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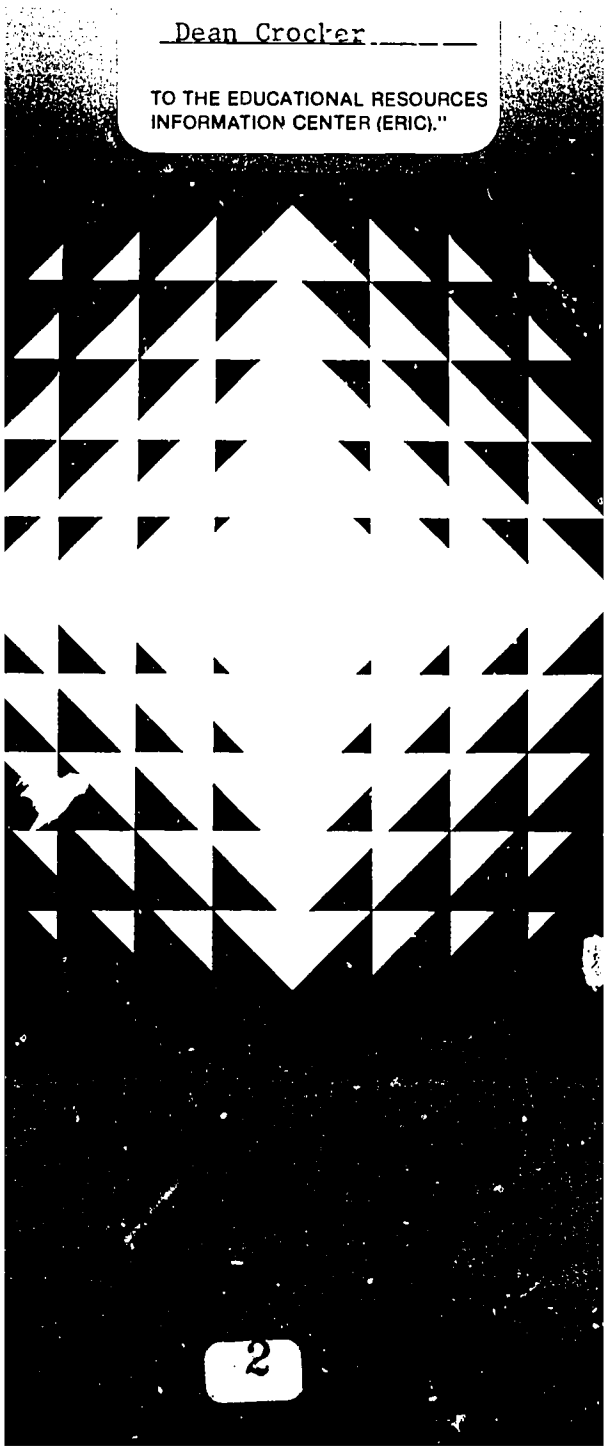
ABSTRACT

Part of an investigation of the effectiveness of Education Consolidation and Improvement Act (ECIA) Chapter 1 reading programs, this document reports on a study of 699 second and fourth grade students in Chapter 1 programs in Iowa. An introduction notes that the study was conducted to discover instructional characteristics that affect student achievement, including kinds and amounts of instruction. It also explains the objectives and management plan of the study. The second and third sections detail the study rationale and design, while a fourth section outlines the instrumentation of the study, including types of instructional time, site selection, and teacher orientation. The fifth section describes results of the study, noting how students and teachers utilized time, and offering structural and contextual Chapter 1 program characteristics. The sixth section, divided into two parts for second and fourth grade students, offers analytical findings. Finally, a discussion section notes that simply increasing instructional time did not improve achievement, that student achievement increased with some time devoted to off-task activities, and that achievement increased, particularly for second graders, when teachers spent adequate amounts of time on organizing and managing the classroom. (Nineteen tables, the Study Observer Handbook, and definitions of variables are included.) (JC)

# owa Chapter
# ECIA
# Reading Study





# IOWA

# CHAPTER 1, ECIA

# READING STUDY

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# INTRODUCTION

## Secretary's Initiative

In 1983, The Secretary's Initiative to Improve the Quality of Chapter 1, ECIA Projects was implemented by the United States Department of Education. This effort authorized the allocation of grant funds to State Departments of Education to assist in identifying and implementing successful Chapter 1 program components. The Chapter 1 Section of the Iowa Department of Public Instruction was awarded one of the Secretary's Initiative grants. This report contains the results of work performed by the Iowa Chapter 1 Section under the Initiative.

## Iowa Initiative Project

The intent of the Iowa Secretary's Initiative Project was to conduct an on-site study of within-class instructional characteristics that affect student achievement, including the kinds and amounts of instruction that occur in Iowa Chapter 1 classrooms. Through the results of this investigation, it was hoped to explain why some Chapter 1 projects demonstrate consistently higher or lower achievement gains.

For several years, the Iowa Chapter 1 Section had been attempting to investigate the factors that contribute to consistent high or low achievement performance among its districts' Chapter 1 reading programs. Few relationships had been found, possibly due to the fact that global building-level measures of program and instructional characteristics were used and these building-level measures did not vary greatly at such an aggregate level of analysis. This lack of findings is in keeping with criticisms of "school effects" literature, which has frequently been criticized for its failure to acknowledge that qualitative variations in the educational experiences of students within a school setting can have important effects (Hauser et al., 1976; Alexander, Cook and McDill, 1978; Griffin and Alexander, 1978).

## Project Objectives

The following were identified as the objectives of this project:

1. To improve the quality of Chapter 1 reading programs;

2. To identify within-class variables at the classroom level that account for individual student reading achievement gains, or that impede the effectiveness of Chapter 1 programs;

3. To identify within-class variables at the classroom level that enhance or impede individual student time-on-task;

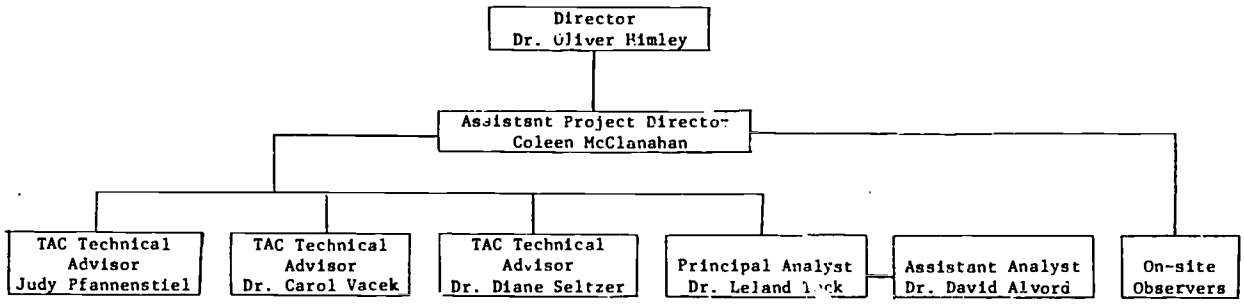
4. To identify instructional approaches of teachers that characterize effective Chapter 1 reading programs;

5. To plan for the dissemination of findings through the provision of technical assistance to Local Education Agencies (LEAs) in order to (a) assess their own Chapter 1 reading programs on the identified effectiveness dimensions, and (b) to develop a strategy for improving ineffective reading classroom management techniques, time management and instructional practices.

## Project Staff and Management Plan

The Table of Organization for this project is shown in Figure 1 below.

FIGURE 1
IOWA READING STUDY
TABLE OF ORGANIZATION




The organizational plan for the management of this project included several individuals who have been involved in Iowa Chapter 1 evaluation and program improvement efforts over an extended period of time. Therefore, each was extremely knowledgeable of past evaluation efforts as well and the direction in which the state wished to continue. A more complete discussion of each of the personnel involved is contained in Appendix A, Qualifications and Responsibilities of Key Personnel.

## STUDY RATIONALE

Past research findings have indicated that kinds and amounts of instruction may be vastly different for different students in the same classroom. Several reasons for anticipated variation within schools and within classes exist. One popular notion is that the degree of learning that takes place is a function of the quantity of learning activity.

### Instructional Time

Research findings substantiating the relationship between a student's allocated instructional time and achievement have enhanced the importance of instructional time in models of achievement (Frederick and Walberg, 1980;

Denham and Lieberman, 1980; Filby and Cahan, 1978; Block, 1975; Barr, 1975, 1974; Anderson, 1973; Harris and Serwer, 1966). However, the modest relationships demonstrated have led to subsequent conclusions that the theoretically desirable variable for measurement is engaged time, not merely allocated or attended time. The relationship between task engagement (engaged time) and achievement has received empirical support from a number of recent observational studies (Sirotnik, 1982; Leinhardt, Zigmond, and Cooley, 1981; Evertson, 1980; Powell and Dishaw, 1980; Stallings, 1980, 1975; Pfannenstiel and Sewell, 1980; Good and Beckerman, 1978; Arlin and Roth, 1978; Carroll and Spearitt, 1977).

Teacher Interactions and Kinds of Instruction

Teachers generally are unaware of the specific ways in which their interaction with students influences their students' classroom behavior with regard to task engagement and, ultimately, achievement. Certainly, the nature of the teacher's own behavior may affect the variation that exists within a classroom regarding time-on-task and achievement outcomes. Some teachers have been found to interact frequently with students, while others rarely interact (Jackson, 1968). Lack of much on-task student-teacher interaction has been found to be negatively related to gains (Stallings, Needles and Stayrock, 1979), while a greater amount of student teacher interaction has been found positively related to gains, although the nature of this interaction is not always made clear.

Not only the quantity of teacher interactions but also the quality of these interactions has demonstrated a relationship to achievement. Research has shown that a supportive environment where frequent positive feedback is provided for appropriate behavior is more conducive to student achievement than is an environment where disapproval is the primary feedback. Furthermore, there has been some evidence that teachers tend to respond more favorably, provide more praise, and are more supportive of high-achieving than of low-achieving students. The recent finding that a high percentage of teacher feedback was concentrated in the more negative categories led to the suggestion that "many teachers need to acquire better classroom and behavior management skills" (Thompson, White and Morgan, 1982: 234).

Studies of teacher use of classroom time echo this recommendation. Thompson et al. (1982) found that about one-half of the teacher's time was spent on academic activities with the remaining time spent on management or behavioral activities. Sirotnik (1982) found similar levels of non-task activities, and recommended that future "quantity of schooling" studies include time spent on discipline and control as well as time-on task as areas of investigation.

Kinds of instruction in the regular classroom have been the subject of much inquiry, and have been defined in a number of ways and at varying levels of specificity. Areas such as instructional content, teacher behaviors, materials used, social climate, physical arrangement of classrooms, grouping, etc, have been included in the definitions. However, kinds of instruction have been largely uninvestigated in Chapter 1 programs especially in terms of observed interactive behaviors between teachers and students. In addition, the quantitative and qualitative aspects of teacher instructional approaches have

not been investigated because observational studies have focused mostly on either student behaviors or teacher behaviors. Very infrequently have the interactive effects of teacher and student behaviors been observed. Both the amount of teacher interaction at the individual student level, and the instructional qualities of that interaction were areas of interest in the present study.

## STUDY DESIGN

The Iowa Chapter 1 reading study was designed to accomplish the following:

1. Obtain estimates of the number of hours of Chapter 1 exposure a typical Chapter 1 student receives between pretesting and posttesting;

2. Generate descriptive information that characterizes how students and teachers spend their Chapter 1 class time, and to provide answers to the following questions:

   A. For what proportion of class time is the typical Chapter 1 student actively engaged in reading-related tasks vs. non-task behavior?

   B. What are students doing when they are not task-engaged?

   C. For what proportion of class time is the typical Chapter 1 teacher interacting with students in reading instruction and/or reading related tasks vs. non-instructional tasks?

   D. What are teachers doing when they are not engaged in reading instruction and/or reading-related tasks;

3. To investigate the relationship between kinds of teacher instructional interaction and student time-on-task (e.g., Do the ways in which students and teachers spend their task time influence the amount of time that students spend on reading-related tasks?);

4. To investigate the relationship between a student's reading achievement and (1) the amount of exposure to reading instruction between pretest and posttest, (2) the proportion of class time in which students are task-engaged, and (3) the proportion of the total instructional time utilized for specific on-task behaviors; and

5. To examine at the group level the factors that distinguish effective reading classes from ineffective classes in terms of teacher behaviors, student behaviors and general program characteristics.

### Theoretical Expectations

Three assumptions about effective reading instruction guided the design of this study:

1. The best way to develop reading ability is to provide abundant opportunity for experiencing reading;

2. Student reading achievement is a direct function of what students do and how much of it they do;

3. Teacher instructional approaches are more strongly and directly related to what students do and how much of it they do than they are related to reading achievement.

Based on these expectations, the following hypotheses were targeted for testing:

$H_1$: The more time a student is allocated and attends reading instruction, the greater the achievement gain.

$H_2$: The greater the student's time-on-task, the greater the achievement gain.

$H_3$: The greater the proportion of student's time that is spent in task-related interaction with the teacher, the greater the achievement gains.

$H_4$: The greater the proportion of a student's time that is spent in direct reading activities, the greater the achievement gain.

$H_5$: The greater the proportion of a student's time that is spent in task-related interaction with the teacher, the greater the time-on-task.

In order to test these hypotheses, measures of the amounts of instructional time spent in student behavior activities and teacher instructional approaches as well as other structural and contextual characteristics of Chapter 1 programs were obtained.

## INSTRUMENTATION

### Instructional Time Relating to Student Activities

The qualitative aspects of reading-related activities that occur in the Chapter 1 classrooms have recently become the focus of much inquiry. Replicating Leinhart, Zigmond and Cooley (1981), the Iowa study examined the amount of time devoted to activities that directly relate to the reading task in that they involve the student responding to print, and those that indirectly support some aspect of reading. It is generally agreed that contextual reading provides the practice that is needed for the development of fluent reading skills (Allington, 1977; Smith, 1978). Poor readers spend very little time in contextual reading (Allington, 1977; Gambrell, Wilson, Gantt, 1981). Leinhart, Zigmond, and Cooley (1981) reported that students who are engaged in more contextual silent reading made greater achievement gains; they failed to find a correlation of oral reading to achievement gains. In the Iowa study, direct reading activities were categorized as time spent in oral and silent reading, while the categories of phonics, comprehension, vocabulary, study skills and language activities were defined as the indirect reading behaviors. Test taking was also included as an indirect reading activity given the amount of on-going diagnostic prescriptive teaching that occurs in Chapter 1 classrooms.

In addition to the above mentioned student on-task categories, eight off-task categories were also defined for the Iowa study. These off-task categories included management, waiting for further direction from the teacher, being disciplined, being academically unoccupied, working on academic assignments other than reading, and other off-task activities. Completing the off-task categories were two attendance related areas: being absent, and being in school, but not attending Chapter 1 scheduled class. Figure 2 summarizes the categories of student activities designated in this study.

FIGURE 2
STUDENT ACTIVITY CATEGORIES*

| On-Task Reading Activities | Off-Task Activities |
|---|---|
| Oral reading | Management |
| Silent reading | Waiting for the teacher |
| Comprehension | Being disciplined |
| Vocabulary | Academically unoccupied |
| Phonics | Working on other academic subjects |
| Language | Other off task activities |
| Study skills | Absent from school |
| Test taking | In school, but not attending Chapter 1 class |

Actual Chapter 1 class time data were collected by the Chapter 1 teachers who kept individual daily attendance records for each student in the study (Appendix G). The daily number of minutes were summed to arrive at a total number of minutes of instruction. These minutes were then converted to hours, which is the unit used to describe this variable in this report.

