Talk			Direct Teacher Talk			Student Talk	Si- lence			

results were reported as follows:

Acceptance of feeling was used about three times as much by those teachers identified as superior. However, both the normative group and the superior group used this category extremely infrequently.

Statements of praise and encouragement were used about equally by both groups, but the superior teachers used more praise after student-initiated ideas. They also gave reasons for praise more often than the normative group.

Acceptance and use of student ideas as a category was used over three and one half times as often by superior teachers in response to student-initiated talk. The average teachers tended to ask narrow questions which called for predictable responses ("What is two times two?"). The superior teachers used questions as a means for controlling noise and clarifying ideas about twice as often as did the normative group.

Lecture in a continuous fashion was used more by the average group of teachers, but total lecture time accounted for about 40 per cent of teacher talk for both groups. The superior teachers were interrupted more frequently by questions during their lectures than were the average teachers.

Direction-giving was used twice as much by the regular teachers, and their directions were more apt to elicit silent responses from students.

Criticism was used about twice as much by the average group of teachers as a technique for controlling student noise, but both groups used criticism sparingly. Direction-giving followed criticism, which usually indicates discipline problems, appeared about twice as frequently in the verbal patterns of the normative group of teachers.

Student patterns were markedly different in the two groups. There were twice as many student-initiated statements in the classes taught by the superior teachers. Students participated over 52 per cent of the time in the classes of the superior teachers, and about 40 per cent of the time in the average classes.

Silence or confusion appeared as a category more than twice as often in classes taught by the normative group of teachers.

In stating the implications of the study, the authors indicated that supervisors might possibly tend to favor the teaching behavior attributed to superior teachers, but Flanders (1965) lends support to the findings of this study. He found in his study that the teachers of high-achieving classes accepted, clarified, and used student ideas significantly more; criticized significantly less, and encouraged significantly more student-initiated talk than did teachers of low-achieving classes.

As a result of this research, Flanders developed what he refers to as "the rule of two-thirds." This rule states that in the average classroom, someone is talking two-thirds of the time; two-thirds of that time the person talking is the teacher; and two-thirds of the time the teacher talks, he is using direct influence (lecture, direction-giving, criticism). The rule of two-thirds was modified, however, for teachers of the high-achieving children and teachers of the low-achieving children. The first part of the rule, that two-thirds of the time someone is talking, held for both groups, but the teachers of the low-achieving groups talked about 80 per cent of this time, while teachers of the high-achieving groups talked about 55 per cent of this time. In the low-achieving groups, teachers used direct influence about 80 per cent of the time, while teachers of the high-achieving groups used direct influence about 50 per cent of the time.

The results of these studies would seemingly indicate that verbal behavior patterns of superior teachers can be identified, and that these patterns do differ from the verbal behavior patterns of other teachers.

Studies by Davis (1952), Farmer (1964), and Spore (1963) indicated that there was general agreement among educators that verbal skills in conducting stimulating class discussions, verbal skills in handling students' questions, and verbal skills in the development of critical thought, scientific attitudes, and problem-solving abilities are important to successful science teaching.

Furst (1966), using interaction analysis, identified certain relationships between teacher influence patterns and student achievement. She found that above-average student achievement was positively related to indirect teacher influence, a moderate pace of teacher-pupil interaction, and an indirect teacher response to student talk. She also found that the amount of student talk was positively related to student achievement.

Soar (1966) found that indirect teaching produced greater growth in reading comprehension in elementary school pupils than did direct teaching. He also found that pupils who were taught by teachers using indirect influence progressed an average of five and one-half months in reading comprehension during the summer vacation, while pupils who had been taught

by teachers using direct influence had progressed three months during the same period. These results would seem to indicate that teacher influence tends to last even after the formal classroom experience is finished.

Weber (1967), using the Torrance creativity tests, found that indirect teaching produced higher pupil creativity scores than did direct teaching. Likewise, Schantz (1963) found that elementary school pupils of high ability who had teachers who used indirect teaching methods scored significantly higher on science achievement tests than did those students who were taught by teachers using the direct methods. Powell (1968) found that pupils who had a teacher using indirect techniques scored significantly higher on arithmetic achievement tests than did pupils who had a teacher using direct techniques for a similar period of time.

Studies have been conducted in the past few years to determine differences in interaction patterns at various grade levels and subject areas. Furst and Amidon (1962) observed twenty-five elementary school teachers who were teaching reading, social studies, and arithmetic. They found that in over-all teaching methods, first- and second-grade teachers were inclined to be the most indirect, while third- and fourth-grade teachers were the most direct. When lecture and questioning were omitted in finding the indirect/direct ratio, fifth- and sixth-grade teachers were the most indirect.

Giammatteo (1963) studied the interaction styles of a number of teachers in the language arts field of elementary schools. His findings upheld those of Furst and Amidon in that the third- and fourth-grade teachers tended to be the most direct, while the lower- and upper-grade teachers were more indirect. He found that upper-grade teachers were the most accepting of student ideas and that primary teachers gave the most directions.

CHAPTER III

METHODOLOGY

This chapter describes the population of this study, the procedures that were used to gather the data utilized, the interaction analysis system, and the statistical treatment of the data.

Population Description

Six Grand Forks Public Schools were chosen for the population of this study. South Junior High School, Carl Ben Eilson Elementary School, and J. Nelson Kelly Elementary School served as the experimental schools. In these experimental schools, one teacher aide was provided for every six teachers employed by these experimental schools. Valley Junior High School, Nathan Twining Elementary School, and Lake Agassiz Elementary School served as the control schools and were not provided with any teacher aides to work with their staff.

It is important that the reader be cognizant of the fact that no attempt was made to pair pupils but, rather, schools. Such factors as school plant, student enrollment, and student/teacher ratio in the control and experimental schools were very similar. The six schools were matched

in the following manner:

Control

Experimental

Lake Agassiz Elementary School	J. Nelson Kelly Elementary School
Nathan Twining Elementary School	Carl Ben Eilson Elementary School
Valley Junior High School	South Junior High School

In the autumn of the 1967-1968 school term, one hundred twenty-eight teachers were chosen from the six schools. This group included all teachers teaching in the fields of language arts, social studies, mathematics, and science in grades one through nine. Special subject area teachers, librarians and counselors were omitted because of the difficulty in scheduling. Several teachers were omitted due to illness, and, since time and expense were a factor, no attempt was made to schedule these teachers at a later date. Fifty-nine teachers were included in the experimental schools and sixty-nine teachers were included in the control schools.

These same groups of teachers were again chosen for observation in the spring of the year although only one-hundred sixteen were available for observation due to staff turnover. Fifty were from the experimental schools and sixty-six were from the control schools.

Description of Data Collection Procedures

Ten observers, trained in the techniques of interaction analysis, were sent to the six schools to collect data on the teachers included in the population. A description of interaction analysis and the procedures for analysis is included in the next section. These ten observers, all doctoral candidates enrolled in the Graduate School of the University of North Dakota, were trained by Dr. John Hanson of the University of Oregon and by Dr. Harold May of the University of Manitoba, Canada. After approximately fifteen hours of training, these observers had reached a Scott (1955) reliability index of .92. Interaction Analysis observers have relied on the Scott Pi almost exclusively for indications of their reliability and, by inference, their validity.

The school principals and teachers were notified that a group of observers would be coming to their school for a specific number of days. Each teacher was to select an hour of a day when they had planned some form of activity that would include some type of verbal interaction between him and his students. These time schedules were returned to the author, and master schedules were prepared for each of the ten observers. Before any observers were sent to the schools, the author visited a short time with the teachers during a regularly scheduled teacher's meeting to briefly explain the process of interaction analysis.

Upon entering the classroom for an observation, each observer quietly seated himself and arranged his materials needed for the observation. While orienting himself to the classroom setting, he recorded such information pertinent to the observation. Although most observers spent from forty to sixty minutes in each classroom, only about twenty minutes of interaction were recorded. It was impossible to record a full twenty minutes in several instances, but the observers felt that what they had recorded was sufficient to determine the teachers communication patterns.

The foregoing procedure was again followed for the spring observation. In order to determine whether observer reliability was kept constant, the ten observers were checked again in the spring of the year by the Scott Pi reliability coefficient. This testing produced a reliability of .93. All observers had been actively involved in interaction analysis observation during the intervening months for other studies being conducted at the University of North Dakota.

Scanner sheets were used to record the tallies at three-second intervals; thus, these sheets were placed in the optical scanner at the University of North Dakota Computer Center to reproduce the tallies on punched cards. These punched cards were then sorted and run through the Model 360

IBM Computer for a reproduction of the ten-row by ten-column matrices for future analyses.

Flander's System of Interaction Analysis

With the many systems of interaction analysis prevalent in modern research, it becomes necessary to define the categories that were used in this study. The categories and their descriptions are defined as follows by Amidon and Flanders (1963):

Category 1, *Acceptance of Feeling*. The teacher accepts feelings when he says he understands how the children feel, that they have the right to have these feelings, and that he will not punish the children for their feelings. These kinds of statements often communicate to the children both acceptance and clarification of the feeling.

Also included in this category are statements that recall past feeling, refer to enjoyable or uncomfortable feelings that are present, or predict happy or sad events that will occur in the future.

In our society, people often react to expressions of negative feelings by offering negative feelings in return. Acceptance of these emotions in the classroom is quite rare, probably because teachers find it difficult to accept negative emotional behavior. However, it may be just as difficult for them to accept positive feelings. Feelings expressed by students may also be ignored by the teacher if

he considers the classroom to be a place where people are concerned primarily with ideas rather than feelings.

Category 2, *Praise or Encouragement*. Included in this category are jokes that release tension, but not those that threaten students or are made at the expense of individual students. Often praise is a single word: "good," "fine," or "right." Sometimes the teacher simply says, "I like what you are doing." Encouragement is slightly different and includes statements such as, "Continue." "Go ahead with what you are saying." "Uh, huh; go on; tell us more about your idea."

Category 3, *Accepting Ideas*. This category is quite similar to category 1; however, it includes only acceptance of student ideas, not acceptance of expressed emotion. When a student makes a suggestion, the teacher may paraphrase the student's statement, restate the idea more simply, or summarize what the student has said. The teacher may also say, "Well, that's an interesting point of view. I see what you mean." Statements belonging in category 3 are particularly difficult to recognize; often the teacher will shift from using the student's idea to stating the teacher's own idea.

Statements belonging in category 3 can be identified by asking the question, "Is the idea that the teacher is now

stating the student's or is it the teacher's?" If it is the teacher's, another category must be employed.

Category 4, *Asking Questions*. This category includes only questions to which the teacher expects an answer from the pupils. If a teacher asks a question and then follows it immediately with a statement of opinion, or if he begins lecturing, obviously the question was not meant to be answered. A rhetorical question is not categorized as a question. An example of another kind of question that should not be classified in category 4 is the following: "What in the world do you think you are doing out of your seat, John?" With proper intonation, the question is designed to get John back in his seat; if such is the case, it must be categorized as criticism of the student's behavior (category 7).

Questions that are meant to be answered are of several kinds. There are questions that are direct in the sense that there is a right and wrong answer. The question, "What are 2 and 2?" is a question that limits the freedom of the student to some extent. Although he can refuse to answer, give the wrong answer, or make a statement of another kind, in general, this kind of question focuses the student's answer more than does a question such as "What do you think we ought to do now?" Questions, then, can be very broad and give the student a great deal of

freedom in answering. All questions, however broad or narrow, which require answers and are not commands or criticism, fall into category 4.

Category 5, *Lecture*. Lecture is the form of verbal interaction that is used to give information, facts, opinions, or ideas to children. The presentation of material may be used to introduce, review, or focus the attention of the class on an important topic. Usually information in the form of lecture is given in fairly extended time periods, but it may be interspersed with children's comments, questions, and encouraging praise.

Whenever, the teacher is explaining, discussing, giving opinion, or giving facts of information, category 5 is used. Rhetorical questions are also included in this category. Category 5 is the one most frequently used in classroom observation.

Category 6, *Giving Direction*. The decision about whether or not to classify the statement as a direction or command must be based on the degree of freedom that the student has in response to teacher direction. When the teacher says, "Will all of you stand up and stretch?" he is obviously giving a direction. If he says, "John, go to the board and write your name," he is giving a direction or command. When he says, "John, I want you to tell me what you have done with your reader," he is still giving a direction.

Category 7, *Critizing or Justifying Authority*. A statement of criticism is one that is designed to change student behavior from nonacceptable to acceptable. The teacher is saying, in effect, "I don't like what you are doing. Do something else." Another group of statements included in this category is one that might be called a statement of defense of self-justification. Such a statement is particularly difficult to detect when a teacher appears to be explaining a lesson or the reasons for doing a lesson to the class. If the teacher is explaining himself or his authority, defending himself against the student, or justifying himself, the statement falls in this category. Other kinds of statements that fall in this category are those of extreme self-reference or those in which the teacher is constantly asking the children to do something as a special favor to the teacher.

Categories 1 through 4, those of indirect teacher influence, and categories 5 through 7, those of direct teacher influence, have been described. They are all categories of teacher talk. Whenever the teacher is talking, the statements must be categorized in one of the first seven categories. If the observer decides that, with a given statement, the teacher is restricting the freedom of the children, the statement is tallied in categories 5, 6, or 7. If, on the other hand the observer decides that the teacher is expanding freedom of children, the category

used is either 1, 2, 3, or 4.

There are three additional categories for use in classroom interaction:

Category 8, *Student Talk.: Response*. This category is used when the teacher has initiated the contact or has solicited student statements, when the student answers a question asked by the teacher, or when he responds verbally to a direction the teacher has given. Anything that the student says that is clearly in response to initiation by the teacher belongs in category 8.

Category 9, *Student Talk: Initiation*. In general, if the student raises his hand to make a statement or to ask a question when he has not been prompted to do so by the teacher, the appropriate category is 9.

Distinguishing between Categories 8 and 9 is often difficult. Predicting the general kind of answer that the student will give in response to a question from the teacher is important in making this distinction. If the answer is of a type predicted by the observer (as well as the teacher and class), then the statement comes under Category 8. When, in response to a teacher-question, the student gives an answer different from that which is expected for that particular question, then the statement is categorized as 9.

Category 10, *Silence or Confusion*. This category includes anything else not included in the other categories. Periods of confusion in communication, when it is difficult to determine who is talking, are classified in this category.

The Flanders system of interaction analysis was originally used as a research tool and continues in this capacity to a very large extent in present day research. The procedure for categorizing teacher-pupil interaction was as follows:

Every three seconds the observer wrote down the category number of the interaction he had just observed. He recorded these numbers in sequence on an observation tally sheet. (An example of an observation tally sheet is shown in Appendix A). He would record approximately twenty numbers per minute; thus, at the end of twenty minutes of time, he would have about four hundred tallies recorded. It was important that his tempo be as steady as possible, but of greater importance was his accuracy in recording. He would also write down marginal notes from time to time to indicate a change in activity or an explanation of the classroom procedure. Eventually, the categories are entered in a ten-row by ten-column table called a matrix (see Appendix A), which provides for convenient analysis of the data.

Each square on the matrix is referred to as a cell, and these cells may be either of a transitional nature, or may indicate steady-state behavior. The matrix provides the observer

with a convenient contrivance for analysis of the summarized pupil-teacher interaction data. Table 6 relates the interaction more specifically in terms of certain areas of the matrix.

The "content cross" (Table 6) area shows teacher statements consisting primarily of lecture, statements of opinion, ideas and information, as well as teacher-questions about information and content that has been presented. A heavy concentration of tallies in this area indicates an emphasis on the content.

Area E (Table 6) depicts the emphasis that the teacher gives to using student ideas, extending and amplifying student statements and accepting and enlarging upon student feelings. It also includes stages of transition from one of these areas to the other.

Area F (Table 6) denotes the cells representing the teacher's emphasis on criticism, giving lengthy direction, or moving from one of these types of influence to the other. Tabulations in this area seemingly indicate extended direct influence on the part of the teacher and heavy focus on the teacher's use of authority. A concentration in this area could indicate discipline problems or problems of student rejection of teacher influence.

Area G (Table 6) indicates the indirect responses to student comment. Area G_2 (Table 6) represents the direct responses to student comment. A comparison of the relative

number of tallies in these two areas denotes the pattern of behavior used by the teacher in response to students at the time a student refrains from talking.

Areas H and I (Table 6) relate to student talk. Area H shows the kinds of teacher statements that serve to stimulate student talk. Area I represents student talk of two types: extended talk by one student and continuous talk by several students. In both cases the talk is not interposed by teacher talk.

Statistical Treatment of the Data

In seeking answers to the questions posed in Chapter I, the following statistical procedures were utilized:

The t test was used to analyze the mean differences between the autumn and spring interaction analysis frequency tabulations. The t test was also used to analyze the mean differences of percentages in the "content cross" area of the matrix, the indirect and direct area of the matrix and the student or teacher verbal participation. The t test was further used to test the differences between the autumn and spring interaction analysis observations revealing the indirect/direct influence ratio of teachers in both the control and experimental schools in addition to the revised indirect/direct ratio of influence.

Analysis of covariance was used for additional analysis

of the interaction analysis matrix to indicate the differences found as a result of using teacher aides. Analysis of covariance was chosen to ensure that the results observed may be attributed within limits of error to the treatment variable, teacher aide, and to no other causal circumstance. Since it would be impracticable to move teacher differences, the statistical method of analysis of covariance was used to "control" or "adjust for" the effects of the uncontrolled variable.

According to Ferguson (1966), this "adjustment" permits a valid evaluation of the outcome of the experiment. The analysis of covariance was used to remove the bias introduced by differences in the initial interaction analysis observations between the control and experimental schools, and permit the making of unbiased comparisons between the control and the experimental groups.

CHAPTER IV

ANALYSIS AND RESULTS

The order of the questions proposed in Chapter I is followed in the organization of analysis and presentation of the results in this chapter. These questions were transformed into testable hypotheses stated in the null form. An alternative hypothesis was given for predicting the direction of the change. The data used in testing each hypothesis are followed by a summary of the results.

The Influence of Teacher Aides on Communication Patterns of Classroom Teachers

The questions relating to the ten categories of classroom behavior, the concentration of tallies in the "content cross," the extended indirect influence, and the extended direct influence will be evaluated in the four sections which follow.

Classroom Behavior as Indicated by Interaction Analysis Observation

The question of whether the employment of teacher aides has an effect on the teacher's classroom behavior is analysed by testing the null hypothesis of no significant difference between the means of fall and spring interaction analysis observations for the control and/or experimental teacher groups. The following ten categories were used in this analysis:

1. Accepts Student Feelings
2. Praises or Encourages
3. Accepts Student Ideas
4. Asks Questions
5. Lecturing
6. Giving Directions
7. Criticizing or Justifying Authority
8. Student Talk: Response
9. Student Talk: Initiation
10. Silence or Confusion

The alternative hypothesis tested is that the mean tallies recorded will increase from the fall interaction analysis observation to the spring observation in categories 1, 2, 3, 4, 8 and 9; and will decrease in categories 5, 6, 7 and 10.