Instructional Time Relating to Teacher Interaction and Kinds of Instruction

Teacher interaction and kinds of instruction were measured utilizing Bloom's (1976) component characteristics of instruction: cueing, reinforcement, and corrective feedback. Bloom also included participation as an instructional characteristic. Within the design of this study, participation, or time-on-task, was included as a dependent variable of interest in its own right, as well as an intervening variable explaining variation on achievement. Reinforcement and corrective feedback were combined to form a category classified as positive feedback and one classified as negative feedback. It was necessary to include all logically possible forms of teacher interaction in order to obtain a quantitative measure of total teacher interaction; thus, Bloom's categories were augmented with other possible forms of interaction, including a presentation category and a questioning category. Finally, since teachers spend time on-task with regard to reading instruction, but in a non-verbal form (namely, by monitoring), this category was likewise

*Definitions for each of these categories can be found in Appendix B, Iowa Chapter 1 Reading Study Observer Handbook.

added. These six kinds of instructional interaction (cueing, presenting, positive feedback, negative feedback, questioning, and monitoring) combined to form the measure of both teacher task-related activities and kinds of instruction.

Teacher interactive behaviors with respect to reading instruction were also delineated on an off-task dimension. The amount of time teachers were off-task yet interacting with students was observed, and was categorized according to the source of the off-task behavior. Disciplining students, management of class activity, and other off-task activities (including building rapport, giving rewards, etc.), became the interactive off-task teacher behaviors for this study.

A final teacher behavior category of non-interaction was included. This reflected times when the teacher was not actively involved with students. Figure 3 below summarizes the teacher instructional approaches designated in this study.

FIGURE 3
TEACHER INSTRUCTIONAL APPROACH CATEGORIES*

| Interactive On-Task | Interactive Off-Task | Non-Interactive |
|---|---|---|
| Cueing | Management | |
| Presenting | Disciplining | |
| Monitoring | Other off-task activities | |
| Questioning | | |
| Providing positive feedback | | |
| Providing negative feedback | | |

## Structural and Contextual Chapter 1 Program Characteristics

In addition to the student activity and teacher instructional approach variables already described, data were also collected in the Iowa study on other general Chapter 1 program characteristics. Through an observer-conducted interview with the regular classroom teachers, descriptive data were obtained regarding regular classrooms from which the Chapter 1 students came. Figure 4 lists the additional general Chapter 1 variables on which data were collected, and Figure 5 lists the regular classroom variables on which data were collected.

*Definitions for each of these categories can be found in Appendix B, Iowa Chapter 1 Reading Study Observer Handbook.

FIGURE 4
GENERAL CHAPTER 1 VARIABLES*

| | |
|---|---|
| Group size | Days students were absent |
| Total caseload | Days students were in school but not attending Chapter 1 class |
| Teacher's year of experience | Eligibility scores for Chapter 1 placement |
| Teacher's certification | Pretest scores |
| Allocated Chapter 1 class time | Posttest scores |
| Actual Chapter 1 class time | Gains |
| Total days of instruction possible | |
| Actual days of instruction | |

FIGURE 5
REGULAR CLASSROOM VARIABLES*

Allocated total reading time
Allocated group reading time
Class size
Group size
Teacher's certification

Site Selection

In this study, a site was defined as a grade within a building within a district; thus it was possible for one district to generate multiple sites. It followed then, that a site could have several groups within a grade. Groups were defined to be the smallest unit of instruction where all students were taught at the same time. For example, if grade two had 15 Chapter 1 students in the program, and these students were divided into three units, the units were defined as groups.

Chapter 1 reading programs in grades two and four were the focus of this study. The selection of these grades allowed for representation of both lower and upper elementary classes where the majority of Chapter 1 funds are concentrated in the state of Iowa. In order to ensure variation on achievement among sites selected, the population of Chapter 1 classes was stratified on the basis of consistent low, average or high achievement. The criteria used in

*Complete definitions of these variables can be found in Appendix C, Definitions of General Chapter 1 and Regular Classroom Variables.

stratifying classes were as follows:

1. The high achieving sites had demonstrated gains of at least twelve Normal Curve Equivalents (NCEs) for the preceding two years;

2. The average achieving classes had demonstrated gains ranging from one to twelve NCEs for the preceding two years.

3. The lower achieving classes had demonstrated gains of less than one NCE for the preceding two years.

The intent of selecting from each of these three stratification cells was to maximize variation on achievement. If selected classroom variables do make a difference in achievement gains, these relationships can be detected by selecting classes varying in the size of achievement gains. Evaluation results from two preceding years were employed in assigning sites to the three categories of achievement in the attempt to improve the validity of the distinctions. Of the 105 sites ultimately selected for participation in this project, all had demonstrated this consistency over two years performance, and more than 80 percent had demonstrated this consistency over three years. This finding provided additional support for the belief that the stratification procedures employed would yield a sample that provided variation on achievement.

One hundred seventy-two sites from 89 districts met the criteria for inclusion in the study's sampling frame. Class schedules were requested from these potential sites; a total of 419 classes were identified as the basis for selecting instructional groupings on which observations could be conducted. An extensive analysis of these class schedules was done to identify potential sites that were geographically proximate in order to maximize the utilization of observer time in the field, and to generate the largest possible number of instructional groupings that could be observed given budget constraints. One hundred five sites from 64 districts were selected for observation, including 93 second grade groups and 93 fourth grade groups. These groups generated 699 participants, 604 of whom had valid scores at the end of the project and could be included in the analysis sample.

The distribution among the three stratification cells of the sites ultimately selected for inclusion in the project is shown in Table 1.

TABLE 1
SITE SELECTION BY ACHIEVEMENT LEVEL AND GRADE

| Achievement Level | Grade 2 | Grade 4 |
|---|---|---|
| Low Achievement | 21% | 27% |
| Middle Achievement | 38% | 54% |
| High Achievement | 41% | 19% |

## Student Selection

All of the participating sites followed the constraints associated with the Chapter 1 Evaluation Model, A-1. Even though nine different test batteries were used by the sites, in all but four cases either the comprehension subtest or total reading score was reported. Therefore, these scores were considered to be based on tests that were comparable in content. Because the majority of Chapter 1 reading programs in the state of Iowa are pull-out programs, (where the instructional approach is diagnostic-prescriptive and the instruction occurs in a location other than the regular classroom) only students from these programs were included in this study. Appendix D contains a more detailed discussion of the student selection procedure and student achievement data.

## Chapter 1 Teacher Orientation

Informational meetings were held prior to the beginning of the data collection process for all local Chapter 1 staff who were involved in the project. The purpose of the meetings was to explain the project and answer questions and concerns that might cause anxieties among the teachers involved. Appendix E details the orientation process.

## Data Collection

Data for this study were collected by trained on-site observers* who observed and recorded the activities in the selected groups for five days at three points in time between pretesting and posttesting. On each of the 15 observation days, students were observed 15 times for 15 seconds. The nature of student-teacher interaction was recorded for each student observation. Teachers were additionally observed for 15 fifteen-second intervals. A complete discussion of the observation process can be found in the manual, Iowa Chapter 1 Reading Study Observer Handbook, which is included in Apendix B.

Data were gathered utilizing four different collection forms. A brief description of each is given below, and examples of each can be found in Appendix G.

1. Iowa Chapter 1 Reading Study Observation Record The form used by observers to record individual student activities and teacher instructional approaches.

2. Iowa Chapter 1 Reading Study Pretest-Posttest Information Form Completed by the Chapter 1 instructors in the study, this form provided pretest and posttest information relative to test battery, form, level and subtest used, as well as individual pretest and posttest scores. Columns for minutes and days of instruction were also included on this form. This information was computed by the observers based on information from the Iowa Chapter 1 Reading Study Student Attendance Record.

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*See Appendix F for a complete discussion of the selection and training of observers.

3. Iowa Chapter 1 Reading Study Student Attendance Record This form was an individual daily attendance form kept by the Chapter 1 teachers for each of the students in the project. Actual instructional time was obtained from this data.

4. Iowa Chapter 1 Reading Study Classroom/General Chapter 1 Information. This form was used by the observers to gather information on selected regular classroom, Chapter 1 classroom, student and teacher variables.

All of these forms were hand-edited before data were entered into the computer. Additional quality control measures were applied when all of these separate data files were merged into one file and a cross check (of identification information) was run. In addition, all ranges of the frequency distributions were verified for reasonableness.

## DESCRIPTIVE FINDINGS

This section contains descriptive information gleaned from the data collected in this study. While this information may be considered interesting, the reader is cautioned to remember that these findings are not to be interpreted as what is right or best. These are simply statements of what is happening in Iowa Chapter 1 reading projects.

### Student Utilization of Time in Chapter 1 Reading

Tables 2 and 3 describe how Chapter 1 students spent their time in specific activities. The average percent of time is given, as well as a conversion of that percent to an average actual amount of time in hours and minutes. These averages are for the time between pretesting and posttesting only and thus do not describe the amount of instruction received within a school year.

For both second and fourth grades, Chapter 1 students on the average spent about three-fourths of their class time in on-task reading activities. Chapter 1 groups varied widely in this regard, with task engagement ranging as low as 30 percent in fourth grade and as high as about 95 percent in both grades.

Conversely then, approximately 25 percent of Chapter 1 class time was spent in off-task activities. The biggest usurper of off-task activities was management activities, which accounted on the average for about 12-14 percent of class time. Management activities appeared to require somewhat more time in second-grade classes than in fourth-grade classes. The next largest factor accounting for off-task activities for both second graders and fourth graders was observed to be the fact that students were academically unoccupied (e.g., disrupting, daydreaming, etc.). This accounted for about 4 percent of the students' available class time.

TABLE 2

DESCRIPTION OF HOW SECOND GRADE
CHAPTER 1 READING STUDENTS SPENT CLASS TIME

| Student Activities | Average Percent Of Time | Average Amount of Actual Time |
|---|---|---|
| On-Task Reading Activities | | |
| Phonics | 24 | 12 hours |
| Comprehension | 17 | 8 hours 20 minutes |
| Vocabulary | 14 | 7 hours |
| Language | 10 | 5 hours |
| Silent Reading | 4 | 1 hour 55 minutes |
| Oral Reading | 4 | 1 hour 55 minutes |
| Study Skills | <1 | 10 minutes |
| Test Taking | <1 | 25 minutes |
| SUBTOTAL | 75 | 37 hours 15 minutes |
| Off-Task Activities: | | |
| Management Activities | 14 | 7 hours |
| Academically Unoccupied | 4 | 2 hours 10 minutes |
| Other Off-Task Activities | 3 | 1 hour 55 minutes |
| Waiting for Teacher | 2 | 1 hour 20 minutes |
| Being Disciplined | <1 | 5 minutes |
| Other Academic Subjects | <1 | 10 minutes |
| SUBTOTAL | 25 | 12 hours 40 minutes |

TABLE 3

DESCRIPTION OF HOW FOURTH GRADE
CHAPTER 1 READING STUDENTS SPENT CLASS TIME

| Student Activities | Average Percent Of Time | Mean Amount of Actual Time |
|---|---|---|
| On-Task Reading Activities | | |
| Comprehension | 27 | 12 hours 40 minutes |
| Phonics | 14 | 6 hours 25 minutes |
| Vocabulary | 14 | 6 hours 55 minutes |
| Language | 8 | 4 hours |
| Silent Reading | 4 | 2 hours 10 minutes |
| Oral Reading | 3 | 1 hour 30 minutes |
| Study Skills | 5 | 2 hours 24 minutes |
| Test Taking | 2 | 45 minutes |
| SUBTOTAL | 77 | 36 hours 45 minutes |
| Off-Task Activities: | | |
| Management Activities | 12 | 5 hours 40 minutes |
| Academically Unoccupied | 4 | 1 hour 55 minutes |
| Other Off-Task Activities | 3 | 1 hour 35 minutes |
| Waiting for Teacher | 2 | 50 minutes |
| Other Academic Subjects | 1 | 40 minutes |
| Being Disciplined | <1 | 3 minutes |
| SUBTOTAL | 23 | 10 hours 40 minutes |

Other off-task activities (such as building rapport, receiving rewards, selecting books to take home, celebrating birthdays, etc.), accounted for another 3 percent of off-task activities. In both second and fourth grades, less than 1 percent of the students' time was spent in being disciplined. Fourth grade Chapter 1 students were more likely to be off-task with respect to reading but doing other academic subjects. However, the typical amount of time thus spent was small. In both grades, students spent about 2 percent of their time waiting for their teacher for further direction.

Although both second and fourth graders spent about the same proportion of time in reading-related activities, the relative emphasis placed on activities differed between the grades. Major differences occurred in the amounts of emphasis placed on phonics and comprehension. On the average, 24 percent of second graders' time was spent in phonics activities versus 14 percent of time for fourth graders; 27 percent of fourth graders' time was spent in comprehension activities, versus 17 percent for second graders.

The third most frequent activity for both second and fourth graders was vocabulary. Approximately 14 percent of available time was spent on vocabulary in both grades. Language activities accounted for another 8-10 percent of time, and silent and oral reading for approximately 8 percent. Chapter 1 second graders spent relatively little time in study skills activities or test-taking (less than 1 percent each); fourth graders spent about 7 percent of time in these activities.

In summary, phonics was the single most frequent task activity for second graders, and the second most frequent activity for fourth graders. In grade four, the most frequent task activity was comprehension. Comprehension was the second most frequent second grade on-task activity. Other than these two variables, all other activities were fairly similar in both grades.

No differences were found between grade two and grade four in regard to the amount of time scheduled for Chapter 1 instruction. In both grades, the average class period for Chapter 1 instruction was approximately 30 minutes. The range was 15 minutes to 40 minutes for both grades.

The average number of hours of actual instruction between pretesting and posttesting in grade two was 49 hours, ranging from 8 to 112 hours. The instructional exposure for grade four was very similar; the average was 45 hours, and the range was from 10 to 73 hours.

In grade two, an average of 112 days was available between pretesting and posttesting. Of those 112 days, students attended and received Chapter 1 instruction for 97 days.* They were absent an average of 5 days. Chapter 1 students were in school, but did not attend Chapter 1 classes, for an average of 10 days. Thus, Chapter 1 students lost about 10 percent of the available Chapter 1 instructional time through non-attendance even when in school.

*Iowa law requires a minimum of 180 days of instruction in a school year. The average number of days of instruction between pretesting and posttesting in this study was considerably fewer than this given that empirical norm dates for testing occur in October and May.

In fourth grade, an average of 114 days of instruction was possible between pretesting and posttesting. Fourth graders were absent an average of four days (one day less than second graders). However, there were 14 days when fourth graders were in school, but did not attend Chapter 1 scheduled class. This is four more days than the second graders missed, and amounts to 12 percent of the days available for instruction. Table 4 details this attendance information.

TABLE 4

AVERAGE SCHEDULED AND ATTENDED DAYS
OF CHAPTER 1 CLASSES BY
CHAPTER 1 READING STUDENTS

| | 2nd Grade | | 4th Grade | |
|---|---|---|---|---|
| | Average | Standard Deviation | Average | Standard Deviation |
| Scheduled instructional days between pretest and posttest | 112 | 19 | 114 | 22 |
| Number of days Chapter 1 students attended scheduled instruction | 97 | 8 | 97 | 7 |
| Number of days Chapter 1 students were in school, but did not attend Chapter 1 classes | 10 | 9 | 14 | 13 |
| Number of days Chapter 1 students were absent from school | 5 | 3 | 4 | 3 |

Correlational analysis demonstrated that students participating in the Chapter 1 program receive different treatment, depending on their entrance level into the program. Students with higher pretest scores appear to be treated differently than those with lower pretest scores. Even though some of the correlations are not particularly strong, they do demonstrate different activity profiles for these two types of students (Appendix H, Table A-I).

In second grade, students with higher pretest scores spent more time in comprehension activities (r = .14) and language activities (r = .15). They were also found to spend more time taking tests (r = .16), perhaps indicating

that their progress was monitored more frequently than students entering the program with lower scores. In addition, these higher pretesting students were academically unoccupied more of the time that they were in class (r = .13). Teachers spent more time presenting to these students (r = .14) and also gave them more cues (r = .14). Teachers were also interactively off-task with these students more than they were with lower achieving students (r = .16).