A significance level $\leq .05$ was set a priori to test the null hypothesis in the analysis of this question.

The analysis of the question relating to teachers' classroom behavior is reported in Tables 7 and 8.

TABLE 7

THE DIFFERENCE BETWEEN MEAN FREQUENCY TALLIES IN THE TEN CATEGORIES OF CLASSROOM BEHAVIOR FOR THE EXPERIMENTAL GROUP OF TEACHERS USING THE t TEST.

Category	Fall Observation		Spring Observation		t	P
	N	Mean	N	Mean		
1. Accepts Feelings	59	.71	50	.98	.75	NS
2. Praises or Encourages	59	7.02	50	5.24	1.05	NS
3. Accepts Student Ideas	59	16.61	50	15.98	.14	NS
4. Asks Questions	59	54.59	50	54.82	.02	NS
5. Lecturing	59	90.26	50	100.30	.43	NS
6. Giving Directions	59	25.34	50	19.62	1.00	NS
7. Criticizing	59	6.05	50	4.28	1.17	NS
8. Student Talk--Response	59	54.09	50	86.72	1.97	.05
9. Student Talk--Initiation	59	55.20	50	42.12	.99	NS
10. Silence or Confusion	59	40.68	50	39.88	.08	NS

TABLE 8

THE DIFFERENCE BETWEEN MEAN FREQUENCY TALLIES IN THE
TEN CATEGORIES OF CLASSROOM BEHAVIOR FOR THE
CONTROL GROUP OF TEACHERS
USING THE t TEST

Category	Fall Observation		Spring Observation		t	P
	N	Mean	N	Mean		
1. Accepts Feelings	69	0.46	66	1.14	1.43	NS
2. Praises or Encourages	69	6.52	66	4.62	1.47	NS
3. Accepts Student Ideas	69	21.54	66	22.33	.16	NS
4. Asks Questions	69	72.58	66	67.94	.35	NS
5. Lecturing	69	84.86	66	86.73	.10	NS
6. Giving Directions	69	23.32	66	23.95	.26	NS
7. Criticizing	69	3.41	66	2.42	1.22	NS
8. Student Talk--Response	69	93.99	66	86.36	.42	NS
9. Student Talk--Initiation	69	39.99	66	31.62	.88	NS
10. Silence or Confusion	69	36.87	66	49.56	1.25	NS

The t score for Category 8, student talk--response, was found to be significant at the .05 level for the experimental teacher group. The null hypothesis of no difference between the means of the fall and the spring interaction analysis observations for the experimental teacher groups was rejected. The alternative hypothesis that the mean tallies would increase from the fall interaction analysis observation to the spring observation in Category 8, student talk in response to teacher questioning, was tenable.

Table 8 indicates that there was no significant change in any of the ten categories of interaction analysis in the control teachers' groups. Tables 7 and 8 reveal that the only significant change in schools employing teachers aides was in Category 8. This indicates, therefore, that ^{in this experiment,} teachers using teacher aides elicit ^{ed} more student response than teachers not utilizing teacher aides. Cumulative

tally tabulation percentages are reported for both teacher groups, by fall and spring analysis in Appendix C.

Changes in Concentration of Tallies in the "Content Cross" Area of the Matrix

An analysis of the question concerning change in the "content cross" area of the matrix when teacher aides are utilized is reported in Table 9. The null hypothesis of no difference in mean percentages

TABLE 9

THE DIFFERENCE BETWEEN MEAN PERCENTAGES OF TIME SPENT BY TEACHERS IN THE "CONTENT CROSS" AREA OF THE MATRIX USING THE t TEST

Groups	N	Fall Mean	N	Spring Mean	t	P
Experimental	59	53.20	50	52.96	.067	NS
Control	59	57.15	66	56.06	.357	NS

in the "content cross" area of the matrix was retained in both the experimental and control teacher groups. This table, therefore, indicates no significant change in the number of tallies in the "content cross" area of the matrix. This finding would indicate that teacher statements consisting primarily of lecture, statements of opinion, ideas and information; and teacher questions about information and content have not changed to any large extent as a result of using teacher aides.

To further examine the foregoing question regarding the "content cross", an analysis of covariance was computed. Table 10 indicates the results of the analysis of covariance relating to the

"content cross" area of the matrix.

TABLE 10

ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS ON
"CONTENT CROSS" SPRING OBSERVATION USING FALL
OBSERVATION AS THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	1,185,200	1,185,280	.39
Within	98	301,156,400	3,073,024	
Total	99	302,341,600		

F, not significant

Table 10 indicates that no difference exists between the mean percentages of control and experimental groups in the "content cross" area of the matrix. The null hypothesis was retained.

Changes in Extended Indirect Influence

The questions regarding the utilization of teacher aides and their effect on extended indirect influence in the classroom ^{were} ~~was~~ analyzed by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observations in the percentage of time devoted to extended indirect influence on the part of the classroom teacher. The alternative hypothesis tested was that the extended indirect influence will increase when teacher aides are used. The analysis of this question is reported in Table 11.

TABLE 11

THE DIFFERENCE BETWEEN MEAN PERCENTAGE OF TIME DEVOTED TO
EXTENDED INDIRECT INFLUENCE USING THE t TEST

Groups	Fall		Spring		t	P
	N	Mean	N	Mean		
Experimental	59	1.56	50	2.18	1.52	NS
Control	69	2.16	66	2.62	.80	NS

The null hypothesis of no difference between the fall and spring observation in the percentage of time devoted to extended indirect influence was retained. Further analysis of ~~this~~ ^{these} data was made by an analysis of covariance revealed in Table 12.

TABLE 12

ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS
FOR EXTENDED INDIRECT INFLUENCE ON THE SPRING
OBSERVATIONS USING THE FALL OBSERVATION
AS THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	125,070	125,070	1.18
Within	98	10,376,280	105,880	
Total	99	10,501,350		

F, not significant

Table 12 indicates that no difference exists between the mean percentages of control and experimental groups in the teacher's extended indirect influence. The null hypothesis was retained.

Changes in Extended Direct Influence

An analysis of the question concerning change in the teacher's extended direct influence was analyzed by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observations in the percentage of time devoted to extended direct influence on the part of the classroom teacher. The alternative hypothesis tested was that the extended direct influence will decrease when teacher aides are used. The analysis of this question is reported in Table 13.

TABLE 13

THE DIFFERENCE BETWEEN MEAN PERCENTAGES OF TIME DEVOTED TO EXTENDED DIRECT INFLUENCE USING THE *t* TEST

Groups	Fall		Spring		<i>t</i>	P
	N	Mean	N	Mean		
Experimental	59	5.12	50	3.96	1.47	.10
Control	69	3.19	66	3.30	.17	NS

Since the .05 level of significance was chosen a priori, the null hypothesis of no significant difference between the fall and spring observation in the percentage of time devoted to extended direct influence was retained. Although there was some indication that the teacher's emphasis on criticism or giving lengthy direction

had increased as a result of using teacher aides, the difference was not of sufficient size to indicate a significant change. To further analyze the data, an analysis of covariance was tested and is reported in Table 14.

TABLE 14

ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS
FOR EXTENDED DIRECT INFLUENCE ON THE SPRING OBSERVATION
USING THE FALL OBSERVATION AS THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	77,980	77,980	.39
Within	98	19,373,540	197,689	
Total	99	19,451,520		

F, not significant

Table 14 indicates that no significant difference exists between the mean percentages of the control and experimental groups in the teacher's extended direct influence. The null hypothesis was retained.

The Influence of Teacher's Aides on the Patterns
of Student/Teacher Interactions

The question regarding total student verbal participation, indirect teacher response following student talk, direct teacher response following student talk, student talk following teacher talk, and the amount of silence or confusion following student or teacher talk will be evaluated in the four sections which follow.

An analysis of the question regarding change in student verbal participation when teacher's aides are utilized was analyzed by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observations in the percentage of total student verbal participation as a result of using teacher aides. The alternative hypothesis tested was that the percentage of total student verbal participation would increase as a result of using teacher aides. The analysis of this question is reported in Table 15.

TABLE 15

THE DIFFERENCE BETWEEN MEAN PERCENTAGES OF TIME SPENT BY STUDENTS IN TOTAL VERBAL PARTICIPATION IN CLASSROOM USING THE t TEST

Groups	Fall		Spring		t	P
	N	Mean	N	Mean		
Experimental	59	31.21	50	33.76	.82	NS
Control	69	34.98	66	31.39	1.50	.10

The .05 level of significance was chosen a priori; thus, the null hypothesis of no significant difference between the fall and spring interaction analysis observation in the percentage of total student verbal participation as a result of using teacher aides was retained. Although no significant change was found, it is noteworthy that in the schools using teacher aides, there was a small increase in student participation. Further analysis also reveals that in the schools not using teacher aides there was an actual

decrease in the percentage of time, from the fall to the spring observations, in total student participation. The analysis of covariance was also tested on this question of total student participation and is shown in Table 16.

TABLE 16
ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS
FOR STUDENT TOTAL VERBAL PARTICIPATION ON THE SPRING
OBSERVATION USING THE FALL OBSERVATION
AS THE COVARIATE

Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	512,032,800	512,032,800	3.01
Within	98	16,674,300,000	169,870,400	
Total	99	17,159,332,800		

F, not significant

Table 16 indicates that no significant difference exists between the mean percentages of the control and experimental groups in the student's total verbal participation. The null hypothesis was retained.

Changes in Indirect Teacher Response Following Student Talk

The analysis of the question concerning change in indirect teacher response following student talk was analyzed by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observations of indirect teacher response following student talk as a result of using teacher aides. The

alternative hypothesis tested was that the percentage of indirect teacher responses would increase following student talk as a result of using teacher aides. The analysis of this question is reported in Table 17.

TABLE 17
THE DIFFERENCE BETWEEN MEAN PERCENTAGES OF INDIRECT TEACHER RESPONSES FOLLOWING STUDENT TALK USING THE t TEST

Groups	N	Fall Mean	N	Spring Mean	t	P
Experimental	59	6.87	50	8.23	1.85	.05
Control	69	10.67	66	9.65	1.23	NS

Table 17 indicates a significant mean score change for the experimental teacher group at the .05 level. Therefore, the null hypothesis of no significant difference between mean percentages of indirect teacher response following student talk when aides were used was rejected. The alternative hypothesis that the percentage of indirect teacher responses following student talk would increase when using teacher aides was tenable. This would indicate that teachers using teacher aides respond with more acceptance of feelings, more praise and encouragement, more acceptance of student ideas, and more questioning following student talk, *than teachers not using aides.* Table 17 further indicates a non-significant mean score change for the control group teachers, and the null hypothesis of no significant difference between fall and spring observations was retained for this group.

To test whether initial differences in uncontrolled teacher variables accounted for the significance reported in Table 17, an analysis of covariance was utilized to ascertain whether a significant difference was found between control and experiment teacher groups. This analysis is reported in Table 18.

TABLE 18

ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS
FOR INDIRECT STUDENT RESPONSES FOLLOWING TEACHER TALK
ON THE SPRING OBSERVATION USING THE FALL
OBSERVATION AS THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	1,753,160	1,753,160	9.26
Within	98	18,546,780	189,250	
Total	99	20,299,940		

Significance level established at 6.96, .01 level

Table 18 indicates that after the initial uncontrolled variables of teachers differences were controlled through statistical treatment, the null hypothesis of no significant difference between the fall and spring interaction analysis observation as a result of using teacher aides was rejected at the .01 level. The alternative hypothesis that the percentage of indirect teacher responses following student talk would increase more for the experimental teacher group than for the control teacher group was found tenable.

Changes in Direct Teacher's Response
: Following Student Talk

An analysis of the question regarding change in direct teacher response following student talk was analyzed by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observations of direct teacher responses following student talk as a result of using teacher aides. The alternative hypothesis tested was that the percentage of direct teacher responses would decrease following student talk as a result of using teacher aides. The analysis of this question is reported in Table 19.

TABLE 19

THE DIFFERENCE BETWEEN MEAN PERCENTAGES OF DIRECT TEACHER
RESPONSES FOLLOWING STUDENT TALK USING THE t TEST

Groups	N	Fall Mean	N	Spring Mean	t	P
Experimental	59	3.19	50	2.75	1.32	NS
Control	69	4.19	66	3.21	2.54	.01

Table 19 indicates that the t score for the experimental group was found to be non-significant at the .05 level; thus, the null hypothesis of no significant difference between the fall and spring observations of direct teacher response following student talk for teachers using teacher aides was retained. Table 19 further indicates that teachers in the control schools had a significant decrease in the amount of direct teacher response following student talk. This would

indicate that the variable of teacher aides would not be a contributing factor in the teacher's change in directness of response. For further analysis, the analysis of covariance is reported in Table 20.

TABLE 20

ANALYSIS OF COVARIANCE ON CONTROL AND EXPERIMENTAL GROUPS
FOR DIRECT STUDENT RESPONSES FOLLOWING TEACHER TALK
ON THE SPRING OBSERVATION USING THE FALL
OBSERVATION AS THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	35,455	36,455	1.22
Within	98	2,930,336	29,901	
Total	99	2,966,791		

F, not significant

Although there was a significant difference for the control schools when comparing means with the t test, the analysis of covariance in Table 20 indicates no significant differences between the control and experimental groups. The null hypothesis of no difference was retained.

Silence or Confusion Following Student or Teacher Talk

An analysis of the question regarding the amount of silence or confusion following student or teacher talk was analyzed by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observations as a result of using teacher

aides. The alternative hypothesis tested was that the percentage of silence or confusion following student or teacher talk would decrease as a result of using teacher aides. The analysis of this question is reported in Table 21.

TABLE 21

THE DIFFERENCE BETWEEN THE MEAN PERCENTAGES OF SILENCE OR CONFUSION FOLLOWING STUDENT OR TEACHER TALK USING THE t TEST

Groups	N	Fall Mean	N	Spring Mean	t	P
Experimental	59	5.24	50	4.37	1.39	NS
Control	69	4.48	66	3.70	1.76	NS

The null hypothesis of no significant difference in the amount of silence or confusion following student or teacher talk between the fall and spring interaction analysis observations in schools using teacher aides was retained. This does not indicate that there was more or less silence or confusion in the classroom as a whole, but merely no change in the amount of silence or confusion following statements made by students or teachers. For further analysis of the question concerning silence or confusion following student or teacher talk, an analysis of covariance is reported in Table 22.

The analysis of covariance shows no significant difference between the control and experimental groups which indicates that teacher aides have no significant effect on the amount of silence or confusion following student or teacher talk. The null hypothesis was retained.

TABLE 22

ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS
ON SILENCE OR CONFUSION FOLLOWING STUDENT OR TEACHER
TALK ON THE SPRING OBSERVATION USING THE FALL
OBSERVATION AS THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	60,555	66,555	.77
Within	98	7,748,652	79,068	
Total	99	7,809,207		

F, not significant

Direct or Indirect Verbal Practices of
Teachers Using Teacher Aides

The questions relating to indirect/direct ratio of communication and revised indirect/direct ratio of communication will be evaluated in the two sections which follow. The analysis tests a ratio relationship of the indirectness of a teacher to his directness.

Changes in the Indirect/Direct Ratio of Communication
as a Result of Using Teacher Aides

An analysis of the question regarding change in the teacher's indirect/direct ratio of communication was analyzed by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observation of teacher's indirect/direct communication ratio as a result of using teacher aides. The alternative hypothesis tested was that the indirect/direct ratio of communication between the fall and spring observations would increase as a

result of using teacher aides. The analysis of this question is reported in Table 23.

TABLE 23
THE DIFFERENCE BETWEEN THE MEAN INDIRECT/DIRECT RATIO
OF TEACHER COMMUNICATION USING THE t TEST

Groups	N	Fall Mean	N	Spring Mean	t	P
Experimental	59	.90	50	.90	.04	NS
Control	69	1.29	66	1.20	.47	NS

The null hypothesis of no significant difference between the fall and spring interaction analysis observation of teachers' indirect/direct ratio of communication as a result of using teacher aides was retained. Examination of the means of both the control and experimental groups show almost identical means between the two observations.

A mean ratio of almost 1.00 indicates that teachers in both the control and experimental schools responded on the average with one direct statement for every indirect statement. The higher the ratio, the more indirect the teacher was. A further analysis of the indirect/direct ratio was made by an analysis of covariance is reported in Table 24.

The analysis of covariance shows no significant difference between the control and experimental groups. This indicates that teacher aides had no significant effect on teachers' directness or indirectness. The null hypothesis was retained.

TABLE 24

ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS
ON THE INDIRECT/DIRECT RATIO OF TEACHER COMMUNICATION
ON THE SPRING OBSERVATION USING THE FALL
OBSERVATION AS THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	2.0727	2.0727	2.66
Within	98	76.2704	.7783	
Total	99	78.3432		

F, not significant

Changes in the Revised Indirect/Direct Ratio of Communication
as a Result of Using Teacher Aides

An analysis of the question regarding change in the teacher's revised indirect/direct ratio of communication was studied by testing the null hypothesis of no significant difference between the fall and spring interaction analysis observation as a result of using teacher aides. The alternative hypothesis tested was that the revised indirect/direct ratio of communication between the fall and spring observations would increase as a result of using teacher aides. The analysis of this question is reported in Table 25.

The null hypothesis of no significant difference between the fall and spring interaction analysis observation of teachers' revised indirect/direct ratio of communication as a result of using teacher aides was retained. This indicates that teachers using teacher aides made no significant change in their approach to motivation and control. The revised ratio eliminates the effects of categories

TABLE 25

THE DIFFERENCE BETWEEN THE MEAN REVISED INDIRECT/DIRECT
RATIO OF TEACHER COMMUNICATION USING THE t TEST

Groups	Fall		Spring		t	P
	N	Mean	N	Mean		
Experimental	59	2.50	50	2.77	.28	NS
Control	69	2.81	66	2.88	.10	NS

4 and 5, asking questions and lecturing. It is more concerned with motivation and control and less concerned with the actual presentation of subject matter. Table 26 provides a further analysis of the revised indirect/direct ratio through the analysis of covariance statistical procedure.

TABLE 26

ANALYSIS OF COVARIANCE FOR CONTROL AND EXPERIMENTAL GROUPS
ON THE REVISED INDIRECT/DIRECT RATIO OF TEACHER
COMMUNICATION ON THE SPRING OBSERVATION
USING THE FALL OBSERVATION AS
THE COVARIATE

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
Between	1	37.604	37.604	2.43
Within	98	1515.056	15.460	
Total	99	1552.660		

F, not significant

The analysis of covariance shows no significant difference between the control and experimental groups which indicates that

teacher aides have no significant effect on the teacher's approach to motivation and control. The null hypothesis was therefore retained.