On the other hand, students with lower pretest scores spent more time on phonics activities (r = -.17). They waited more for further directions from the teacher (r = -.19) and worked on other academic subjects more as well (r = -.28). These students were also involved in other off-task activities more (r = -.17). Teachers gave more negative feedback to these students than they did those who scored higher (r = -.22).

In fourth grade the differences were similar. The students with higher pretest scores spent more time in comprehension activities (r = .18), and management appeared to be important for both them (r = .16) and the teacher (r = .13). As in second grade, teachers presented more (r = .14) and provided more cues to these students (r = .14).

Also, at the fourth grade level, the students with lower pretest scores were involved in programs that had larger caseloads (r = -.21). In addition to spending more time in phonics activities (r = -.13), they were also academically unoccupied more (r = -.11) and received more discipline (r = -.33) from their teacher, than did the higher pretesting students.

Chapter 1 Teacher Utilization of Time

In the manner used to illustrate Chapter 1 students use of time, Tables 5 and 6 describe how Chapter 1 teachers use their time.

On the average, Chapter 1 teachers were engagaged in reading-related instructional activities in about the same proportion that Chapter 1 students were task-engaged (approximately three-fourths of their class time). One notable, although not large difference was the fact that fourth grade students tended to be slightly more task-engaged than second graders (77 percent versus 75 percent); fourth-grade teachers, however, were somewhat less engaged in instructional reading activities than were second grade teachers (70 percent versus 75 percent).

When working with second graders, teachers spent about one-third of their time presenting; when working with fourth graders, they spent about one-fourth of their time in this activity. Monitoring constituted the single most frequent instructional activity for fourth grade teachers; it was the second most frequent activity for second grade teachers.

TABLE 5

DESCRIPTION OF HOW
SECOND GRADE CHAPTER 1
TEACHERS SPENT CLASS TIME

| Teacher Interaction | Average Percent Of Time | Average Amount Of Actual Time | |
|---|---|---|---|
| On-Task Instructional Activities | | | |
| Presenting | 31 | 15 hours | 10 minutes |
| Monitoring | 21 | 10 hours | 20 minutes |
| Questioning | 19 | 9 hours | 20 minutes |
| Cueing | 2 | 1 hour | |
| Providing Positive Feedback | 1 | | 30 minutes |
| Providing Negative Feedback | 1 | | 30 minutes |
| SUBTOTAL | 75 | 36 hours | 50 minutes |
| Off-Task Instructional Activities | | | |
| Management | 14 | 6 hours | 55 minutes |
| Non-Interactive | 7 | 3 hours | 25 minutes |
| Other Off-Task | 3 | 1 hours | 30 minutes |
| Disciplining | 1 | | 30 minutes |
| SUBTOTAL | 25 | 12 hours | 20 minutes |

TABLE 6

DESCRIPTION OF HOW
FOURTH GRADE CHAPTER 1
TEACHERS SPENT CLASS TIME

| Teacher Interaction | Average Percent Of Time | Average Amount Of Actual Time | |
|---|---|---|---|
| On-Task Instructional Activities | | | |
| Monitoring | 28 | 12 hours | 35 minutes |
| Presenting | 24 | 10 hours | 45 minutes |
| Questioning | 14 | 6 hours | 15 minutes |
| Cueing | 2 | | 55 minutes |
| Providing Positive Feedback | 1 | | 30 minutes |
| Providing Negative Feedback | 1 | | 30 minutes |
| SUBTOTAL | 70 | 31 hours | 30 minutes |
| Off-Task Instructional Activities | | | |
| Non-Interactive | 14 | 6 hours | 15 minutes |
| Management | 13 | 5 hours | 55 minutes |
| Other Off-Task | 3 | 1 hour | 20 minutes |
| Disciplining | <1 | | 30 minutes |
| SUBTOTAL | 30 | 14 hours | |

## Structural and Contextual Chapter 1 Program Characteristics

On the average, Chapter 1 instructional groupings in both second and fourth grades contained four students. In addition, the range tended to be similar in both grades: second grade groups ranged in size from 1-8 students while fourth grade groups ranged in size from 1-9 students.

The average caseload for the 102 Chapter 1 teachers in the study was 34 students. The range, which spanned from 8-73 students, was somewhat misleading because some teachers were not full-time employees. Those part-time Chapter 1 teachers account for the lower portion of the range. On the other hand, some full-time teachers also had an aide working with them. In those instances, their caseload was larger. Sixty-eight percent of the teachers in the study had caseloads between 21 and 40, while 14 percent had from 41-50 students; only 5 percent had over 50 students.

Data were gathered relevant to the number of prior years the observed Chapter 1 teachers had taught in a Chapter 1 program. The average number of years a teacher in the study had taught in a Chapter 1 program was eight. Ten percent of the teachers in the study taught in a Chapter 1 program for the first time during the 1983-84 school year, while another 5 percent were in their second year of Chapter 1 program teaching.

The majority (67 percent) of the observed Chapter 1 teachers held a bachelor's degree, while 27 percent held a master's degree. The remaining 6 percent held a preprofessional certificate which indicates two years or more of training, but not the completion of the bachelor's degree.

The state of Iowa certification has a "reading approval" that can be obtained by completing twenty hours of reading and/or reading related college courses. This is not a state requirement to teach in a Chapter 1 program. However, 52 percent of the Chapter 1 staff in the study had the reading approval in addition to their other certification.

Of the 699 students included in the study, 76 percent were selected using a norm-referenced test. The Iowa Tests of Basic Skills was the most commonly used instrument in that it was used 70 percent of the time. Table 7 describes the selection tests used for students in this study. An additional 17 percent of the students in the study were selected for Chapter 1 programs through a criterion-reference method as described earlier.

TABLE 7

NORM-REFERENCED TESTS USED
TO SELECT STUDENTS FOR CHAPTER 1 PROGRAMS

| Instrument | Percent |
|---|---|
| Iowa Tests of Basic Skills | 70 |
| Gates Mac Ginitie | 13 |
| Metropolitan Achievement | 8 |
| Stanford Achievement | 4 |
| Woodcock Reading Mastery Tests | 2 |
| California Achievement | 1.5 |
| SRA Achievement | .9 |
| Metropolitian Readiness | .6 |

Seventy-four percent of the second graders were selected for Chapter 1 participation using a norm-referenced test. The average entry level score for those students was 36.2 NCEs or the 26th percentile. In grade four, 91 percent of the students were selected using a norm-referenced test. Their average entry level score was 28.8 NCEs, or the 16th percentile.

One-fourth of the second grade students were selected through a procedure other than a norm-referenced test. The remaining three-fourths of the second graders who were selected with a norm-referenced test score had a mean entry level of the 26th percentile. This statistic, far below the 40th percentile allowed, demonstrated that Chapter 1 staff were correctly selecting students for the program following the legislative mandate of serving those with the greatest need first. This fact is even more evident in the fourth grade when almost all the students (91 percent) were selected with a norm-referenced test, and the mean entry level was even lower, the 16th percentile.

Table 8 is a summary of the evaluation data generated by the students in this study. It indicates average pretest data in terms of the mean NCE score of students in the study and the equivalent percentile of that average NCE. The same information is given for the posttest. The gain is the difference between the pretest average and the posttest average.

TABLE 8
AVERAGE PRETEST SCORES, POSTTEST SCORES AND GAIN

| | Pretest | | Posttest | | |
|---|---|---|---|---|---|
| | Mean NCE | Percentile | Mean NCE | Percentile | NCE Gain |
| Grade 2 | 36.2 | 25 | 50.8 | 51 | 14.6 |
| Grade 4 | 38.8 | 30 | 45.8 | 42 | 7.0 |

It is interesting to note that fourth graders begin at a higher pretest level than do second graders and their gain is not as great. The higher gain exhibited in grade two and the lower gain in grade four is consistent with the trends seen in both state and national Chapter 1 data.

Within the scope of this study, it was not possible to investigate beyond the Chapter 1 program for factors that impact on reading achievement. In an attempt to capture some descriptive information about the regular reading program that Chapter 1 supplemented, interviews were conducted with classroom teachers from whom the Chapter 1 study students were drawn to obtain some descriptive information regarding regular classroom instruction.

Chapter 1 students observed came from 153 different regular classrooms, averaging 21 students in size, and ranging from 11-31 students. In grade two, regular classroom teachers spent from 3.5 to 15 hours per week in reading instruction, averaging a little over 9 hours a week. Approximately three hours per week was the minimum time allocated for all reading in fourth grade, and the maximum was about 11 hours per week. Fourth graders received an average of 6 hours per week of reading instruction in their regular classrooms.

Regular classroom teachers scheduled their Chapter 1 students for instruction in groups ranging in size from 2-13 students in second grade, and from 1-18 in fourth grade. Group size averaged seven students in grade two and eight students in grade four. More specific information was also obtained regarding the amount of time Chapter 1 students received reading in smaller instructional groupings within their regular classrooms. In second grade, Chapter 1 students received reading instruction in small instructional groupings for an average of 3 hours per week, ranging from 20 minutes to 8.5 hours. In the fourth grade, students receive such instruction for an average of 2.5 hours, and ranging from 50 minutes to 5 hours per week.

Eighty-four percent of the regular classroom teachers who had Chapter 1 students involved in this study had a bachelor's degree; thirteen percent a master's degree, and the remaining 3 percent the preprofessional certification, which implies two or more years of training but no bachelor's degree. In addition, 44 percent of these classroom instructors had the reading approval in their credentials. This approval was not mandatory for elementary teachers.

## ANALYTICAL FINDINGS

Analyses were conducted at both the group level (where variation in the average group achievement was the focus of analysis), and at the individual student level. The rationale for conducting analyses at both the group and student level was that the explanation of variation that occurs on one level of analysis may not be identical to the explanation of variation at the other. Specifically, individual student level variation on achievement is generally more highly subject to individualistic

influences and variation in achievement. Group level data "averages over" much of this individual level variation. Both analyses were of interest to the study conducted herein. Because one might expect that substantially different factors may explain variation in gain for second graders and fourth graders, analyses were conducted separately for each grade.

A stepwise regression approach was used to identify the variables that were significant in explaining variation in achievement gains.* The relative importance of each variable in explaining variation in achievement gains was assessed with the change in the multiple $R^2$ statistic--a measure of the increase in the proportion of explained variation that each variable contributes given the existence of the other variables in the analysis; and with standardized regression coefficients, which indicate the relative importance of variables included in the models. Achievement gains were obtained by subtracting the pretest score from the posttest score.

Regression analyses were conducted utilizing three categories of variables in order to assess their separate, then combined, influence on student achievement. These categorizations corresponded to general classes of variables commonly investigated in attempting to explain variation in achievement and were those that had been identified for investigation in this study: (1) student activities, including the relative amounts of time students spend in on-task and off-task activities; (2) instructional approaches of the teacher, including the relative amounts of time teachers spent in instructional on-task interaction and off-task interaction or non-interaction with students; and (3) structural characteristics of instruction, including the years of Chapter 1 teaching experience of the teacher, numbers of students in a group, teacher's total caseload, attended days of instruction, and actual amounts of instruction.

One of the hypotheses of this study was that the more time students spent in on-task activities, the greater the achievement gains would be. Regression analysis indicated that this was true for grade four, but was not true in second grade. This finding is in keeping with the specific variables found to be significant at the respective grade levels. These specific variables are addressed in detail in the discussion that follows.

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* The tolerance level for the addition or deletion of a variable was set at .15, a commonly-accepted level of tolerance.

Second Grade Results

The largest proportion of variation on achievement gain scores is typically explained by the average initial pretest score: the lower the initial performance level, the greater the average gain score. This is not so much a research finding as it is a statistical phenomena.* In this study, the average second grade pretest score explained 37 percent of the variation on gains scores (Table 9).

TABLE 9

SIGNIFICANT VARIABLES
GROUP LEVEL ANALYSIS
GRADE 2

| Variable | Standardized Coefficient | Unstandardized Coefficient | Additional Contribution to $R^2$ |
|---|---|---|---|
| Pretest Score | -.52 | - .61 | 37 |
| Oral Reading | -.23 | - .04 | 5 |
| Chapter 1 Experience | .30 | .78 | 4 |
| Phonics | -.21 | - .01 | 1 |
| Monitoring | .14 | .004 | 2 |
| Teacher Management | .14 | .009 | 2 |
| Teacher Other Off-Task | -.37 | - .03 | 1 |
| Student Other Off-Task | .34 | .03 | 1 |
| Positive Feedback | .20 | .13 | 1 |
| Being Disciplined | -.17 | - .19 | 1 |
| Group Size | -.10 | -1.08 | 1 |

Total $R^2$ = .76
Adjusted $R^2$ = .72
a < .15, Stepwise Approach

*Lower pretest scores have less "restriction of range" and can demonstrate greater gain scores. Additionally, students who test exceptionally low on pretests are more likely to invoke the "regression effect", whereby students test lower than their "true" performance (due largely to measurement error) who demonstrate relatively larger gains on subsequent testing.

Student Activities. The most important instructional variable explaining differences in average group achievement gains was the amount of time students spent in oral reading activities: the more time spent in oral reading, the smaller the average achievement gain. Similarly, the more time students spent in phonics activities and the more frequently they were disciplined, the smaller was the average achievement gain. Although it was expected that increased frequency of all off-task activities would diminish the average achievement gains, this expectation was not born out. In fact, one off-task variable: expending some amount of time in interactional off-task activities (such as building rapport, receiving rewards and celebrating birthdays), contributed positively and significantly to average achievement gains. Caution must be exercised in interpreting this finding; clearly, increasingly greater amounts of time in essentially off-task activities could diminish the size of achievement gains. Students who received more discipline also had lower achievement gains.

The second grade results were identical at both the individual student and group levels of analyses. However, at the individual level, an additional finding surfaced: the more time an individual student spent on vocabulary activities, the greater the achievement gain (Table 10). This finding supports the notion that second graders require a broad-based sight vocabulary and understanding of word meanings before they can derive understanding from print in context.

TABLE 10

SIGNIFICANT VARIABLES
INDIVIDUAL LEVEL ANALYSIS
GRADE 2

| Variable | Standardized Coefficient | Unstandardized Coefficient | Additional Contribution to $R^2$ |
|---|---|---|---|
| Pretest Score | -.49 | -.56 | 35 |
| Oral Reading | -.22 | -.04 | 3 |
| Chapter 1 Experience | .23 | .70 | 4 |
| Student Other Off-Task | .29 | .03 | 1 |
| Teacher Other Off-Task | -.26 | -.03 | 2 |
| Teacher Management | .13 | .01 | 1 |
| Phonics | -.16 | -.01 | 1 |
| Monitoring | .13 | .003 | 1 |
| Positive Feedback | .11 | .07 | 1 |
| Being Disciplined | -.06 | -.10 | 1 |
| Group Size | -.06 | -.003 | <1 |
| Vocabulary | .07 | .96 | 1 |

Total $R^2$ = .62
Adjusted $R^2$ = .60
a < .15, stepwise approach

Instructional Approaches. Two teacher instructional approaches proved significant in explaining variation in average class achievement gains. The more time teachers spent monitoring student progress, managing instructional activities, and providing positive feedback to students, the larger were the average achievement gains. Teachers who spent larger amounts of their class time in interactive off-task activities with their students tended to have lower average achievement gains.

Structural Characteristics. One structural characteristic of Chapter 1 instruction proved significant in explaining differences in the size of achievement gain: the larger the size of Chapter 1 instructional group, the smaller the average gain. Also, the more years of experience teaching in a Chapter 1 program a teacher reported, the larger were his/her class average achievement gains.