CHAPTER V

SUMMARY, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Summary of the Problem

The purpose of this study was to determine whether the use of teacher aides would show any change in teachers' patterns of communication. With the assumption that teacher aides would allow teacher more time to interact more effectively with their pupils, Flanders' system of interaction analysis was used to give a quantitative and reliable account of the type of verbal behavior in the classroom.

The research questions presented for investigation were as follows:

1. Does the availability of teacher aides influence the basic communication patterns of selected classroom teachers?

a) Is there is a significant change, from the fall to the spring intereaction analysis observations, in the number of tallies in each of the ten categories of classroom behavior for the experimental teacher group and/or the control teacher group?

b) Does the concentration of tallies in the "content cross" area of the matrix change when teacher aides are utilized?

c) Does the extended direct influence change as a result

of using teacher aides?

d) Does the teacher's extended direct influence change as a result of using teacher aides?

2. Does the pattern of student/teacher interaction change as a result of the availability of teacher aides?

a) Is there a significant change in student verbal participation when teacher aides are used by teachers?

b) Is there a significant change in indirect teacher response following student talk when teacher aides are used by the teacher?

c) Is there a significant change in direct teacher response following student talk when teacher aides are used by the teacher?

d) Does the amount of silence or confusion following student or teacher talk change with the availability of teacher aides?

3. Does the availability of teacher aides influence the direct or the indirect verbal practices of teachers?

a) Does the teacher's indirect/direct ratio of communication change as a result of these teachers using teacher aides?

b) Does the revised teacher's indirect/direct ratio change as a result of using teacher aides?

Summary of the Methodology and Procedures

Six Grand Forks Public School District Schools were chosen for the population of this study. Three schools were chosen as the

experimental schools and these were paired with three control schools. Schools were paired by such factors as school plant, student enrollment, and student/teacher ratio.

One-hundred twenty eight teachers were chosen from the six schools in the fall of the 1967-68 school term. This group included all teachers teaching in the fields of language arts, social studies, mathematics, and science in grades one through nine. Special subject area teachers, librarians, and counselors were omitted because of the difficulty in scheduling. One-hundred sixteen teachers were available for the spring interaction analysis observation. This decrease was due to staff turnover; therefore, in order to give a fair evaluation of teacher aide effects, new teachers were not observed.

Ten observers, trained in the techniques of Flanders' system of interaction analysis, were sent to the six schools to collect data on the teachers included in the population in the fall of the year. Upon entering the classroom for an observation and orienting himself to the classroom setting, the observer recorded such information as grade level, subject area, and other data pertinent to the lesson that had been presented. Each observation was at least thirty minutes in duration with many that required one hour of time. The foregoing procedure was again followed in the spring of the year after teachers had been working with teacher aides for the ^{remainder} ~~duration~~ of the school term.

The data collected ^{were} ~~was~~ recorded on scanner sheets and subsequently reproduced into ten-column by ten-row matrices by the Model 360 International Business Machines Computer at the

University of North Dakota Computer Center at Grand Forks, North Dakota for future analysis.

The statistical techniques employed in the analysis of the data were t tests for comparing mean changes between the fall and the spring observations and analysis of covariance for differences between the control and experimental teachers.

Summary of the Findings

The following results were based on statistical differences as well as differences which were obvious from an inspection of the data. An attempt has been made to present the findings in as concise a form as possible; therefore, the reader is directed to Chapter IV for more comprehensive findings.

Findings Related to Teacher's Classroom Behavior

1. No significant difference was found between teachers using teacher aides and those teachers not using teacher aides in each of the following categories of interaction analysis:

- a) Accepts student feelings
- b) Uses student ideas
- c) Accepts student ideas
- d) Asks questions
- e) ^{Lectures} ~~Lecturing~~
- f) ^{ES} Giving directions
- g) ^{ES} Criticizing or ^{ES} justifying authority
- h) Student talk--self initiated
- i) Silence or confusion

2. Teachers using teacher aides allowed student talk in response to questioning significantly more than those teachers not using teacher aides.

3. No significant difference is found ^{between} by teachers using teacher aides as opposed to those not using teacher aides in the "content cross" area of the matrix.

4. No significant difference was found in the use of extended indirect influence by teachers using teacher aides.

5. No significant difference was found in the use of extended direct influence by teachers using teacher aides.

Findings Related to Patterns of Student/Teacher Interactions

1. No significant difference was found between the total student verbal participation in the classroom as a result of using teacher aides.

2. Teachers using teacher aides showed a significant increase in the amount of indirect teacher response following student talk.

3. No significant difference was found in the amount of direct teacher responses following student talk when teacher aides were utilized.

4. No significant difference was found in the amount of silence or confusion following teacher talk by teachers using teacher aides.

Findings Related to Direct or Indirect Practices of Teachers

1. No significant difference was found in the teacher's

indirect/direct ratio of communication as a result of using teacher aides.

2. No significant difference was found in the teacher's revised indirect/direct ratio of communication as a result of using teacher aides.

Discussion and Implications

As has been stated in Chapter I, the purpose of this study was to determine whether the use of teacher aides will show any change in a teacher's pattern of communication. While one must be aware that it is often easy to come to unjustified conclusions and make broad generalizations about groups at the detriment of individual teachers, the following general statements seemed relevant both from an investigation of the statistical results and from personal observations.

Teacher's Classroom Behavior

One of the most significant findings of this study was that teachers utilizing teacher aides made a significant change in the amount of time they allowed for student response. This would seem to be an indication that when teacher aides were available, the teacher had more time to devote to lesson and question preparation. This added time has possibly allowed the teacher more time in the preparation of lessons that would elicit more student responses.

Categories six and seven, giving directions and criticizing or justifying authority, decreased to some extent, although the decrease was not of sufficient size to indicate significance. This would seem to imply that with teacher aides available, the teachers had become somewhat less direct in their relations with students.

The categories of asking questions, lecturing, and silence or confusion showed no appreciable amount of difference. Since Flanders (1960) and others found that very little difference exists in direct or indirect teachers in the amount of time teachers spend in these categories, it was not surprising to find that little difference was found.

The area of the matrix called the "content cross" showed no significant change as a result of utilizing teacher aides. This finding would indicate that teacher statements consisting mainly of lecture, statements of opinion, teacher aides, information and teacher questions about information and content have not changed to any large extent.

An implication concerning teacher behavior seems^{ed} relevant when considering teacher change. Amidon (1967) found that if teacher change ^{were} ~~was~~ desirable, this change must come from within rather than from outside assistants. He feels that only the teacher can make changes in classroom behavior. Amidon states, "Others may help in the process of change, but they cannot do so unless the teacher himself desires a change." Not only must the teacher have the desire to change, but he must be willing to put forth the effort required, to look at himself objectively, and to accept professional guidance.

The area of the matrix that indicates the amount of extended indirect influence by the teacher did show an appreciable change toward greater indirectness on the part of the teacher. Although the change was not great enough to be of significance, it would indicate that some improvement had been made in ~~the~~ teachers ability to become less direct.

Patterns of Student/Teacher Interactions

When combining the two categories of student verbal participation, the findings revealed that there had been no significant change in the student participation as a result of using teacher aides. Closer examination of the data did reveal that in the control schools there was a decrease in the total amount of student participation; whereas, the experimental schools showed an increase in total student participation.

A very significant finding of this study was in the amount of change in indirect teacher responses following student talk. The study further disclosed that in schools using teacher aides there was an increase in indirect teacher response following student talk. This would denote that teachers using aides would respond to student statements with more acceptance of feelings, more praise and encouragement, more acceptance of student ideas, and more questioning following student talk. ^{than would teachers without aides,} This may imply that teachers who are not exhausted from menial non-teaching tasks were more receptive and understanding of their pupils feelings, ideas and desires; therefore, they were more prompt to bestow ~~more~~ praise and encouragement.

The findings relating to direct teacher responses following student talk were of interest in that the differences for the experimental group were of no significance, whereas, the control group showed significance. This disclosure would indicate that the variable of teacher aides would not be a contributing factor in the teacher's change in directness of response.

The amount of silence or confusion following student or teacher talk was found to be of no significance regardless of whether the teacher aides were ^{or were not} used or not used. Although both groups showed a decrease in the amount of silence or confusion following student or teacher talk, neither ^{was} were sufficiently large enough to denote any conclusions.

Indirect/Direct Ratio of Verbal Practices

No significant difference was found when testing whether a teacher's indirect/direct ratio of verbal behavior would change as a result of using teacher aides. In interpreting the meaning of the indirect/direct ratio of verbal behavior, a mean ratio of 1.00 would reveal that for every indirect statement made by the teacher there would be one direct statement. Under the assumption that teaching performance improves as the indirect/direct ratio increases, the employment of teacher aides seemingly had no significant effect on this ratio.

Revised Indirect/Direct Ratio Of Verbal Patterns

The revised indirect/direct ratio was employed in order to determine whether the kind of emphasis given to motivation and control by the teacher was more direct or indirect. Analysis of the results revealed that no significance existed between the groups heedless of whether teacher aides were used or not used. These results have shown that in most instances, teachers have not become more indirect in their interactions with pupils as a result of using teacher aides. Again, the implication was made that if teachers wanted to become less direct

in their classroom interactions with children, there must be a concerted effort on their part to bring about the desired change.

Recommendations

Change in classroom behavior can result only from the teacher's desire for change. This study showed that in most instances, behavior change has not resulted ^{from} ~~with~~ the employment of teacher aides. If interaction is to be used as a tool for evaluating change in teacher behavior, a provision for effective feedback should be made. Since no teacher feedback was given to teachers when conducting this study, the results would seem to indicate that feedback is necessary. It is therefore recommended that future research be undertaken in the area of teacher behavior patterns. Programs arranged for helping teachers to interpret their behavior and devise behavior change must have provision for an effective feedback system.

APPENDIX A

TABLE 27

CUMULATIVE TALLY TABULATION PERCENTAGES FOR INTERACTION CATEGORIES OF EXPERIMENTAL AND CONTROL TEACHER GROUPS BY FALL AND SPRING I/A OBSERVATIONS

Category	Fall Experimental	Spring Experimental	Fall Control	Spring Control
1. Accepts Feelings	0.21	0.26	0.12	0.30
2. Praises or Encourages	2.00	1.42	1.70	1.23
3. Accepts Student Ideas	4.73	4.32	5.56	5.96
4. Asks Questions	15.56	14.82	18.92	18.13
5. Lecturing	25.77	27.11	22.13	23.15
6. Giving Directions	7.23	5.30	6.08	4.86
7. Criticizing	1.73	1.16	0.89	0.65
8. Student Talk: Response	15.42	23.44	24.51	23.05
9. Student Talk: Initiation	15.74	11.39	10.43	8.44
10. Silence or Confusion	11.60	10.78	9.61	13.23

APPENDIX B

Observation Matrix

CLASS CODE NO. _____ OBSERVER _____ DATE _____

CATE- GORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1	1	0	0	1	0	0	0	0	0	0	2
2	0	1	0	1	0	0	0	0	0	0	2
3	0	0	0	4	1	0	0	0	0	0	5
4	1	0	0	98	13	2	0	9	36	2	161
5	0	0	0	27	119	1	2	-	3	2	154
6	0	0	0	2	1	4	0	0	1	1	9
7	0	0	0	2	0	0	0	0	0	0	2
8	0	0	1	4	4	0	0	1	0	0	10
9	0	1	4	17	16	2	0	0	8	0	48
10	0	0	0	5	0	0	0	0	0	1	6
TOTAL TALLIES	2	2	5	161	154	9	2	10	48	6	399
%	0.51	0.51	1.26	40.36	38.60	2.26	0.51	2.51	12.04	1.51	
of											
Total	Teacher Total:						Student Total		Si- lence		

I/D =

i/d =

Steady State =

Content Cross =

APPENDIX C

The University of North Dakota

GRAND FORKS 58201

June 30, 1967

Dear Sir:

I am doing a study at the University of North Dakota concerning the legal status of subprofessional teacher aides.

I am interested in the laws of your state as they pertain to the legal status of these people. I would like to have a copy of your state's statutes affecting this issue and the latest official interpretation of the law.

I should like to have answers to the following questions:

1. What restrictions are placed on the use of subprofessional teacher aides by state Law?
2. What restrictions are placed on the use of teacher aides by the state department of education?
3. Are certification requirements needed by these subprofessional teacher aides?

Your assistance in this study will be greatly appreciated. A self addressed stamped envelope is enclosed for your convenience.

Sincerely,

Richard Kunkel
Bureau of Educational
Research and Services
University of North Dakota

RK:gb

THE STATE OF NORTH DAKOTA
Department of Public Instruction

July 10, 1967

Mr. Richard Kunkel
Bureau of Educational Research and Services
The University of North Dakota
P.O. Box 8009 University Station
Grand Forks, North Dakota

Dear Mr. Kunkel:

1. According to state law, school districts are required to employ only certified teachers in order to receive Foundation payments and be accredited by the Department of Public Instruction.
2. The Department of Public Instruction applies the law and adheres to the law on both counts, and we do not accept the principle of teacher aides. However, we do accept the utilization or employment of these people if they are really used as sub-professionals in the areas of clerks and secretaries. We feel, and we so inform administrators and boards, that as long as the sub-professional people are used as non-professionals--that is, as clerks and secretaries--there is no problem, but as soon as these people begin to replace the teacher in the classroom, the problems of Foundation money and accreditation begin.
3. Clerks and secretaries need not have teacher certificates, but those who teach, those who act in the capacity of a teacher, must hold valid, current certificates.

Yours sincerely,

DEPARTMENT OF PUBLIC INSTRUCTION

M.F. PETERSON, Superintendent

MFP:cba

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

July 14, 1967

Mr. Richard Kunkel
Bureau of Educational
Research and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

I am in receipt of your questionnaire and offer the information enclosed and noted below with reference to same.

Enclosed is a copy of the Section of the Commissioner's Regulations regarding teacher aides. Persons employed in this capacity are not required to hold certification.

I trust this information will be of value to you. If you have need for additional information do not hesitate to write this office.

Sincerely,

Charles C. Mackey, Jr.

CCM:cc
enc.

AMENDMENT OF THE REGULATIONS OF THE COMMISSIONER OF EDUCATION

ARTICLE XV

TEACHERS CERTIFICATES

149. TEACHER AIDES

1. A teacher aide may be assigned by the Board of Education to assist teachers in such non-teaching duties as:

- a. Managing records, materials and equipment
- b. Attending to the physical needs of children, and
- c. Supervising students and performing such other services as support teaching duties when such services are determined and supervised by teachers.

State of West Virginia
Department of Education

July 12, 1967

Mr. Richard Kunkel
Bureau of Educational Research
and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Thank you for your letter of June 30, 1967 concerning the legal status of subprofessional teacher aides.

In West Virginia the only statute or regulation pertaining to this group of persons was passed this year. It makes legal their hiring and gave them authority over the children when the teacher is not present.

There are no certification requirements for this group.

Sincerely,

R. Neil Chenoweth
State Supervisor
Elementary Schools

RNC:djc

DEPARTMENT OF PUBLIC INSTRUCTION

State of North Carolina

August 4, 1967

Mr. Richard Kunkel
Bureau of Educational Research and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Under separate cover we have sent you already a copy of our publication The Teacher Aide in North Carolina's Comprehensive School Improvement Project. We trust that this will give you most of the information you require about the ways in which aides are being used in this program.

Another publication, on the use of several types of aides in ESEA Title I projects, is now in the works and should be available in a couple of weeks, at which time we will see that a copy is sent you.

Answers to your specific questions were more difficult to run down, but according to those staff members who are most authoritative on these specific matters, they are as follows:

1. No restrictions, up to the present time, are placed by State law on the use of teacher aides and other subprofessional aides.
2. No restrictions, up to the present, are placed by the State Board of Education on the use of such aides.
3. No State certification requirements for aides are in effect.

Of course, this does not imply that aides are actually being employed without restrictions. Actually, the trend has been, in local school units, to circumscribe the appropriate activities of subprofessional personnel. It is felt, however, that the absence of explicit restrictions issued at the State level has permitted

Mr. Richard Kunkel
Page 2
August 4, 1967

considerable flexibility and experimentation in the use of aides. The policy has been to rely upon the judgment of local school administrators in employing aides. Many aides come close to possessing professional qualifications, others are capable only of assisting in routine clerical chores. Encouragement has been given to tailoring the aides' duties to their individual qualifications.

Yours sincerely,

James E. Jackman
Editorial Consultant
Division of Publications
and Public Information

JEJ/jal

STATE OF NEBRASKA
DEPARTMENT OF EDUCATION

July 31, 1967

Mr. Richard Kunkel
Bureau of Educational
Research and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Your letter of June 30 to the Nebraska Department of Education has been referred to this office for reply.

The Statutes of the State of Nebraska are quite clear in requiring that every teacher employed by a school, either public or private, hold for the duration of the contract the appropriate teaching or administrative credential. However, within this framework, the Department of Education does have considerable flexibility in defining a "teacher" and in establishing rules and regulations governing the issuing of teaching certifications. As a result, we have divided the paraprofessionals into two groups, namely teacher aides and teacher assistants.

The job description of the teacher aide provides for doing only noninstructional tasks. Therefore, this person is considered to be more of a clerical employee and is not affected by certification regulations. The teacher assistant will be engaged in actual instruction with pupils, but under the direct supervision of a fully certificated teacher. Such instruction could take the form of small group instruction, remedial instruction, assistance with seat work, etc. This person (the teacher assistant) must have a teaching certificate which is identified as being valid for the position to be assumed.

Since Nebraska has a significant reservoir of teachers with less than degree preparation who have been "nudged out" of teaching because of rising certification regulations, we believe that this constitutes an ideal source for our teacher assistants. Therefore, we are revising the regulations governing the non-degree teaching certificates that are still issued to permit the holder of such a non-degree certificate (based on a minimum of 60 semester hours of credit accepted toward the requirements for a baccalaureate degree in elementary education) to serve as a

July 31, 1967

teacher assistant in the elementary schools in any school district in Nebraska.

The plans for teacher assistants at the secondary level are not so well developed. However, we believe that we have the flexibility to develop a structure not unlike that which has been designed for the teacher assistant at the elementary level.

As you can tell, our department has not placed any restrictions other than those outlined above on the use of either category of paraprofessional in the structuring of the teaching team in Nebraska schools. Quite on the contrary, the Department of Education has taken the position of encouraging schools to give serious consideration to the utilization of such personnel. While most of the paraprofessionals employed to date have been funded through Federal Programs, basically ESEA Title I, we do have a number of school districts that are employing paraprofessionals using local district funds.

I hope this information will be of some assistance to you in your study.

Sincerely,

Leonard C. Skov, Director
Teacher Education

LSC:ls

STATE OF LOUISIANA
DEPARTMENT OF EDUCATION

July 18, 1967

Mr. Richard Kunkel
Bureau of Educational
Research and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Thank you for your letter of June 30, 1967.