Second graders were on-task when teachers monitored instructional activities more frequently ($r = .60$), when they received more feedback from teachers, either positive ($r = .42$) or negative ($r = .45$), and when teachers provided greater management of the instructional activities ($r = .33$). Somewhat lower but moderate relationships were revealed between Chapter 1 students propensity to be on-task and selected instructional approaches. Students were observed to be on-task when teachers interacted more frequently in task activities in general, as well as in terms of specific task interaction, presenting ($r = .28$), cueing ($r = .28$) and questioning ($r = .30$).

Certain student task activities were also related to the students propensity to be on-task. In particular, a strong relationship was demonstrated between the amount of time students spent in phonics activities and on-task behavior ($r = .60$), low-to-moderate relationships were demonstrated between oral reading activities ($r = .26$), language activities ($r = .32$) and on-task behavior. Although larger amounts of time devoted to phonics and oral reading activities appear to generate more on-task behavior, the reader is cautioned that higher frequency of these activities were negatively related to gains in achievement. The complete correlation table of actual amount of on-task time with student activities, instructional approaches and structural characteristics can be found in Appendix H, Table A-2.

## Fourth Grade Results

Student activities and instructional characteristics were also investigated to identify important characteristics of reading instruction for fourth graders. Contrary to the typical expectation where the average initial pretest score explains the majority of the variation on the gain score, pretest scores explained no more of the variation than did the combined other in-class variables. This is a highly encouraging finding, since it provides support for the notions that thoughtful structuring of student activities, effective time management and the utilization of effective teaching practices can result in larger achievement gains for classes of all levels of initial performance. Tables 11 and 12 report the significant fourth grade variables at the group and individual analysis levels respectively.

TABLE 11

SIGNIFICANT VARIABLES
GROUP LEVEL ANALYSIS
GRADE 4

| Variable | Standardized Coefficient | Unstandardized Coefficient | Additional Contribution to $R^2$ |
|---|---|---|---|
| Vocabulary | .36 | .01 | 14 |
| Pretest Score | -.30 | -.26 | 10 |
| Chapter 1 Experience | .28 | .59 | 6 |
| Oral Reading | .22 | .03 | 5 |
| Student Other Off-Task | -.18 | -.02 | 3 |

Total $R^2$ = .38
Adjusted $R^2$ = .36
a < .15, Stepwise Approach

TABLE 12

SIGNIFICANT VARIABLES
INDIVIDUAL LEVEL ANALYSIS
GRADE 4

| Variable | Standardized Coefficient | Unstandardized Coefficient | Additional Contribution to $R^2$ |
|---|---|---|---|
| Pretest Score | -.47 | -.44 | 18 |
| Vocabulary | .13 | .01 | 5 |
| Negative Feedback | -.13 | -.06 | 3 |
| Chapter 1 Experience | .15 | .39 | 2 |
| Being Disciplined | -.13 | -.14 | 1 |
| Student Other Off-Task | -.15 | -.02 | 2 |
| Language | .11 | .01 | 1 |
| Positive Feedback | .09 | .06 | 1 |

Total $R^2$ = .33
Adjusted $R^2$ = .31
a < .15, Stepwise Approach

Student Activities. The best single predictor of average group achievement gains in fourth grade was the amount of time students spent in vocabulary activities (defined as building basic sight word vocabulary and word meaning). The more time students spent in vocabulary activities, the larger was the average achievement gain. The more time students spent in oral reading activities, the greater was the average achievement gain. At the individual level of analysis, vocabulary was also the strongest predictor. In addition, the more time a student spent in language activities, the larger the achievement gain.

As hypothesized, several off-task activities were related to lower achievement gains. The more time students spent in interactional off-task activities with the teacher (e.g. celebrating birthdays, building rapport), the lower was the achievement gain. At the individual level of analysis, the more time (and the more frequently) the student was disciplined by a teacher, the lower was the achievement gain.

Instructional Approaches. At the individual student level of analysis, teacher instructional approaches proved significant in explaining achievement gains. The more frequently teachers provided positive feedback to students and the less frequently they provided negative feedback, the larger was a student's achievement gains.

Structural Characteristics. Similar to second grade findings, the more years of experience teaching in a Chapter 1 program a teacher reported, the larger were both average group and individual student achievement gains.

Additional correlational analyses were also conducted at the group level to identify characteristics of fourth grade reading instruction that were related to a students' propensity to be on-task or off-task during their Chapter 1 instruction. All of the student on-task activities with the exceptions of oral reading ($r = .17$) and test taking ($r = .11$) were highly correlated with total on-task time. The strongest relationships were with language, ($r = .52$), vocabulary ($r = .45$) and comprehension ($r = .40$). In addition, the student off-task activities of waiting for further direction from the teacher ($r = .26$) and management activities ($r = .49$) were also correlated with the frequency of total on-task behavior. All of the teacher interactive on-task activities with the exception of negative feedback ($r = -.03$) were also correlated with total on-task time. The instructional approach of management activities ($r = .46$) was significant as well (See Appendix H, Table A-3)

## DISCUSSION

It must be clearly pointed out that the analyses that were conducted were designed to explain why Chapter 1 programs vary in the size of their achievement gains. The results of such an analysis alone should not be utilized to identify effective instructional activities. A pertinant example of an erroneous interpretation of findings is exemplified by the failure of the amount of time spent in comprehension activities to be significant in explaining fourth grade gains. Comprehension activities were the most frequently occurring activity. In all probability, this consistency of emphasis on the relative importance of comprehension activities accounts for its failure to significantly explain difference in achievement gains. This is not to say, however, that it is an unimportant activity.

There are at least two possible explanations for this failure. First, perhaps the comprehension related definition of vocabulary activities (building word meanings) was the important aspect of the vocabulary component at the fourth grade level. Thus, when vocabulary activities explained a large proportion of the variance on achievement gains, it was this "splinter" comprehension skill that was contributing to that finding.

Secondly, fourth grade students spent on the average, more than 25 percent of all time available in comprehension activities. In all probability, this lack of much variation on the amount of time spent in comprehension activities accounts for its failure to significantly explain achievement gains. Nonetheless, comprehension activities are clearly important to improving reading ability, as supported by the effective schools literature.

The importance of the quantity of instructional time on student achievement has been the subject of much theoretical discussion and empirical investigations (Bloom, 1974; Carroll, 1963; Wiley and Harnischfeger, 1974; Brophy, 1979; Denham and Lieberman, 1980; Frederick and Walberg, 1980; Good, 1979; Rosenshine, 1979, 1980; Filby and Cahan, 1978; Block, 1975; Barr, 1974; 1975; Anderson, 1973; Sirotnik, 1982; Evertson, 1980; Powell and Dishaw, 1980; Stallings, 1980, 1975; Pfannenstiel and Sewell, 1980; Good and Beckerman, 1978; Arlin and Roth, 1978; Carroll and Spearitt 1977). Nonetheless, analyses conducted for this study reveal that simply increasing the quantity of instructional exposure is not sufficient to attain greater achievement gains. In fact, the expenditure of greater amounts of time in certain reading activities may actually diminish the size of achievement gains. Spending greater or lesser amounts of time in specific instructional and interactive activities proved to be the important aspect of instructional time.

The general finding that not only the quantitative but also the qualitative aspects of instruction are important is in keeping with recent investigations, although the amount of research that has been conducted to support this notion has not been as extensive (Anderson, 1981; Centra and Potter, 1980; Karweit, 1983; McDonald and Elias, 1976; Duffy, 1981; Slavin, 1983). Both the amount and quality of oral reading activities has been demonstrated in past research to be important aspects of the acquisition of reading skills. Providing opportunity for practice in the direct reading of print has been found to be important for the development of fluent reading skills. In regular classrooms, it has been found that low performing children spend as much as 90 percent of their time in oral reading activities (Allington, 1982). One of the most striking findings of the present study was the comparatively small amounts of time second grade students in Chapter 1 classes spent in either silent or oral reading activities (averaging about 8 percent of class time for both silent and oral reading).

The amount of oral reading was significant in explaining gains in achievement in both second and fourth grades. However, contrary to expectations of past research, oral reading was found to be negatively related to achievement gains in second grade. At least two possible explanations for this negative relationship exist. Perhaps Chapter 1 second graders do not have the required skills to read in context. If this is the case, the acquisition of broad-based sight vocabulary and the synthesis of reading skills required to derive meaning from print might be more appropriate ways to spend time. Secondly, research in regular classrooms suggests that silent reading should precede oral reading activities in order to provide the practice necessary to acquire comprehension (Samuels, 1985; Brecht, 1977; Durkin, 1983). Oral reading approaches where students have not been provided the opportunity to practice are particularly detrimental to low performing children, providing them increased opportunities to hear other children (and themselves) stumbling over words and thereby decreasing the level of comprehension.

Contrary to second grade findings, fourth grade results revealed that greater amounts of time spent in oral reading activities increased average achievement gains. The amount of time spent in silent reading, however, was unrelated to achievement gains. One plausible explanation for these findings is that direct oral reading activities may be particularly effective for Chapter 1 fourth grade students if they allow for more individualized instruction, more corrective feedback, and demand more concentration from the student than is true for silent reading activities.

Second grade analyses further indicated a negative relationship between the amount of time spent on phonics activities and achievement gains. Clearly, one should not interpret this negative relationship to indicate that time spent in phonics activities is totally inappropriate. Again, it is the amount of time spent in phonics activities relative to the expenditure of time in other reading activities that is at issue. Phonics instruction has in the past been criticized for its detraction from "meaning" activities (Goodman, 1976; Smith, 1973), which has been attributed to "the false dichotomy between phonics and meaning that has dominated the field of reading for so many years" (Becoming A Nation of Readers, 1985: 42). This criticism appears appropriate for the interpretation of findings in this study, since it was found that the more time groups spent on phonics activities, the less amount of time they spent on comprehension activities (r = -33). Perhaps second grade groups that are characterized by large expenditures of time in learning the isolated reading skills of phonics are not provided sufficient amounts of comprehension-related activities. Although the study was not designed to allow for a recommendation of an "optimal" amount of time that is appropriate for phonics activities in Chapter 1 classes, it is clear that expending as much as 65 percent of class time on phonics diminishes the size of average class achievement gains. This finding supports recent recommendations that phonics should be taught early and kept simple, and should go hand in hand with opportunities to identify words in a meaningful context (Becoming A Nation of Readers, 1985).

A finding at the second grade level, that appeared to be contradictory to fourth grade findings was that greater amounts of teacher time spent in other off-task interactions with students tended to diminish the size of their class gains. Further investigation revealed that teachers who spent more of their class time in other off-task activities (such as building rapport with the students) also tended to be characterized by some less-desirable instructional practices. For example, teachers who spent greater amounts of time in other off-task interactions also tended to be non-interactive a great deal of the time (r = .55); they spent more time disciplining students (r = .55); and their students spent more time in other off-task activities (r = .41) as well as being academically unoccupied more frequently (r = .66) (Appendix H, Table A-4).

Further support for the theoretical importance of positive and supportive student-teacher interactions was provided by the findings in both second and fourth grades that the provision of more frequent positive feedback to students contributed to greater achievement gains; and the finding in the fourth grade that the provision of more frequent negative feedback reduces the size of achievement gains. Additionally, classes characterized by teachers who interacted more frequently with their students demonstrated a greater frequency of on-task behavior in both second and fourth grades (r = .85).

Past research has demonstrated that positive and supportive interactions are important aspects of instruction, especially for younger, lower-achieving students (Brophy and Evertson, 1976; Cantrell, Stenner and Ketzenmeyer, 1977; Good and Beckerman, 1978; Brophy, 1981). The amount of time students spent in other off-task activities was positively related to student gain. The interpretation of this finding must be tempered by the fact that second grade classes differed in the amounts of time spent in these activities in three ways: they tended to spend no amount of time in such activities, they spent an average of 3 percent of their time in these activities, or they spent as much as 24 percent of their time thus engaged. Therefore, the expenditure of some amount of time in other off-task activities by students for the purpose of building rapport or providing rewards contributed significantly to student achievement. However, with some of the observed classes spending up to 24 percent of their time in such activities may well detract from the expenditures of time in meaningful instructional activities, which is a major objective of the rapport-building activities.

The effects of size of instructional grouping on achievement has been the subject of much speculation and some research (see Glass et al., 1982 for a review of research findings). Generally, the anticipated negative effects of larger instructional groupings has only been demonstrated in regular classroom research where a large amount of variation in the size of instructional groupings exists (e.g. between groups larger or smaller than about 30 students). Despite the fact that the average size of a Chapter 1 instructional group in second grade was only four students (and ranged from one to eight students), the negative effect of larger group size was demonstrated. In order to identify the potential reasons why group size negatively affected achievement gains, correlational relationships were examined. They revealed that students in larger instructional groupings spent significantly larger amounts of their time being disciplined ($r = .23$), waiting for further direction from the teacher ($r = .22$) and being academically unoccupied ($r = .20$) (Appendix H, Table A-5).

Past research findings have demonstrated a positive relationship between the overall quantity of teacher interactions and achievement gains (Jackson, 1968) and the amount of on-task interactions and achievement gains (Stallings, Needles and Stayrock, 1979). Findings in this study further this research by specifying the types of interactions that are related to achievement gains. The amounts of time teachers spent in specific instructional activities related to achievement gains. Teachers of the second grade, who spent more time monitoring their students' progress and activities, demonstrated larger achievement gains. This finding is consistent with recent evidence which indicates that in-class instructional strategies that are aimed at immediately clarifying students' misconceptions, and that provide opportunities to adapt instructional activities to meet students' interests and needs, are more beneficial for student learning (Wang and Lidvall, 1984; Shroyer, 1978; Conners, 1978). Additionally, teachers who spent adequate amounts of time in management activities apparently yielded learning environments that were better organized for instruction and demonstrated greater gains in achievement.

A finding discussed earlier examined the amount of time students actually attended Chapter 1 classes in comparison to how much time actually was available. Approximately 10 percent more time was available than what students

actually attended. Through regression analysis, it is possible to theoretically project how gains would be influenced if instructional time is increased, and the increased amount of time is spent in the identified activity. It is important to remember that all other activities would have to be continued the same as was done in the past, and that the emphasis on a particular activity would have to be in addition to that time.

Using the significant student and teacher behaviors from the group level analysis, Tables A-6, and A-7 in Appendix H explain how much time a 10 percent time increase in a given activity would theoretically influence NCE gains.

Table 6 states that in this study an average of 415 minutes was spent on vocabulary activities by individual students in fourth grade between pretesting and posttesting. If this time is increased by 10 percent, an additional 42 minutes would be spent in this activity. If this were done, the gain could be increased by approximately .2 of one NCE. Similarly, decreasing the amount of time spent in other off-task activities by 10 percent, or 10 minutes could also increase gain by approximately .2 of an NCE.

The difficulty in applying such findings to "real-life" Chapter 1 classes is that all of the other activities that have been carried on in the past, must continue to be carried on, and to the same degree as before. Then the change in time is in addition to or less than these continued activities. Only if the exact amounts of time indicated in Tables A-6 and A-7 are devoted to the activities included, will the NCE changes indicated result. This information can be valuable to LEA personnel in that it establishes, in terms of actual time, some bench-marks to use in planning instructional activities.

At both grades and at both the individual and group levels of analysis, the experience of the teacher consistently appeared as a significant variable. As discussed earlier, this study made no attempt to define what teacher experience is; the only information gathered was the number of years an individual had taught in Chapter 1 classes. However, this finding is one that administrators may wish to keep in mind when employing and assigning staff to Chapter 1 positions.

Appendix A

QUALIFICATIONS AND RESPONSIBILITIES OF KEY PERSONNEL

## QUALIFICATIONS AND RESPONSIBILITIES OF DIRECTOR AND OTHER KEY PERSONNEL

Dr. Oliver T. Himley, the project director, has been associated with Chapter 1 efforts since 1970 when he assumed the position of chief of the Iowa Chapter 1 Section. His interest in improving program quality at the LEA level has been evident in his years of working with Chapter 1 programs. Collecting defensible data and requiring stringent quality control of the processing have been a given for Dr. Himley. His intended utilization of such data has been to provide information to LEAs and also present findings regarding factors that contribute to successful programs. This study is a continuation of these efforts.

Dr. Himley has been recognized at the state level for his contributions in the reading area. He was presented the 1983 Reading Service Award from the Iowa Reading Association. In addition, he has been a visible figure at the national level having worked closely with Department of Education personnel as well as the offices of key Senators and Representatives.

All budget concerns for this project were the responsibility of Dr. Himley. He was also the person responsible for all ultimate decisions regarding this project.

Coleen McClanahan, assistant project director, has a comprehensive background in elementary reading and Chapter 1. Her teaching experience included preschool, first grade and Chapter 1 reading. This teaching experience linked with her administrative experience of directing a Chapter 1 program that included a staff of twelve teachers and twelve teacher associates created a background highly relevant for the study. The Chapter 1 program which she coordinated was given National Joint Dissemination Review Panel (JDRP) approval six months after she left that position to become a Chapter 1 consultant at the Iowa Department of Public Instruction (DPI).

Reviewing Chapter 1 programs for the DPI and continued involvement in professional organizations have continued to keep Ms. McClanahan abreast of what is happening at the local level. In her work at the State Chapter 1 level, she has been the evaluation consultant, has reviewed programs and presented workshops at the Area Education Agency (AEA) level for Chapter 1 personnel. The content of these workshops has included evaluation requirements, explanation of Model A-1, explanation of the NCE, use of evaluation feedback reports, appropriateness of functional level testing and considerations to be used for proper test selection.

Ms. McClanahan was responsible for the day-to-day conduct of this project. Her major responsibilities included the designing of the observer training materials and sessions, overseeing the actual observations, directing the quality control of the data, providing input into the analysis process and writing the reports. Beyond this, the additional planning and dissemination and technical assistance efforts will be a prime responsibility of hers.

Dr. Leland Tack, chief of the Data Analysis and Statistics Section of the Iowa DPI, served as the principal analyst for this project. Dr. Tack has served as a technical advisor in the development of the Iowa Chapter 1 evaluation system. Much of the success of the quality control aspects of the system can be attributed to Dr. Tack. In addition to this, he has conducted all of the prior state-level investigations of the Chapter 1 data.

In his capacity as consultant, director and chief at the Iowa DPI, he has had extensive experience in applied statistics, data processing and research methodology for both large and small scale projects. He has been involved with instrument development, testing, surveying, coding, analyzing and reporting data. In addition, Dr. Tack has been a consultant to other staff members with respect to research design, sampling, survey instrument design, data gathering, data coding and analysis.

Dr. David Alvord, consultant in the Data Analysis and Statistics Section of the Iowa DPI, served as assistant analyst for this project. Dr. Alvord brought experience from the elementary through post-secondary levels to this project. He was involved in the initial design of the project.

Ms. Judy Pfannenstiel, Assistant Project Director and Senior Research Associate with the Chapter 1 Technical Assistance Center (TAC), was called upon by the SEA for assistance in this project. Ms. Pfannenstiel was involved in the research design of the project, in the data analysis and report writing.

Ms. Pfannenstiel has demonstrated expertise in project management, coordination, and integration. She also has significant experience in data analysis and is thoroughly familiar with the procedures and methods of both quantitative and qualitative analysis as employed in high quality evaluations. In addition, Ms. Pfannenstiel is familiar with the difficulties inherent in conducting credible program evaluations at the local level. She is highly capable of integrating evaluation procedures with the programmatic activities of local education agencies.

Dr. Carol Vacek, TAC Research Associate, provided input for the design of this project. Because she terminated her employment with the TAC as of August 1, 1983, she was not involved in the project beyond that time. Her background in the area of reading as well as Chapter 1 provided invaluable assistance to the SEA.

Dr. Dianne Seltzer, TAC Senior Research Associate, continued the work on this project begun by Dr. Vacek. The SEA involved her in the development of materials for observer training sessions, conduct of initial observer training sessions and follow-up training sessions, data analysis and report writing.

Dr. Seltzer brought expertise to this project in the area of reading. Her research and teaching experience at the elementary school as well as college level provided a broad base of experience to the project.

Appendix B

# IOWA CHAPTER 1 READING STUDY OBSERVER HANDBOOK

# IOWA

# CHAPTER 1 READING

# STUDY

## OBSERVER HANDBOOK

September, 1983

State of Iowa
DEPARTMENT OF PUBLIC INSTRUCTION
Grimes State Office Building
Des Moines, Iowa 50319

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### Pupil Personnel Services Branch

Drexel D. Lange, Associate Superintendent
Oliver T. Himley, Chief, Chapter 1, ECIA
Coleen McClanahan, Consultant, Chapter 1, ECIA

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# IOWA CHAPTER 1 STUDY

## Background Information

Chapter 1 of the Education Consolidation and Improvement Act of 1981 provides financial assistance to meet special educational needs of children. Programs that are functioning under this legislation must be supplemental, which means that students who attend Chapter 1 classes also get as much reading instruction from their regular classroom teacher as all other students and then receive Chapter 1 instruction in addition. Generally Chapter 1 classes take place in a location away from the regular classroom. Also, instruction is individualized to the extent possible and therefore Chapter 1 students meet in small groups. A variety of methods and materials are employed in Chapter 1 programs. As a rule, not all students in a class do the same assignment, therefore several activities can be on-going simultaneously.

An observer can expect to find Chapter 1 classes meeting from 20-40 minutes with from 1-8 students in the class.

Chapter 1 is primarily the same program that was known as "Title I" prior to 1981. The change in legislation changed the name of the program.

Each year the students in Chapter 1 classes are given a pretest and a posttest as part of the evaluation process to ascertain the amount of achievement gain that has occurred during the school term. These data are collected annually at the state level and are aggregated at grade, building, district and state levels. In addition to pretest and posttest information, data are also collected on other program variables including caseload, program type, time in the program, and student-instructor ratio. Using these data, the Iowa Chapter 1 Section has implemented an evaluation system that generates high quality data. However, only a small amount of the achievement gain can be explained by the data collected on selected variables. This is at least partly due to the fact that these global measures do not vary greatly throughout the state. Obviously, other factors are involved that contribute to successful Chapter 1 programs. Determining what these other factors are is the subject of this study. It appears that the kind of data required to identify those factors cannot be collected via Iowa's current evaluation documents. In addition, within-classroom data is needed. This study will conduct an indepth examination of representative programs at the LEA level. In this manner, the differences in achievement will be determined by identifying the amounts and kinds of within-class variables present.

## Chapter 1 Study Information

The purpose of this study is to conduct an on-site study of within-class variables to determine those that affect achievement. The study will focus on reading programs in grades two and four. Observers will be assigned to specific "sites" to do their observations. A site is defined as a grade within a particular building in a given school district. Not all Chapter 1 students in a grade will necessarily be observed. The number of groups observed will depend on scheduling. Only the grade specified at a site will be observed.

Individual students and instructional approaches will be observed. A student identification code will be assigned to each student. This will be his/her I.D. number for the entire study. A master list of students' names and IDs will be compiled and one copy given to the Chapter 1 teacher and another to the building principal. All data used by the DPI will have student IDs only.

During an observation period, the instructional approach will first be observed for a ten second time frame. Then within the next five seconds, this approach will be recorded. Next the first student will be observed for ten seconds. During that same ten second interval, the instructional approach will also be observed as it relates to the student being observed. Both the student behavior and the instructional approach will be recorded in the next five seconds. All students will be observed in this manner.

When one complete cycle of the instructional approach and all students has been finished, an amount of "wait time" will occur before another cycle is initiated. This "wait time" is built into the schedule so that each student and instructional approach will be observed fifteen times during a class period. The "wait time" calculation is based on amount of time and number of students in the group.

Summary of Observation Procedure

I. Use Wait Time Matrix to determine number of seconds between observations.

II. Observe the instructional approach for 10 seconds.
   A. Determine whether the instructional approach is interactive or non-interactive.
   B. Determine which of the categories is appropriate.
   C. Record the appropriate code in the following five seconds.

III. Observe student #1 for ten seconds
   A. Determine if he/she is on-task or off-task.
   B. Determine which of the behavior categories is appropriate.

IV. Observe the instructional approach.
   A. Determine whether the instructional approach is interactive or non-interactive in relationship to student #1.
   B. Determine which of the categories is appropriate.

V. In the following five seconds, record the appropriate student behavior code and instructional approach code.

VI. Observe student #2 (Follow procedure outlined for student #1.)

VII. Observe the rest of the students in the group in the same manner.

Each site will be observed for one week at three different times during the school year. However, in each observation cycle, there are three weeks. Therefore, an observer will have three different "assignments" during a cycle. These same assignments will be repeated during the second and third cycle. The times are as follows:

Cycle I - October 31-November 18, 1983
Cycle II - January 9-January 27, 1984
Cycle III - March 12-March 30, 1984

During the week of January 2, 1984 and during the week of March 5, 1984, a one day follow-up training session will be conducted for observers.

## GENERAL SCHOOL BEHAVIOR*

1. Be considerate of school parking facilities. Be careful not to park in someone's assigned space, or to block other cars or entrances. If the school lot is small, or if there is any question as to whether or not you can park there, park on the street.

2. When arriving, report to the office in the school buiding. Explain who you are, the purpose of your visit and how long you will be there.

3. Be as efficient as possible. Try to cause as little disruption to the school or classroom processes as possible.

4. Maintain a professional approach at all times. Be friendly but not "chummy." Respect the teacher's position as the authority in his/her classroom. Respect the principal's authority as head of the school. And most of all, respect the enormous load that all school personnel must handle. Try to be flexible and calm no matter what happens.

5. Maintain distance with the children.

6. Be open and accepting of any suggestions made by school personnel. If the suggestions do not conflict with the interest in obtaining precise data, try to be as accommodating as possible.

7. If teachers or other school personnel ask questions about what you are doing, be polite, answer briefly, but do not discuss the matter in detail.

8. Never talk about a child, teacher, class or any other school personnel while in the school. Remember that as an outsider, personal views will not be appreciated.

9. Never discuss another school while on site. This can only lead to discomfort of those at the present site, as they will be concerned about what might be said about them at the next site.

10. Be appreciative. Thank all involved for their time and assistance.

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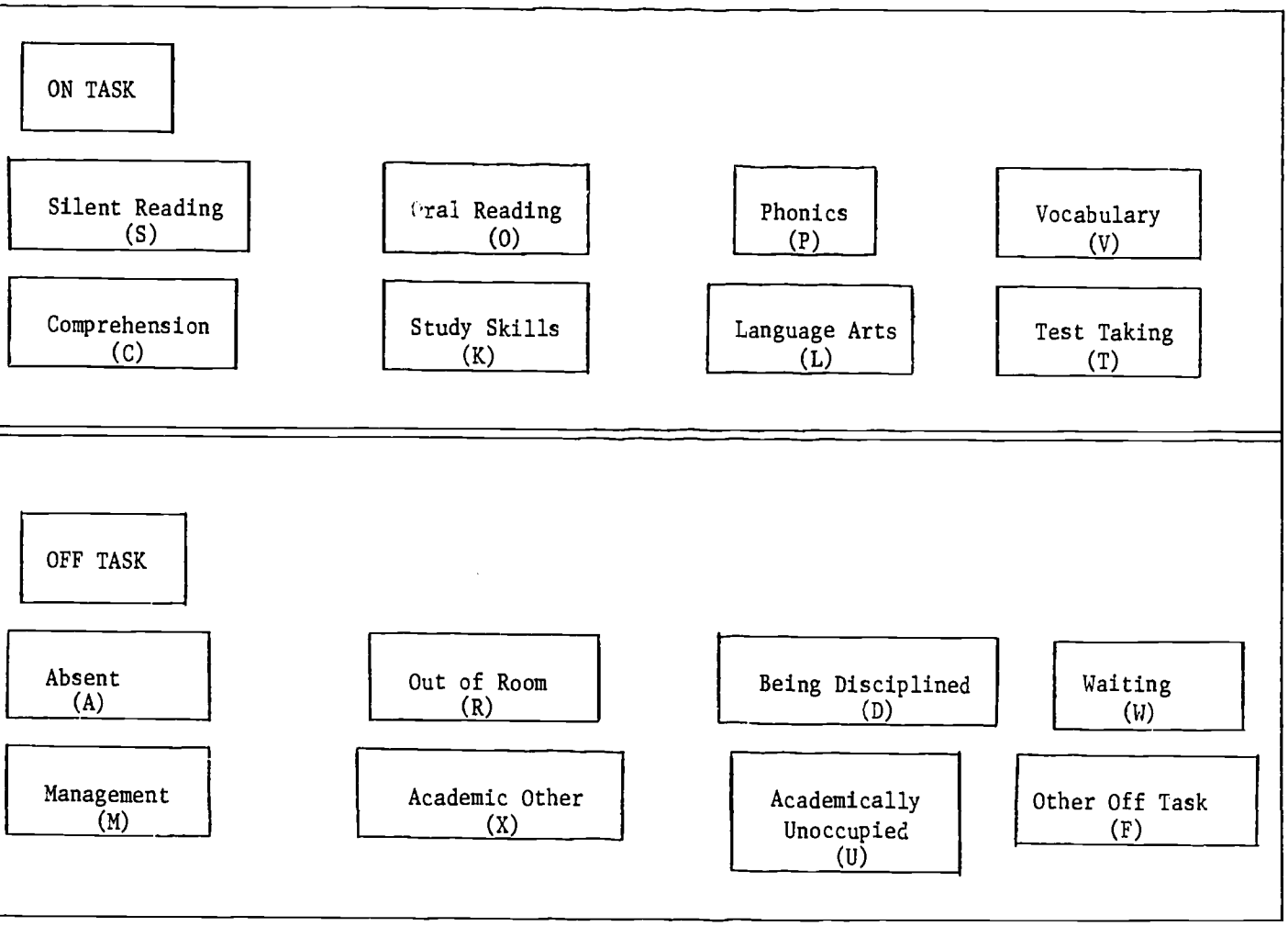
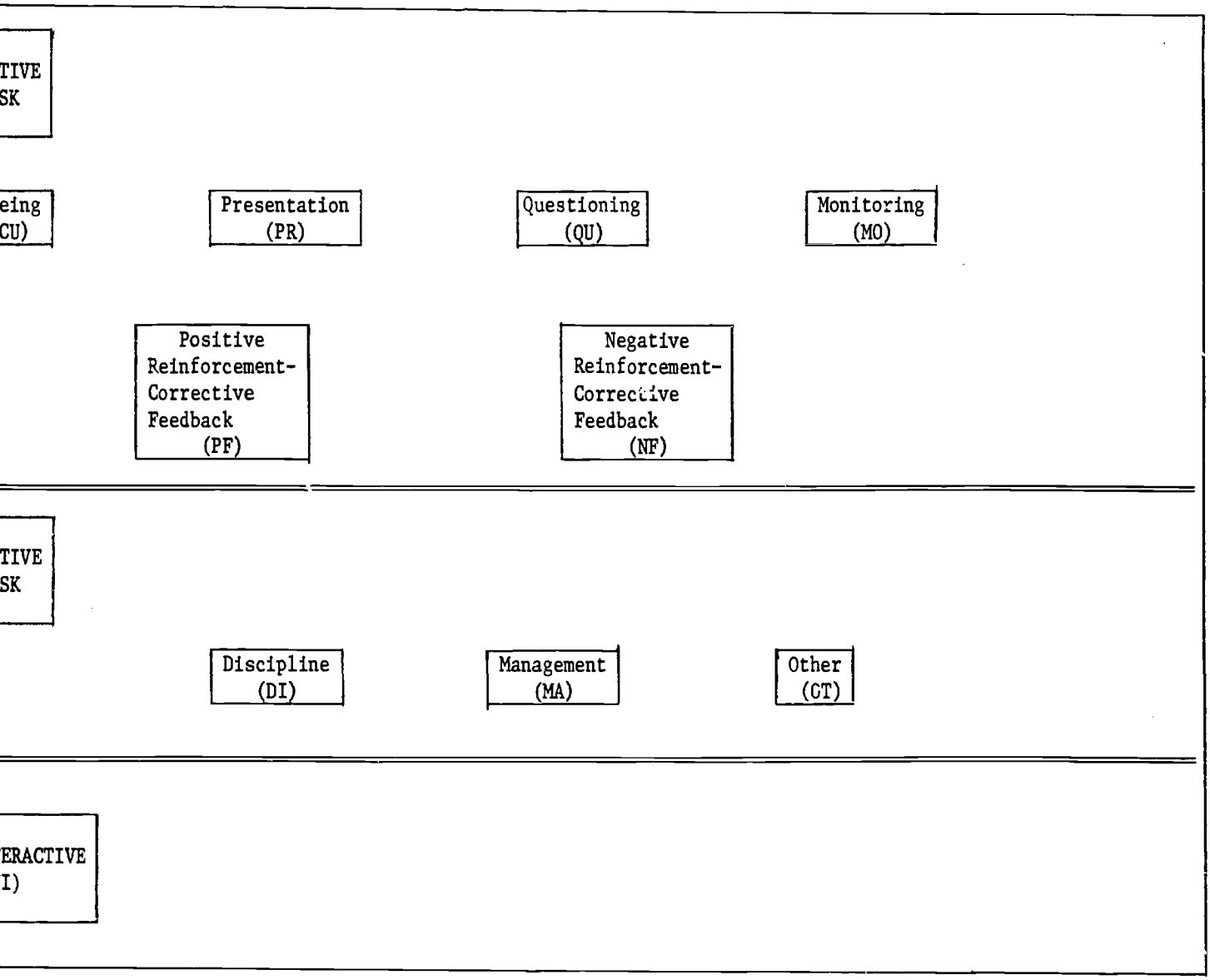
* Leinhardt, Gaea, & Seewald, Andrea Mar, Student-Level Observation of Beginning Reading Manual. Pittsburg, Pennsylvania: Learning Research and Development Center, University of Pittsburg, 1980.