At the present time Louisiana does not have certification requirements for subprofessional teacher aides. Louisiana is studying this aspect of certification at present.

If this office can be of further service, please let me know.

Sincerely yours,

James DeLee, Director
Teacher Education, Certification,
and Placement

JD/hmm

State of Arizona
Department of Public Instruction

July 17, 1967

Mr. Richard Kunkel
Bureau of Education, Research, and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

The Arizona State Board of Education has developed no standards for sub-professional teachers aids and no certification for them is either planned or presently in force. Teacher aids may be used at the option of individual school districts in the state and must be paid under the heading "Classified Personnel." Standards for these aids are therefore developed by individual districts for their own personnel.

Arizona State law provides for the authority of the Arizona State Board of Education in all matters of standards of certification for school personnel.

Sincerely yours,

George E. Booth, Jr.
Assistant Director

GEB/ph

STATE OF NEVADA

Department of Education

Mr. Richard Kunkel
Bureau of Educational Research and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Replying to your letter of June 30th, the following was added to Nevada Statutes 1967:

"The board of trustees of a school district:

(a) May employ teacher aides and other auxiliary, nonprofessional personnel to assist certificated personnel in the instruction or supervision of children, either in the classroom or at any other place in the school or on the grounds thereof. Such noncertificated personnel shall be given direct supervision by certificated personnel in all duties which are instructional in nature but may perform duties which are not primarily instructional in nature without a certificated person in attendance.

(b) Shall establish policies governing the duties and performance of teacher aides."

The certification bureau is working toward establishment of certificate criteria for teacher aides.

Sincerely,

Lincoln W. Liston
Assistant Superintendent

LWL/fsb

STATE OF GEORGIA

July 14, 1967

Mr. Richard Kunkel
Bureau of Educational
Research and Services
The University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

At the present time Georgia does not have any plan or policies for subprofessional teacher aides. We are moving into this area as soon as we can develop State Board of Education policies.

Your study is of interest to us. Will you please let us have a copy of your findings when your study is completed.

When we can be of service to you, please call on us.

Sincerely yours,

John A. Wimpey, Director
Teacher Education
and Certification

JAW:aw

UTAH STATE BOARD OF EDUCATION

Salt Lake City, Utah 84111

July 1967

Richard Kunkel
Bureau of Educational
Research and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

In response to your recent inquiry relative to teacher aides, I am enclosing a recent tentative statement of policy adopted by the Utah State Board of Education. It is currently our feeling that these sub-professional type positions should not require certification. We are keeping a close eye on development, however, and may revise our position in the light of experience both in our own state and developments in other states as well.

We would be very interested in the results of your survey if it is possible for us to obtain a copy.

Very truly yours,

Vere A McHenry
Specialist, Teacher Personnel
and Professional Relations

VAM:spa

KANSAS STATE DEPARTMENT OF PUBLIC INSTRUCTION

Kansas State Education Building

Mr. Richard Kunkel
Bureau of Educational Research
and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Kansas has not legally recognized subprofessional teacher aides. Anyone who teaches must hold a certificate under present laws and regulations.

We are of the opinion that we will need to explore this field and probably make some statutory recommendations and supplement these by appropriate rules and regulations in the near future.

A copy of your finding will be appreciated.

Sincerely,

Murle M. Hayden
Assistant State Superintendent
of Public Instruction

MMH:bm

State of Iowa
DEPARTMENT OF PUBLIC INSTRUCTION

Richard Kunkel
Bureau of Educational
Research and Services
Box 8009 University Station
The University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Your recent letter to this office concerning legal status of subprofessional teacher aides has been referred to me for reply.

Please be advised that current regulations of the Iowa State Board of Public Instruction provide for two classes of subprofessional personnel. The second of these classes, the teacher aide, is broadly interpreted as an individual who will perform clerical services in the school district. Therefore, this person would not need to hold a certificate issued by the State Board of Public Instruction. This first class is the teacher associate.

The State Board of Public Instruction has recently adopted standards relating to the certification of teacher associates, individuals who can perform supervisory services in local school districts. To be eligible for this certificate, an applicant must have completed 60 semester hours of college credit at a recognized institution. However, these rules must be submitted to the Iowa Departmental Rules Review Committee and the office of the Attorney General for consideration before they can be adopted and put into effect. If you would be willing to contact this office later this fall we would be able to provide you with a copy of the exact statutes effecting this issue.

Cordially,

Orrin Nearhoof
Director, Division of
Teacher Education and Certification

ON:dms

STATE OF MONTANA
DEPARTMENT OF PUBLIC INSTRUCTION

July 14, 1967

Mr. Richard Kunkel
Bureau of Educational
Research and Services
University of North Dakota
Grand Forks, North Dakota

Dear Mr. Kunkel:

Montant law makes no mention of teacher aides or other auxiliary personnel.

We are in process of developing policies with regard to such persons, but we have no material for distribution as yet. Certification is not now required for non-instructional personnel.

I hope this information will assist you and that you will not hesitate to let us know if we may be of further service.

Sincerely yours,

Vivian Allgaier, Director
Teacher Certification

VA:mm

MARYLAND STATE DEPARTMENT OF EDUCATION

July 13, 1967

Mr. Richard Kunkel
Bureau of Educational Research
and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

I have been asked to reply to your letter of June 30 regarding the status of subprofessional teacher aides in Maryland.

Maryland's certification regulations do not permit employment of teacher aides, laboratory aides, and other instructional aides with preparation less than high school graduation. In many instances high school graduates are employed in these capacities and we issue substitute certificates to cover their employment. Our State salary scale has a specific minimum salary for substitute teachers and teacher aides. These people are employed from year to year and must receive new certificates each year.

Employment of aides is limited to the extent that our State aid regulations limit the number of personnel per school population which may receive funds from the State of Maryland. However, there is no limitation on the number of these people who may be employed beyond this restriction if the counties are interested in supporting these positions from local funds.

Sincerely yours,

M. Rice
Supervisor of Certification

MER:dk

STATE OF MICHIGAN
DEPARTMENT OF EDUCATION

July 27, 1967

Mr. Richard Kunkel
Bureau of Educational Research
University of North Dakota
Box 8009 University Station
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

Your letter requesting information concerning the status of teacher aides in the State of Michigan has been referred to this office for reply.

Michigan Statute is silent concerning the use of teacher aides. However, I am enclosing a photo copy of Attorney General Opinion No. 3647 dated December 27, 1961, which concerns the employment of non-certificated personnel.

The Michigan Teachers Certification Code does provide for the issuance of special certificates for teacher aides. I am also enclosing a copy of that rule.

If the Department can be of any further assistance, please do not hesitate to write.

Sincerely,

Robert E. Olsen
Legislative Consultant

REO/cp
Enclosure

STATE OF MICHIGAN

PAUL L. ADAMS, ATTORNEY GENERAL

SCHOOLS: Discipline--hiring of noncertificated personnel to maintain.

A district board of education may employ persons not qualified to teach to maintain discipline in school lunchrooms and on playgrounds.

Opinion No. 3647

December 27, 1961

Honorable Lynn M. Bartlett
Superintendent of Public Instruction
The Capitol
Lansing, Michigan

By Assistant Attorney General Anderson.

You have asked us whether local school boards may employ non-certificated personnel to maintain discipline in lunchrooms and on playgrounds during lunch hours.

I understand that it is the practice in several school districts to employ housewives, widows and retired persons for this purpose, thus releasing teachers for duties more closely related to the educational process.

Act 269, PA 1955, is known as the School Code of 1955.

Section 574 thereof provides that:

"Every board may employ such assistants and employees as may be necessary and prescribe their duties and fix their compensation."

Section 614 of the School Code provides that:

"Every board shall have authority to make reasonable

rules and regulations relative to anything whatever necessary for the proper establishment, maintenance, management and carrying on of the public schools of such district, including regulations relative to the conduct of pupils concerning their safety while in attendance at school or enroute to and from school."

In 1956 OAG No. 2610, page 757, these sections were held to be ample authority for the employment of noncertificated persons to act as traffic officers in protecting the safety of children while crossing streets on the way to and from school. The reasoning of that opinion is applicable to the problem of maintaining order on playgrounds and in lunchrooms to protect the safety and health of pupils.

Although section 569 of the School Code requires that district school boards "shall hire and contract with such duly qualified teachers as may be required," and section 570 provides that a district's share of the primary school interest fund shall be reduced in proportion to the number of unqualified teachers employed by the board, it is clear that these provisions relate only to the hiring of persons to fulfill a teaching function. School boards may, of course, hire bus drivers, janitors, maintenance men and clerical help. It was stated in Board of Education V. Simmons. (Kt) 53SW 2d 940, cited in 1943-44 OAG No. 0-685, page 382,384, that:

"No authority need be cited to sustain the statement that the statutes applicable to and controlling the qualifications of a teacher engaged in teaching the curriculum do not apply to all the employees of the board."

It is my opinion that school boards have the power to employ noncertificated personnel to maintain discipline in lunchrooms and on playgrounds.

Paul L. Adams
Attorney General

STATE OF DELAWARE
DEPARTMENT OF PUBLIC INSTRUCTION
DOVER, DELAWARE 19901

July 18, 1967

Mr. Richard Kunkel
Bureau of Educational
Research and Services
University of North Dakota
Grand Forks, North Dakota 58201

Dear Mr. Kunkel:

In answer to your letter of June 30, 1967 relative to sub-professional teacher aides, under Delaware statutes the State Board of Education may establish its own rules and regulations governing the use and employment of professional personnel. Under this authority, the State Board of Education just last year approved the plans for and uses of and certification for sub-professionals or teacher aides. We agreed to issue only a "Permit" and not an official certificate. Through this means we have registration of all such subprofessionals and we have control over the kinds of situations in which they are working. I am enclosing a copy of the certification regulation and also the application made by the district for the aide. You will note that this includes a statement by the district for the proposed training of the person in question. I believe the two forms together will answer all of your questions.