STUDENT CATEGORIES



INSTRUCTIONAL APPROACH
CATEGORIES



## DEFINITIONS

### Student On-Task Behaviors

Silent Reading: A student silently reading meaningful print in context. No voice sound is audible. Reading meaningful print in context implies that both the acquisition of the meanings intended by the writer and the reader's own contributions in the form of interpretation, evaluation, and reflection about these meanings are taking place. Some behaviors that may indicate a student is reading silently include: head movement, eye movement, pointing to the printed words, lips forming words (but no sound emitted), and the relative position of the print and the student's head and eyes.

Direct silent reading must deal with activities in which the material the students are using is more than one sentence in length. Reading paragraphs, passages, pages, etc., would constitute direct silent reading.

Oral Reading: A direct oral reading activity would have the same characteristics as direct silent reading, but would be audible. A student reading aloud either chorally or alone would be a direct oral reading activity.

Phonics: Phonics is concerned with the speech sounds that correspond to letters, letter groups, and syllables in words; letter-sound correlation. Any activities in which letter-sound relationships are the objective will be in the indirect phonics category. Some general phonics areas include: (1) consonant sound activities (beginning, medial, ending), (2) consonant blend activities, (3) vowel activities, (4) structural analysis activities (such as adding, s, to words), (5) working with prefixes and suffixes, and (6) syllabication.

Vocabulary: Vocabulary activities will involve individual words. There are two types of vocabulary activities that will be observed. Both will be coded as "vocabulary," with no designation of which type necessary. One type of vocabulary activity is learning to recognize words on sight (sight vocabulary activities). These activities will involve working with immediate recognition of words when they are seen. The other type of vocabulary activity involves increasing knowledge by learning the meaning of words. These activities will deal with individual words and their meaning.

Examples of vocabulary activities would include doing flash card word drills, putting a list of words on the board and discussing their definitions, using designated words in sentences and playing "concentration" with word cards.

Comprehension: Comprehension can be defined as understanding and interpreting the meanings embodied in printed symbols. It is understanding what an author has written. Following are examples of comprehension activities:

- answering questions relating to materials read
- finding details
- following directions
- finding the main idea
- sequencing
- anticipating meanings
- drawing inferences
- drawing generalizations
- evaluating
- categorizing
- predicting
- distinguishing between fact and fancy

Study Skills: Study skills can be defined as the functional skills of reading. These skills help students remember what they have read. Following are examples of study skills:

- ability to locate and interpret maps, graphs and charts
- alphabetizing
- using the dictionary
- using the encyclopedia
- using other types of reference materials
- using the card catalog
- outlining
- note-taking
- using book parts: cover, title page, title, author, publisher, etc
- using table of contents
- studying chapter heading, footnotes, section titles, etc
- using glossary, appendix, and bibliography

Language Arts: Other language arts activities will be in this category. This includes listening, writing and speaking. When students are being read to by someone or something (tape recording or reading machine) this will be considered "listening" and as such coded as language arts. Students who are explaining something, retelling an incident or describing an event are classified as "speaking" and as such classified under language arts. This is different from comprehension activities wherein students are responding to questions concerning a particular passage that has been read. When students are writing a passage as part of a Chapter 1 assignment, this will also be considered language arts. This would be different than writing answers to comprehension questions.

Test Taking: This category includes the administration and taking of any type of test. It can be standardized, informal or criterion referenced.

## Student Off-Task Behaviors

Absent: The student is not in school on this particular day. The observer will check after class with the teacher to find out if the student is truly absent from school or just not in Chapter 1 that day.

Out of the Room: The student is in school, but not attending Chapter 1. The observer will check after class with the teacher to find out if the student is simply out of the room or absent from school. This category will also be used if the student has left the room, for example to use the restroom or get some materials, during his/her observation period.

Being Disciplined: When the behavior of a student is not directly related to academic performance, and the teacher is attempting to alter that behavior.

Waiting: When a student is waiting for or seeking assistance from the teacher. If a student has gone as far as he/she can on a lesson and needs further clarification, for example, he/she would be coded as "waiting." A behavior can be coded as waiting only if it is caused by the teacher.

Management: When a student is organizing or gathering materials for an assignment or activity. Such things as finding the page to work on, getting materials from storage, and sharpening a pencil would be management activities. Also included would be listening to directions from the teacher.

Academic Other: When students are working on materials or assignments from other classes such as mathematics, social studies or science.

Academically Unoccupied: Any student behavior that is unrelated to academics. Included in this category would be socializing which is students interacting with other students or the teacher on a non-task topic. Also a student creating a distraction for other student(s) would be categorized as academically unoccupied. Examples of such disruptive behavior would include tapping a pencil on the table, hitting another student, climbing under the table, and making faces.

In addition to these examples, any time a student is inactive, observing activities in the room or daydreaming, would be included in this category. Staring into space, observing a disruptive student who is tapping his pencil on the table, and looking out of the window would be additional examples of a student being academically unoccupied.

Other Off-Task:

Any activity that does not appear to fit in any other category! The observer should maintain a listing of these behaviors.

## Interactive On-Task Behaviors

Cueing: When a teacher indicates to student(s) what is to be learned by giving directions related to the content of the lesson. In other words, explains what the student is expected to do in the learning process. Cueing goes beyond the management level ("do pages 14 and 15 in your workbook") of handling materials. Cueing will indicate what is to be learned, what the student is to do, and/or how he/she is to do it. An example of cueing would be a teacher specifying objectives or tasks to be learned or practiced. He/she might say, "The assignments will be pages 14 and 15 in the workbook and will deal with beginning consonant sounds." He/she then describes other activities the class has done relating to beginning sounds and then relates this assignment to their knowledge of the content.

Another example of cueing would be demonstrating how to perform a task. An illustration of this would be showing students how to play a board game.

Presentation: When the teacher presents or explains a concept. The teacher presenting a lesson on the comparison of long vowel sounds would be an example of instruction. Making clarifications and engaging the students in drill or practice would also be categorized as presentation. Any other interactive instruction not included in the other categories will be included in this category as well.

Positive Reinforcement Corrective Feedback:

Any words or actions by the teacher that will encourage the continuance of an activity by the student will be included in this category. Praise, singling out a student for achievement, and smiles are some examples. In addition, a teacher sharing specific information with a student about his/her academic performance in such a manner that it makes a positive impression on the student would also be included in this category. A statement such as "You've done very well today. On this lesson you completed 9 of the 10 items correctly. This is much better than yesterday." would be another example.

Negative Reinforcement-Corrective Feedback: Any words or actions by the teacher that will discourage the continuance of an activity by the student will be included in this category. Statements such as "Why on earth did you do that?" and facial expressions such as a frown would be included. In addition, a teacher sharing specific information with a student about his/her academic performance in such a manner that it makes a negative impression on the student would be included as well. Saying "You did poorly on this assignment. You only got 2 of the 10 items right." would be another example.

Questioning: When a teacher asks questions of whatever type to determine a student's knowledge. Any kind of comprehension questioning would fit here. Management questions would not fit in this category. An example of a management question would be "Do you have your workbooks open?"

Monitoring: When a teacher is not verbally interacting with students, and yet the teacher's attention is on the students. It could be that he/she is observing the students as they work independently.

Interactive Off-Task Behaviors

Discipline: When a teacher is attempting to alter a student's behavior when that behavior is not specifically related to academic performance.

Management: When a teacher gives directions without relating the task to the lesson content. Examples would include statements by the teacher such as "get your books," "you will need pencils and paper" or "follow the directions in your packet."

Other Off-Task: Any teacher behaviors that do not relate to reading and are not specifically discipline or managerial. Examples would include establishing rapport or decorating the room for a holiday.

Non-Interactive Behaviors

This category will be used whenever the teacher is not interacting with students.

CODES

Student

| | |
|---|---|
| Silent Reading | = S |
| Oral Reading | = O |
| Phonics | = P |
| Vocabulary | = V |
| Comprehension | = C |
| Study Skills | = K |
| Language Arts | = L |
| Test Taking | = T |
| Absent | = A |
| Out of Room | = R |
| Being Disciplined | = D |
| Waiting | = W |
| Management | = M |
| Academic Other | = X |
| Academically Unoccupied | = U |
| Other Off-Task | = F |

Instructional Approach

| | |
|---|---|
| Cueing | = CU |
| Presentation | = PR |
| Questioning | = QU |
| Monitoring | = MO |
| Positive Feedback/ Reinforcement | = PF |
| Negative Feedback/ Reinforcement | = NF |
| Discipline | = DI |
| Management | = MA |
| Other | = OT |
| Non-Interactive | = NI |

## REMINDERS

1. Cycle Dates:

   Cycle I: October 31 - November 18
   Cycle II: January 9 - January 27
   Cycle III: March 12 - March 30

2. Re-training Session Dates:

   1 day during week of January 2
   1 day during week of March 5

3. Coleen's Phone Numbers:

   Work: (515) 281-3965
   Home: (515) 233-1074

4. Coleen Not Available (1st Cycle):

   Wednesday, November 2 (out of town, can leave message)
   Thursday, November 3 (out of town, can leave message)
   Friday, November 11 (office closed)

5. Send Materials to This Address:

   Coleen McClanahan
   Chapter 1 Reading Study
   Department of Public Instruction
   Grimes State Office Building
   Des Moines, Iowa 50319

Appendix C

# DEFINITIONS OF GENERAL CHAPTER 1 AND REGULAR CLASSROOM VARIABLES

## GENERAL CHAPTER 1 VARIABLES

Group Size — The number of students receiving Chapter 1 instruction at the same time.

Total Caseload — A Chapter 1 teacher's total caseload. The "typical" number of students he/she maintains as the norm. If 40 students is the goal, and 5 would move away during the year, and 5 others were added, the caseload would still be 40, rather than 50.

Years of Teaching Experience

The number of years an instructor had taught Chapter 1 (not total years of teaching). The year of data collection was not counted.

Teaching Certification

The highest degree held as well as whether or not the Iowa reading approval had been obtained.

Allocated Chapter 1 Class Time

The amount of scheduled time for Chapter 1 classes.

Actual Chapter 1 Class Time

The amount of time Chapter 1 students actually spent in Chapter 1 class.

Total Days of Instruction Possible

The number of days between pretesting and posttesting that were available for students to attend Chapter 1 classes.

Actual Days of Instruction

The number of days between pretesting and posttesting that students actually attended Chapter 1 classes.

Days Absent — The number of days students were absent between pretesting and posttesting.

Days in School, but not Attending Chapter 1 Classes

The number of days students were in school and scheduled for Chapter 1 classes, but did not attend.

Chapter 1 Participation Eligibility

The score from a standardized test that made students eligible for the program, or the criterion reference method used to place students in the program.

Pretest Score, Posttest Score and Gain

Individual scores of each student in the project.

## REGULAR CLASSROOM VARIABLES

Allocated Total Reading Time

The total amount of time for which all reading classes were scheduled in the regular classroom.

Allocated Group Reading Time

The amount of time for which Chapter 1 students' groups were scheduled for instruction in the regular classroom.

Class Size — The number of students in the regular classroom from which the Chapter 1 students came.

Group Size — The number of students in the Chapter 1 participants' reading group during regular classroom instruction.

Teacher Certification

The highest degree held as well as whether or not the Iowa Reading Approval had been obtained.

Appendix D

# STUDENT SELECTION AND STUDENT ACHIEVEMENT INFORMATION

## DISCUSSION OF STUDENT SELECTION AND STUDENT ACHIEVEMENT INFORMATION

All of the participating sites followed the constraints associated with the Chapter 1 evaluation model, A-1, and only students who had valid scores were included in the analysis. Complying with the constraints of Model A-1, the following was the definition of a valid score:

1. A standardized test was used.

2. The student had both a pretest score and posttest score.

3. The pretest and posttest were administered within 30 days of the norming date of the test.

4. The pretest score was not used for selecting students for the program.

5. The same test battery and subtest were used for pretesting and posttesting.

6. The students were pretested in the fall and posttested in the spring.

Because the majority of Chapter 1 reading programs in the state of Iowa are pull-out programs, (where the instructional approach is diagnostic-prescriptive and the instruction occurred in a location other than the regular classroom) only students from these programs were included in this study.

An established SEA procedure encourages local districts to select a test battery and subtest that are reflective of a match between that test content and the content of the program being evaluated. Since Iowa has a computerized program available to convert raw scores to NCEs, local districts are required only to submit raw scores, and feedback reports are generated for them at the grade, building and district levels. Only the most commonly used tests in the state are included in this system, due to the cost of obtaining and adding norms tables for each test battery involved. Districts generally use these included tests because feedback reports can then be obtained. These are the only constraints imposed by the SEA regarding instruments used for evaluation purposes.

Figures A-1 and A-2 show the distribution of test batteries used by the sites in this study. A concern might arise regarding the validity of the findings when noting the fact that nine different test batteries were used to gather data. However, in all but four cases, either the comprehension subtest or the total score was reported. Total reading scores are a composite of all areas on a test and largely over-lap with comprehension scores. The four exceptions used a vocabulary subtest score.

FIGURE A-1
TEST BATTERIES USED BY SECOND GRADE SITES
FOR PRETESTING AND POSTTESTING

| Test and Edition Year | Percent |
|---|---|
| Gates MacGinitie (78) | 41 |
| Iowa Tests of Basic Skills (78) | 25 |
| Metropolitan Achievement Instructional (78) | 10 |
| Stanford Diagnostic Reading Test (76) | 10 |
| SRA Achievement Test (77) | 4 |
| California Achievement Test (77) | 4 |
| Metroplitan Achievement Survey (78) | 4 |
| Stanford Achievement Test (73) | 2 |

FIGURE A-2
TEST BATTERIES USED BY FOURTH GRADE SITES
FOR PRETESTING AND POSTTESTING

| Test and Edition Year | Percent |
|---|---|
| Gates MacGinitie | 48 |
| Iowa Tests of Basic Skills (78) | 17 |
| Metropolitan Achievement Instructional (78) | 13 |
| Stanford Diagnostic Reading Test (74) | 7 |
| California Achievement Test (77) | 7 |
| Metropolitan Achievement Survey Battery (78) | 4 |
| Metropolitan Achievement Test (70) | 2 |
| Stanford Achievement Test (73) | 2 |

Appendix E

CHAPTER 1 TEACHER ORIENTATION

## CHAPTER 1 TEACHER ORIENTATION

It was natural that anxieties and concerns would arise and should be addressed for personnel at the selected sites. To respond to these concerns, meetings for LEA staff who were involved in the project were planned and conducted by the Assistant Project Director and were held in three locations across the state prior to the initiation of the on-site observations. Approximately one hundred people attended these meetings and 55 of the 64 districts involved were represented. In addition, calls were received from four districts who were unable to attend because of unavoidable conflicts. These meetings were essential to establish a positive environment for the project. To preserve the integrity of the study, teachers involved were not informed of the specific behaviors that had been identified as observation categories.

Information presented at these meetings included the following:

A. History of Chapter 1 evaluation in Iowa
B. Purpose of study
C. Explanation of Secretary's Initiative for Chapter 1 Program Improvement
D. Rationale for on-site data collection
E. Rationale for grades selected
F. Site selection procedure
G. Observer selection and training process
H. Time frame
I. Explanation of forms maintained by teachers

It was important to stress that the intent of this endeavor was to collect data, and that in no way were schools, programs, or teachers being evaluated. It was also stressed that all data would be reported in the aggretate, and that anonymity would be preserved.

Teachers were asked to conduct classes in the same manner that they would if the observations weren't occuring. Teachers were encouraged to maintain as "normal" a classroom routine as possible. While it is tempting to conduct special types of activities when visitors are in attendance it was emphasized that this was not desired for this study.

Teachers were also asked to produce a sketch of their town or neighborhood along with a set of directions that would aid the observer in finding the school, parking, and where to go once in the building.* They were also asked to identify the students to be observed through the use of name tags so the observer could then establish an ID number for each child. The concept of a "master list" was explained; the master list being the names of the students and their assigned study ID. Only observers, Chapter 1 teachers and the building administrators had access to these master lists. They were never part of any DPI data.

The teachers were given copies of any schedules that involved them and were asked to check for accuracy the times and grades listed. These schedules also indicated which of the three weeks the observer would be at their site.

*See sample on the following page.

Iowa Department of Public Instruction
Chapter 1, ECIA Reading Study
LEA Map

(District)

(Building)

(Teacher's Name)

(Building Principal's Name)

(Building Address)

Directons for finding building:
(sketch a map)

Directions for finding Chapter 1 Room:
(sketch and/or written directions)

Where should observer go if in building, but not observing a Chapter 1 class?

Appendix F

# OBSERVER SELECTION AND TRAINING

## OBSERVER SELECTION AND TRAINING

To implement the on-site data collection strategy of this study, personnel, who were referred to as "observers", were hired to complete this task. Inasmuch as three distinct geographical areas of the state were identified as the locations of the observation sites, the observers were hired from these three geographical areas as a cost containment effort of the project. Advertising in the area newspapers as well as Iowa's major newspaper was intended to draw observer candidates from each of the geographic regions and thereby reduce travel expenses.

Three hundred eleven people responded to the advertisements; nineteen of whom were selected for training. The first step in the selection process involved eliminating those with no college work in education. The following criteria were then applied to those remaining:

1. Elementary school training
2. Elementary school teaching experience
3. Teaching experience in the area of reading
4. Iowa certification
5. Residence within geographic proximity to study sites

This objective process narrowed the list to 80 potential candidates. Following more scrutiny of the application letters plus phone contacts to determine continued interest, 36 individuals were invited to personally interview for the positions. The interviews were scheduled in the three geographic areas of the state represented by the selected sites, and were conducted by the project director and assistant project director. Six interview locations were used.

An interview form* was developed to systematize the uniformity of the interview process between the interviewers. The form requested information about employment constraints, educational background, experience in the teaching of reading, and references. In addition, six reading related terms were listed and the applicant was asked to define these terms.

To achieve consistency, all of the definitions were rated by one of the interviewers. The "score" of the candidate on the terms, plus an interview rating assigned on the basis of information and impressions given during the interview were combined for a total interview rating. The ratings were ranked within each of the geographic areas, and 19 people were selected to participate in the training sessions.

These 19 people participated in a three-day training session conducted by two project staff members. Based on their performance at the training, 12 of these participants were selected as observers, and seven were selected as a reserve pool in the event a selected observer could not complete the observations.

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*See sample at the end of this Appendix.

"A typical training program begins with an explanation of the purposes and theory involved in the given study and then moves on to an explanation of the categories and the rules for their use" (Selltiz et. al., 1959). Observers were provided with a brief review of Chapter 1 in general, and a history of the Iowa evaluation effort in particular. Performance expectations of the observers were explained, which involved an explanation of the premises of the study and the definition of categories.

Each of the student and teacher categories was presented and discussed in detail. Following this discussion, the trainers presented 91 oral examples of probable situations that would occur in the Chapter 1 classrooms. The participants independently coded these situations; each situation was followed by a group discussion.

The next step in the training sequence involved the use of 50 slides as a medium to simulate Chapter 1 classroom situations. In this segment of the training, the trainers showed the slides and described the specific situation. Again the participants coded the situations independently; each situation was followed by a group discussion.

The second day of training began with an explanation of the observation form (Appendix G). A silent video tape segment of an actual Chapter 1 classroom was shown during which trainers explained what was happening and how the observation form should be marked.

The second video tape segment involved three students. Enough of the tape was played to allow one cycle of observation to occur (all three students and the teacher). The coding was done for the entire group by one trainer while the participants observed. After the cycle, the tape was stopped—the situation and coding reviewed. Then another cycle of three students and the teacher was run and the same procedure followed. This was done through the entire segment. The entire segment was then replayed for the participants to code.

The next video tape segment to be used was played for one cycle with a trainer marking at the board and the participants marking their observation forms independently. Following the cycle, discussion again occurred. Three more cycles were done in the same manner. The remainder of the segment was played with the participants each independently coding their own form. Since timing would be a vital factor in the observation procedure, the ten-second intervals and five-second coding times were called out by the trainer who was working the equipment.

At this point a reliability check was run. The trainers had studied a tape segment cycle by cycle, and agreed on the appropriate coding. The participants coded the same segment and comparisons were made to determine trainer-participant reliability, as well as inter-rater reliability.

Another video tape segment was played, three cycles of which were coded at the board by a trainer. The remainder of the segment was played and the participants were to continue to code independently. Time intervals were called by a trainer. A review of the categories was conducted at this point. This discussion helped to further clarify the coding process. A final tape segment was played that was totally handled by the participants; both the coding and timing were their responsibility to achieve. The last day of training consisted of additional tape segments and discussions. A final reliability check was run and procedural issues such as assignments, schedules, recordkeeping etc., were discussed.

The principal analyst spent some time with the group addressing technical questions concerning observation procedures. In addition, he presented a matrix for wait time between observation cycles. A uniform number of observations per class period, 15, had been established for all students who were to be observed. Since the number of minutes per class and the number of students in the class varied from one site to another, the time matrix was developed for these varying situations. The matrix assured that observations were conducted over an entire class period.*

Each of the selected Chapter 1 reading groups were scheduled to be observed for an entire week at three different points in time to maximize the likelihood that the observations would adequately represent the instructional activities that occur between pretesting and posttesting. Observational "cycles" were identified as times near the beginning, middle and end of the Chapter 1 instructional year. The following observation schedule was followed:

Cycle I - October 31-November 18, 1983
Cycle II - January 9-January 27, 1984
Cycle III - March 12-March 30, 1984

Each data collection cycle was limited to three weeks. On subsequent observation cycles, sites maintained their order of observation established in the prior cycle. This assured that the length of time between each observation cycle was constant for each site selected.

Each group was observed fifteen times (fives times each cycle). Each student in each group was observed fifteen times during each of the observations, or 225 times. Make-up days were allowed during the fourth week it was not possible to conduct all five of the observations during the scheduled week of a cycle.**

---

*See matrix at the end of this Appendix.

**An example of an observer's schedule can be found at the end of this Appendix.

Due to the short amount of time between notification of grant funding and the week in which it was necessary to begin the observations, the training session ended with understanding that each of the 19 participants would receive a phone call the following day indicating whether or not they were to be an observer or part of the back-up pool.

A review of observational procedures was conducted through a one-day workshop for observers and reserves prior to the second and third observation cycles. The first follow-up training session focused primarily on a review of the categories. Again video tape segments of actual Chapter 1 classes were played, coded and discussed. Each observer brought in examples of situations they considered difficult to code, and these were discussed by the group. Another reliability check was run. The final follow-up training session used the same format and also included directions for submitting final reports. In addition, the forms to be used for collection of regular classroom and additional Chapter 1 data were distributed and explained.

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Iowa Department of Public Instruction
Chapter 1, ECIA Reading Study
Application/Interview Form

PRINT NAME AND ADDRESS

Name:_____

Address:_____

_____
(Zip Code)

Home telephone number:_____

Other telephone number?:_____

Do you have an automobile that you would be willing to use if employed?_____

Are you willing to be away from home for periods of a week if necessary?_____

List Degrees: _____ _____ _____

List Majors: _____ _____ _____

List Reading Teaching Experience:

1.

2.

3.

4.

Please Print Names and Address of References:

1.

2.

3.

4.

Will you accept one-half day employment? _____

Would you prefer one-half day employment? _____

Give a brief definition/explanation of the following terms:

1. structural analysis -

2. language experience -

3. choral reading -

4. Spache -

5. basal -

6. C.A.I. -

What are your views (briefly) on the value of computer utilization for the teaching of reading in the elementary school grades?

Are you aware of any personal future plans that would negate your being available for this effort through April 15, 1984? (Course work, other employment, moving, etc.) _____ yes _____ no

Signed:_____

Date:_____

Iowa Department of Public Instruction
Chapter 1, ECIA Reading Study
Wait Time Matrix

Number of Students

| Minutes of Classroom | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 32 | 16 | 0 | | | | | | | |
| 20 | 53 | 37 | 21 | 5 | | | | | | |
| 25 | 75 | 58 | 42 | 26 | 10 | | | | | |
| 30 | 96 | 80 | 64 | 48 | 30 | 16 | 0 | | | |
| 35 | 117 | 101 | 85 | 69 | 53 | 37 | 21 | 5 | | |
| 40 | 139 | 123 | 107 | 91 | 75 | 58 | 42 | 26 | 10 | |
| 45 | 160 | 144 | 128 | 112 | 96 | 80 | 64 | 48 | 32 | 16 |
| 50 | 182 | 166 | 150 | 133 | 117 | 101 | 85 | 69 | 53 | 37 |

OBSERVER 8

Iowa Department of Public Instruction
Chapter 1, ECIA Reading Study
Sample Observation Schedule

| TIME | LEA | BUILDING | GRADE | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
|---|---|---|---|---|---|---|---|---|
| 8:35- 9:00 | Site A | 409 | 2 | X | X | X | X | X |
| | | | | | | | | |
| 9:55-10:15 | Site B | 418 | 2 | X | X | X | X | X |
| | | | | | | | | |
| 11:30-12:00 | Site C | 436 | 4 | X | X | X | X | X |
| | | | | | | | | |
| 12:40- 1:00 | Site B | 418 | 2 | X | X | X | X | X |
| | | | | | | | | |
| 2:25 - 2:55 | Site D | 751 | 2 | X | X | X | X | X |

Appendix G

DATA COLLECTION FORMS

Chapter 1 Reading Study Observation Record
Pretest-Posttest Information
Student Attendance Record
Classroom/General Chapter 1 Information

DPI USE ONLY

5100 (4/87)54 10/83

# CHAPTER 1 READING STUDY OBSERVATION RECORD

IDENTIFICATION INFORMATION:

(District) (District ID) (Building) (Building ID) (Teacher) (Teach.ID) (Aide) (A.ID) (Gr) (Observation Date) (Observer ID)
month day year

INSTRUCTIONAL MODES:

(basal) (board activities) (computers) (flashcards) (games) (language experience) (machines) (reference books) (trade books) (worksheets/ workbooks) (Other)

Explanation of "other":

CATEGORIES AND CODES:

| Student On-Task | Student Off-Task | Inst. Approach - Inter. On-Task | Inst. App. - Inter. Off-Task | [illegible] - Non-[illegible]tive |
|---|---|---|---|---|
| Silent R.(S) Comp. (C) | Absent (A) Manage. (M) | Cueing (CU) Pos. Feedback (PF) | Discip. (DI) | (NI) |
| Oral R. (O) Study Sk. (K) | Out/Room (R) Acad. Oth. (X) | Pres. (PR) Neg. Feedback (NF) | Manage. (MA) | |
| Phonics (P) Lang. Arts (L) | Being Dis. (D) Acad. Un. (U) | Quest. (QU) | Other (OT) | |
| Vocab. (V) Test Tak. (T) | Waiting (W) Other (F) | Monit. (MO) | | |

PLEASE READ INSTRUCTIONS BEFORE COMPLETING THIS FORM

STUDENT NAME

TEACHER

| ID | Time 1 | Time 2 | Time 3 | Time 4 | Time 5 | Time 6 | Time 7 | Time 8 | Time 9 | Time 10 | Time 11 | Time 12 | Time 13 | Time 14 | Time 15 | + | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S I | S I | S I | S I | S I | S I | S I | S I | S I | S I | S I | S I | S I | S I | S I | | |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |
| | | | | | | | | | | | | | | | | + | - |

Iowa Department of Public Instruction
Chapter 1, ECIA Reading Study
Pretest - Posttest Information

(1)

| | | | |
|---|---|---|---|
| (1-4) | 1. | ☐☐☐☐ | District Code |
| (5-8) | 2. | ☐☐☐☐ | Building Code |
| (9) | 3. | ☐ | Grade |
| (10-11) | 4. | ☐☐ | Teacher I.D. |
| (12-15) | 5. | ☐☐☐☐ | Pretest Information |

Name_____
Form_____
Level_____
Subtest_____

| | | | |
|---|---|---|---|
| (16) | 6. | ☐ | Score Type _____ (NCE or Raw) |
| (17-20) | 7. | ☐☐☐☐ | Posttest Information |

Name_____
Form_____
Level_____
Subtest_____

| | Student ID | RAW PRE | RAW POST | NCE PRE | NCE POST | MINUTES | DAYS |
|---|---|---|---|---|---|---|---|
| 21-41 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| 42-62 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| (2) 12-32 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| 33-53 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| 54-74 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| (3) 12-32 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| 33-53 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| 54-74 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| (4) 12-32 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |
| 33-53 | ☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐☐ |

5100-E48698-10/83

DPI USE ONLY

Iowa Department of Public Instruction
Chapter 1, ECIA Reading Study
Student Attendance Record

| | |
|---|---|
| (District) | (District ID) |
| (Building) | (Building ID) |
| (Grade) | (Grade) |
| (Teacher) | (Teacher ID) |
| | (Student ID) |