Sincerely yours,

Howard E. Row
Assistant Superintendent
Instructional Services

ECL/jh
enclosures

STATE OF DELAWARE

DEPARTMENT OF PUBLIC INSTRUCTION

TO: Division of Teacher Education
and Professional Standards
State Department of Public Instruction
P.O. Box 697, Dover, Delaware 19901

APPLICATION FOR TEACHER AIDE PERMIT

The _____ District hereby requests that a Permit
be granted to _____ to serve as School____, Clerical____,
Classroom____ aide in the _____ school beginning____.
Date

- A. The duties expected of him/her are defined as follows:
- B. He/she has the following qualifications deemed adequate for the
position: (Use reverse side if necessary)
1. Educational level (transcript__ or diploma__ is attached)
 2. Personal qualifications
 3. Experience
- C. He/she will be supervised by _____.
- D. The proposed program of orientation and in-service training is
briefly described as:

Date

Signature

Title

PERMIT PROGRAM FOR TEACHER AIDES IN THE SCHOOL

Certification Rules and Regulations

Substandard Certificates

Section 20. Permits

- a. For all persons employed either full-time or part-time as school or classroom aides with local, state, federal or other funds who cannot meet the requirements for an established certificate as defined in previous sections, a Permit shall be required.

b. Qualifications

Minimum of a high school diploma or evaluated experience, and other personal qualifications as may be determined by the local school district as appropriate to the job as defined.

c. Categories of Functions

Those persons participating in non-teaching activities as

1. School Aides

Assisting in supervision of playgrounds, bus loading, cafeteria, etc.

2. Clerical Aides

Maintaining records, materials, and equipment in school offices, instructional materials centers and classrooms.

3. Classroom Aides

Assisting classroom teachers in activities which support the teaching process, but are under the supervision of the teacher, such as the typing of stories, putting on wraps, reading stories, locating reference material, etc.

d. Credentials

All persons employed under the Permit Program shall be expected to submit the same credentials as required of certificated employees including the health certificate.

e. Job Definition

A school district shall be required to submit a job definition for any person employed as an aide.

PERMIT PROGRAM FOR TEACHER AIDES IN THE SCHOOL

page 2

- f. It is further recommended that the State Department of Public Instruction cooperate with the University of Delaware and Delaware State College in establishing training programs for persons employed as aides and seek to find means for promising candidates to further their education and become fully qualified professional educators.

REVISED DRAFT

STATE OF WASHINGTON
SUPERINTENDENT OF PUBLIC INSTRUCTION

June 13, 1967

RECOMMENDATIONS OF THE STATE BOARD OF EDUCATION
FOR THE EMPLOYMENT AND UTILIZATION OF
SCHOOL SERVICE AIDES AND INSTRUCTIONAL ASSISTANTS

Background

Recent information indicates that the use of auxiliary personnel, service aides and instructional assistants, is widespread in Washington schools. More than 2500 people are now employed in these categories; nearly all of the school districts with more than 100 pupils utilize aides and assistants in some capacity.

The introduction of new types of personnel in the schools should have a positive influence on the quality of education provided to children. The State Board is concerned that these additional persons be used wisely and that school organizations establish appropriate policies to ensure wise usage. These policies should include attention to selection; the nature of assignments, including time and compensation; supervision; relationships with professional personnel; in-service preparation; as well as the general recommendations given later in this document.

At this time, the Board does not think that certification regulations should be established for auxiliary personnel. The presence of aides and assistants is new and undoubtedly results in some changes in staff utilization in many schools. Until and unless further action is needed, the following statement and recommendations represent the State Board of Education's posture with respect to the utilization of aides and assistants in the schools.

Definitions

A (school) service aide is a person who works directly under supervision on tasks which are primarily of a routine or noninstructional nature.

An instructional assistant is a person who assists in instruction under the supervision of certificated personnel.

Recommendations

Employing schools are urged to establish personnel policies, standards and procedures for selecting and employing aides and assistants. The recommendations which follow are intended to assist school authorities.

1. Qualifications

Service aides and instructional assistants should meet the same health qualifications required of teachers.

Service aides should have as a minimum the general education equivalence of high school graduation.

Instructional assistants should have as a minimum the general education equivalence of the baccalaureate degree.

Aides and assistants should be able to perform adequately in the communicative skills of reading, writing, speaking, and computing, as demonstrated by appropriate examinations.

Aides and assistants should have a general understanding of the purposes and organization of public education.

2. Assignment and Supervision

Personnel policies of school organizations should make it clear that aides and assistants are to be employed to help teachers provide better instructional services to students. Personnel policies should provide that aides and assistants are not to relieve teachers of their teaching responsibilities and that employment of aides is not to change the overall pupil-to-teacher ratio in a school.

The work assignment for an aide or an assistant should be so defined that it is clear to which certificated person the aide or assistant is responsible at all times.

Service aides and instructional assistants should be assigned with respect to their interests and qualifications.

Certificated personnel should periodically review and evaluate the proficiency of aides and assistants.

Service aides and instructional assistants may not be used as substitute teachers. Only certified teachers are

to be responsible for instructional programs.

3. In-service Training

Service aides and instructional assistants should be given practicum training in the operational skills required of them as a result of their assignments.

Specialized competencies required of aides or assistants should be developed through in-service training programs.

Opportunities for aides to become assistants and assistants to become fully qualified teachers should be provided. Schools, colleges and professional associations should develop appropriate work-study programs for these people.

Professional organizations are encouraged to sponsor meetings for aides and assistants so that they may become better able to serve in the schools.

Colleges, school organizations and professional associations should establish in-service preparation programs which will help teachers work with aides and assistants easily and effectively.

NON-PROFESSIONAL PERSONNEL IN THE CLASSROOMS

Connecticut State Department of Education,

Bureau of Federal-State-Local Relations

The use of non-professional personnel in the schools raises no problems unless the duties performed by such persons infringe on the work usually assigned to a person professionally trained, and certified, as one qualified to hold the position and capable by training and special preparation to perform the functions of the assignment.

There are situations, in the secondary schools especially, where the function may be interpreted as instructional or non-instructional, depending on the duties prescribed, methods of conducting the work involved, direct contact with the children, and the nature of the communication between worker and learner. The study hall may be organized as a learning situation just as the reading or study room in a library, or it may be policed as a detention room where otherwise unassigned students may spend time under adult supervision between instructional appointments. The school library may have many instructional functions to be performed by properly trained librarian-teachers, but it also has custodial responsibilities and clerical duties which may be done by those of limited training unassociated with the education of children.

In many schools, both elementary and secondary, there are resource persons, lecturers, visiting specialists, linguists, craftsmen, artists, whose experience and competencies are valuable, sought out and paid for by the board of education to add significantly to the educational offerings of the institution, although the persons so described are not trained as teachers, do not carry responsibility for the educational growth and development of those whom they serve on an incidental, if more or less regular basis, and have no legal certification even in the narrow field in which they operate within the educational program of the school. These persons deal directly with children, communicate in such a way as to influence the education of the learners, devise their own methodology even when supervised and influenced by the responsible teacher in charge of the class or program.

Of considerable significance is the category of teacher aides who read and judge compositions, even noting educational progress, criticise reports of research checking for accuracy and method, library assistants who cannot avoid recommending desirable reading and available reference, members of instructional teams doing some personal counseling, disciplining, directing of study, and laboratory assistants who may be called upon to set up experiments, dictate on magnetic tape in language laboratories, check records of animal feeding, formulae, weighing, and general care

of experimental materials and procedures. In most cases these people are relieving the certified teacher of time-consuming chores and necessary checking or lesson preparation in order that the teacher may plan, prepare, tutor, instruct and attend to other decidedly professional duties.

Under the statutes, pupils in the public schools will be taught by legally qualified teachers; and the determination of such qualification and the legal licensing have been systematized in the certification procedures of the state board of education. The responsibility for the legal conduct of the educational system of the town has been delegated to the town board of education which is required to employ a superintendent of schools as its agent. The qualifications of such superintendent make him the responsible legal and professional leader who must decide, and advise the employing board of education on the assignments of personnel; he must know the legal status of the work and the persons so assigned, and the limitations which must be imposed because of any lack in qualifications.

During the past four years the Certification Advisory Committee has received suggestions and conducted studies in an attempt to compose a policy which the State Board of Education could use as a guide for determining the legality of certain practices and experimental programs in the state. The version of the proposed statement which has been most acceptable to

those who have pursued the study contains the following provisions:

1. Non-instructional duties may be performed by non-professional personnel.
2. There must be a clear definition of duties to be performed by such teacher aids, understood by all persons involved.
3. Determination of non-professional duties is made by the superintendent, but assignments clearly professional may not be delegated to a non-professional person.
 - a. Classrooms, study halls and libraries are instructional situations, and necessarily under the supervision of certified teachers;
 - b. Cafeterias and playgrounds may not be instructional situations depending on program organization, the decision to be made by the superintendent.
4. No certificate will be required for the teacher aide whose duties are non-professional in nature, or are carried out under the supervision of the teacher' if, however, the aide works independently of the teacher and directly with students, an appropriate certificate is required.
5. The responsibility of the superintendent in the legal assignment of duties is subject to review by the State Department of Education, and aides performing professional duties as shown by collected evidence will require certification.

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