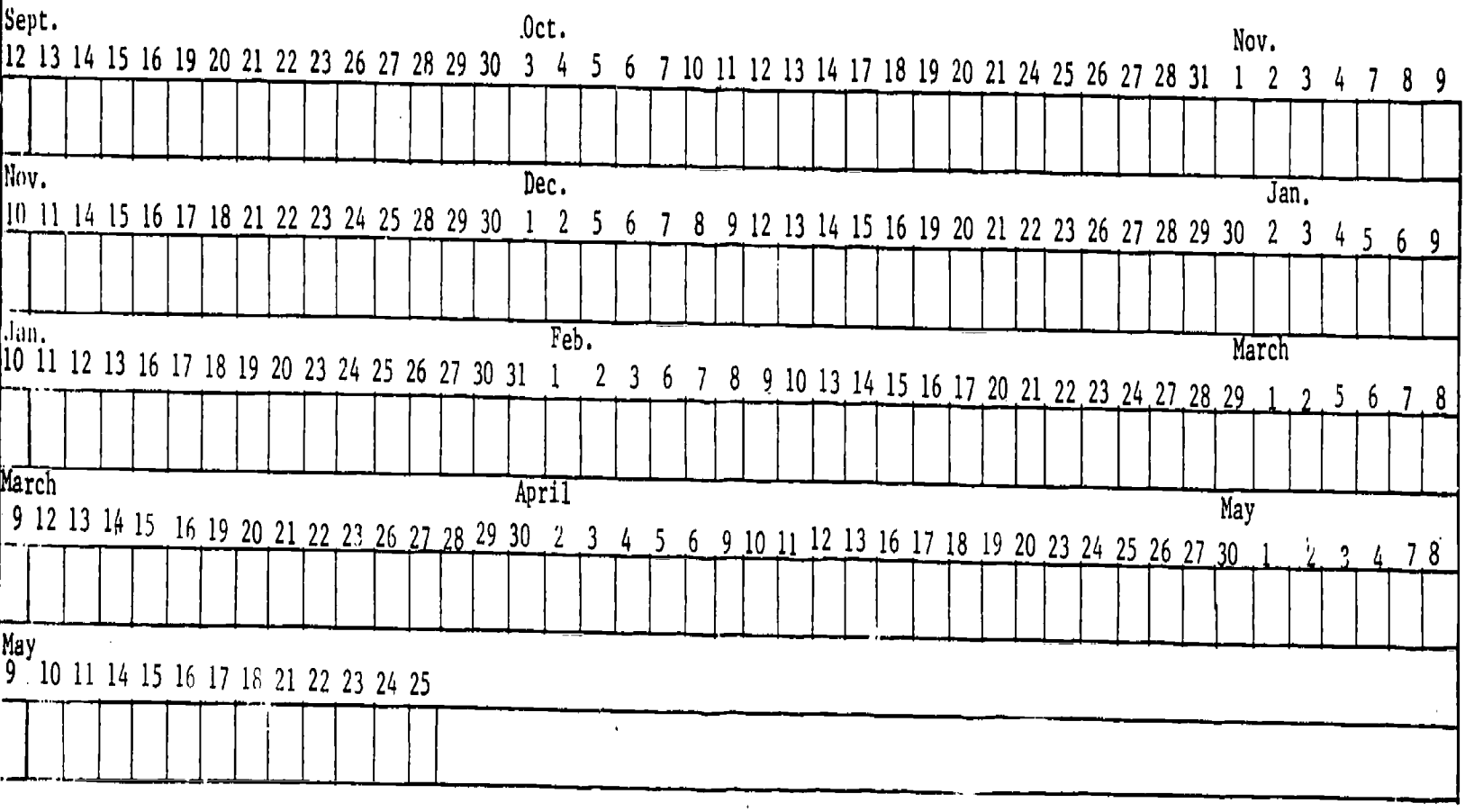
Instructions: Please record the number of minutes each student attended Chapter 1 reading class each day. Begin recording on the day after the pretest was given. Finish the da before posttest starts.

If a student is not present, use the following codes to indicate the reason for an absence:

A = Absent from school

O = In school, but not in Chapter 1

H = Holiday, conference day, any day, when school is not in session.




CUT OFF DOTTED LI E BEFORE SUBMITTING TO DPI

STU E:

Code:
Due: May, 1984


Iowa Department of Public Instruction
Chapter 1, ECIA Reading Study
Classroom/General Chapter 1 Information

(1)

(1-4) ☐☐☐☐ District Code

(5-8) ☐☐☐☐ Building Code

(9) ☐ Grade

(10-11) ☐☐ Teacher ID

(12-14) ☐☐☐ 1. Total allocated amount of classroom reading time (minutes per week)

(15-17) ☐☐☐ 2. Amount of direct reading instruction time in the classroom for these Chapter 1 students (minutes per week)

(18-19) ☐☐ 3. Classroom class size

(20-21) ☐☐ 4. Classroom group size

(22-23) ☐☐ 5. Chapter 1 total caseload

(24-25) ☐☐ 6. Number of years instructor has taught Chapter 1 (excluding current year)

CHECK ALL THAT APPLY:

| | Chapter 1 | Regular Classroom | |
|---|---|---|---|
| (26-27) | ☐ | ☐ | 7. Preprofessional certificate |
| (28-29) | ☐ | ☐ | 8. Bachelors degree |
| (30-31) | ☐ | ☐ | 9. Masters degree (not in reading) |
| (32-33) | ☐ | ☐ | 10. Masters degree Endorsement 38 reading clinician |
| (34-35) | ☐ | ☐ | 11. Masters degree Endorsement 54 reading specialist |
| (35-37) | ☐ | ☐ | 12. Approval 91 |

| | Student ID | A | O | T | Selection Score % | Test Code | Norm 1=State 2=National | Test Name |
|---|---|---|---|---|---|---|---|---|
| | 38-51 | | | | | | | |
| | 52-65 | | | | | | | |
| | 66-79 | | | | | | | |
| (2) | 12-25 | | | | | | | |
| | 26-39 | | | | | | | |
| | 40-53 | | | | | | | |
| | 54-67 | | | | | | | |
| (3) | 12-25 | | | | | | | |
| | 26-39 | | | | | | | |
| | 40-53 | | | | | | | |
| | 54-67 | | | | | | | |
| (4) | 12-25 | | | | | | | |
| | 26-39 | | | | | | | |
| | 40-53 | | | | | | | |
| | 54-67 | | | | | | | |
| (5) | 12-25 | | | | | | | |
| | 26-39 | | | | | | | |
| | 40-53 | | | | | | | |

Appendix H

SUPPLEMENTARY TABLES

TABLE A-1

CORRELATION OF GAIN AND PRETEST
WITH STUDENT VARIABLES,
INSTRUCTIONAL APPROACHES AND STRUCTURAL VARIABLES

INDIVIDUAL LEVEL ANALYSIS

| Variables | Grade 2 | | Grade 4 | |
|---|---|---|---|---|
| | Gain | Pretest | Gain | Pretest |
| Student On-Task | | | | |
| Oral Reading | -24 | 10 | -01 | 00 |
| Silent Reading | -02 | -01 | 00 | 06 |
| Phonics | 19 | -17 | 00 | -13 |
| Vocabulary | 16 | -11 | 20 | 02 |
| Comprehension | -05 | 14 | -01 | 18 |
| Language | -20 | 15 | 14 | 01 |
| Study Skills | -03 | -04 | -03 | 11 |
| Test Taking | -14 | 16 | 01 | 04 |
| Student Off-Task | | | | |
| Being Disciplined | 04 | -03 | -02 | -33 |
| Waiting | 56 | -19 | 07 | 03 |
| Management | 15 | 08 | 02 | 16 |
| Academic Other | 14 | -28 | 03 | -01 |
| Academically Unoccupied | -10 | 13 | 00 | -11 |
| Other Off-Task | 39 | -17 | -16 | 10 |
| Teacher Interactive On-Task | | | | |
| Cueing | -01 | 14 | -05 | 14 |
| Presenting | -01 | 14 | -05 | 14 |
| Questioning | 08 | -01 | 02 | 04 |
| Monitoring | 25 | -04 | -01 | 09 |
| Positive Feedback | 25 | -11 | 09 | 06 |
| Negative Feedback | 47 | -22 | -20 | 00 |
| Teacher Interactive Off-Task | | | | |
| Disciplining | -02 | -02 | 01 | -29 |
| Management | 31 | -08 | 00 | 13 |
| Other Off-Task | -19 | 16 | -02 | 01 |
| Teacher Non-Interactive | 18 | -( | 01 | 04 |
| Structural | | | | |
| Pretest Score | -59 | 1.0 | -43 | 1.0 |
| Selection Score | -33 | 29 | -06 | 15 |
| Actual Amount of Instruction | 14 | 01 | -03 | 11 |
| Group Size | 02 | 03 | -04 | 08 |
| Caseload | 31 | -.0 | 10 | -21 |
| Chapter 1 Experience of Teacher | 16 | 07 | 15 | 04 |

TABLE A-2

CORRELATION OF ACTUAL* AMOUNT OF ON-TASK
TIME WITH STUDENT ACTIVITIES,
INSTRUCTIONAL APPROACHES AND STRUCTURAL CHARACTERISTICS

GROUP LEVEL ANALYSIS
GRADE 2

| Student On-Task | Actual On-Task Time |
|---|---|
| Oral Reading | .26 |
| Silent Reading | .13 |
| Phonics | .60 |
| Vocabulary | .18 |
| Comprehension | .02 |
| Language | .32 |
| Study Skills | -.12 |
| Test Taking | -.07 |
| **Student Off-Task** | |
| Being Disciplined | .21 |
| Waiting | .36 |
| Management | .20 |
| Academic Other | .01 |
| Academically Unoccupied | .10 |
| Other Off-Task | .35 |
| **Teacher Interactive On-Task** | |
| Cueing | .28 |
| Presenting | .28 |
| Questioning | .30 |
| Monitoring | .60 |
| Positive Feedback | .42 |
| Negative Feedback | .45 |
| **Teacher Interactive Off-Task** | |
| Disciplining | .15 |
| Management | .33 |
| Other Off-Task | .20 |
| **Teacher Non-Interactive** | .32 |
| **Structural** | |
| Pretest Score | -.09 |
| Actual Amount of Instruction | .82 |
| Group Size | .05 |
| Caseload | .22 |
| Chapter 1 Experience of Teacher | .06 |
| Gain | .03 |

*Aggregated observations of percent of on-task time multiplied by the amount of instructual exposure between pretesting and posttesting.

TABLE A-3

CORRELATION OF ACTUAL* AMOUNT OF ON-TASK
TIME WITH STUDENT ACTIVITIES,
INSTRUCTIONAL APPROACHES AND STRUCTURAL CHARACTERISTICS

GROUP LEVEL ANALYSIS
GRADE 4

| Student On-Task | Actual On-Task Time |
|---|---|
| Oral Reading | .17 |
| Silent Reading | .26 |
| Phonics | .39 |
| Vocabulary | .45 |
| Comprehension | .40 |
| Language | .52 |
| Study Skills | .28 |
| Test Taking | .11 |
| **Student Off-Task** | |
| Being Disciplined | -.09 |
| Waiting | .26 |
| Management | .49 |
| Academic Other | -.11 |
| Academically Unoccupied | -.09 |
| Other Off-Task | .14 |
| **Teacher Interactive On-Task** | |
| Cueing | .26 |
| Presenting | .26 |
| Questioning | .35 |
| Monitoring | .50 |
| Positive Feedback | .26 |
| Negative Feedback | -.03 |
| **Teacher Interactive Off-Task** | |
| Disciplining | -.08 |
| Management | .46 |
| Other Off-Task | -.03 |
| **Teacher Non-Interactive** | -.17 |
| **Structural** | |
| Pretest Score | .16 |
| Actual Amount of Instruction | .83 |
| Group Size | .26 |
| Caseload | -.04 |
| Chapter 1 Experience of Teacher | .00 |
| Gain | .10 |

*Aggregated observations of percent of on-task time multiplied by the amount of instructional exposure between pretesting and posttesting.

TABLE A-4

CORRELATION OF TEACHER OTHER OFF-TASK
VARIABLE WITH STUDENT ACTIVITIES
AND TEACHER INSTRUCTIONAL APPROACHES

GROUP LEVEL ANALYSIS
GRADE 2

| Student On-Task | Teacher Other Off-Task Activities |
|---|---|
| Oral Reading | .23 |
| Silent Reading | -.02 |
| Phonics | .04 |
| Vocabulary | .19 |
| Comprehension | -.25 |
| Language | .32 |
| Study Skills | .04 |
| Test Taking | -.06 |
| **Student Off-Task** | |
| Being Disciplined | -.03 |
| Waiting | -.05 |
| Management | .07 |
| Academic Other | .12 |
| Academically Unoccupied | .66 |
| Other Off-Task | .41 |
| **Teacher Interactive On-Task** | |
| Cueing | .13 |
| Presenting | .13 |
| Questioning | -.24 |
| Monitoring | .12 |
| Positive Feedback | .22 |
| Negative Feedback | .03 |
| **Teacher Interactive Off-Task** | |
| Disciplining | .55 |
| Management | .27 |
| **Teacher Non-Interactive** | .55 |

TABLE A-5

CORRELATION OF GROUP SIZE WITH
STUDENT ACTIVITIES, TEACHER INSTRUCTIONAL APPROACHES
AND STRUCTURAL CHARACTERISTICS

GROUP LEVEL ANALYSIS
GRADE 2

| | Group Size |
|---|---|
| **Student On-Task** | |
| Oral Reading | -.20 |
| Silent Reading | .21 |
| Phonics | .03 |
| Vocabulary | .06 |
| Comprehension | .00 |
| Language | .03 |
| Study Skills | .01 |
| Test Taking | .04 |
| **Student Off-Task** | |
| Being Disciplined | .23 |
| Waiting | .22 |
| Management | .07 |
| Academic Other | .00 |
| Academically Unoccupied | .20 |
| Other Off-Task | .05 |
| **Teacher Interactive On-Task** | |
| Cueing | .28 |
| Presenting | .28 |
| Questioning | .15 |
| Monitoring | -.04 |
| Positive Feedback | .20 |
| Negative Feedback | .10 |
| **Teacher Interactive Off-Task** | |
| Disciplining | .27 |
| Management | .14 |
| Other Off-Task | .08 |
| **Teacher Non-Interactive** | .14 |
| **Structural** | |
| Pretest Score | -.04 |
| Actual Amount of Instruction | .00 |
| Caseload | .23 |
| Chapter 1 Experience of Teacher | .19 |
| Gain | .03 |

TABLE A-6

HOW A TEN PERCENT INCREASE IN TIME
ALLOTTED FOR SPECIFIC ACTIVITIES CAN INFLUENCE GAIN

INDIVIDUAL LEVEL ANALYSIS
GRADE 4

| Variable | Actual Time | 10% Increase | Beta | Stand. Est. | Probability | NCE Change |
|---|---|---|---|---|---|---|
| Vocabulary | 415 | 42 | .0005 | .13 | .0092 | .21 |
| Student Other Off-Task | 95 | 10 | -.02 | -.15 | .0033 | -.20 |
| Negative Feedback | 30 | 3 | -.06 | -.13 | .0130 | -.18 |
| Being Disciplined | 3 | .3 | -.14 | -.13 | .0146 | -.04 |
| Language | 240 | 24 | .0006 | .11 | .0259 | .14 |
| Positive Feedback | 30 | 3 | .06 | .09 | .0917 | .18 |

TABLE A-7

HOW A TEN PERCENT INCREASE IN TIME
ALLOTTED FOR SPECIFIC ACTIVITIES CAN INFLUENCE GAIN

INDIVIDUAL LEVEL ANALYSIS
GRADE 2

| Variable | Actual Time In Minutes | 10% Increase In Minutes | Beta | Stand. Est. | Probability | NCE Change |
|---|---|---|---|---|---|---|
| Oral Reading | 115 | 12 | -.04 | .22 | .0001 | -.48 |
| Teacher Other Off-Task | 90 | 9 | -.03 | -.26 | .0001 | -.27 |
| Teacher Management | 415 | 42 | .008 | .13 | .0039 | .34 |
| Phonics | 720 | 72 | -.005 | -.16 | .0005 | -.36 |
| Monitoring | 620 | 62 | .003 | .13 | .0116 | .19 |
| Providing Positive Feedback | 30 | 3 | .07 | .11 | .0093 | .21 |
| Being Disciplined | 5 | .5 | -.10 | -.06 | .1006 | -.05 |
| Vocabulary | 420 | 42 | .003 | .06 | .1267 | .13 |

Appendix I

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