

To the Graduate Council:

I am submitting herewith a dissertation written by Laura Wadlington entitled "The Effect of Instructional Setting Upon Student Attention." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Psychology.

Richard Saudargas
Richard Saudargas, Major
Professor

We have read this dissertation
and recommend its acceptance:

Donald Dickinson
Donald Dickinson

Anne McIntyre
Anne McIntyre

Robert Wahler
Robert Wahler

Accepted for the Council:

Levminkel
Vice Provost
and Dean of The Graduate School

THE EFFECT OF INSTRUCTIONAL SETTING
UPON STUDENT ATTENTION

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Laura Wadlington

December 1988

ACKNOWLEDGEMENT

First I would like to thank my major professor, Dr. Richard A. Saudargas, for his invaluable help in the completion of this dissertation. I also thank the members of my committee, Dr. Anne McIntyre, Dr. Donald Dickinson, and Robert Wahler, for their helpful suggestions and support throughout this process.

The study was conducted at Westhaven Elementary School in the Knox County School System. The fine staff of this school, as well as the University of Tennessee students who conducted observations, were instrumental in the completion of this project.

I am grateful to both Dr. Melinda Dukes and Kathleen Zanolli for their friendship and encouragement as well as valuable insight into the research project. Last, I wish to thank my husband, Bill, and my parents, Jerrold and Lynn Robinson, for their constant love and encouragement.

ABSTRACT

This study investigated the effect of instructional setting upon student attention, differences in attention between children in high and low reading groups, and teacher and child behaviors in different instructional settings. Twenty-nine third-grade students were observed in small group reading instruction and in individual seatwork using the State Event Classroom Observation System (SECOS).

Children were more attentive during small group reading instruction than individual seatwork. There were no differences in attention between children enrolled in high and low reading groups. Teachers made more frequent use of questions, directions and feedback during their reading group and students raised their hands and answered more frequently. Students were more likely to be out-of-seat and engaging in activities other than schoolwork during seatwork.

Further research should focus upon determining the optimal level of attention for learning. In addition, teacher contact during seatwork could be explored as a mechanism to increase student attention. Last, future

research should explore whether student achievement increases with elevation of student attention.

TABLE OF CONTENTS

SECTION	PAGE
I. INTRODUCTION	1
Overview of Student Attention	1
Review of Literature	4
II. METHOD	9
Research Design	9
Subjects	9
Settings	10
Measures	10
Observer Training	14
Procedures	15
III. RESULTS	16
Differences in Attention	16
Differences in Teacher and Child Behaviors	21
IV. DISCUSSION	28
Attention and Instructional Setting .	28
The Effects of Ability Grouping	30
Why a Setting is So Important	32
Summary and Conclusions	35
LIST OF REFERENCES	38
APPENDICES	42

APPENDIX A. Parent Permission Letter	43
APPENDIX B. Comparison of Median Attention of Genders, Classrooms and Reading Levels	44
APPENDIX C. Comparison of Attention During First and Second Parts of the Language Arts/Reading Group Block	45
VITA	46

I. INTRODUCTION

OVERVIEW OF STUDENT ATTENTION

Student attention has been defined as a key variable in student learning. In his review of classroom practices, Jackson (1968) stated that "no educational goals are more immediate than those concerning the establishment and maintenance of students' absorption in the task at hand." Other researchers have also suggested that student attention is, indeed, a necessary condition for classroom learning (Gagne, 1977; Krathwohl, Bloom and Masia, 1956; McNamara, 1981). Both Carroll (1963) and Bloom (1976) have defined student learning as a function of the time actually spent by the student on tasks, divided by the time needed by the student. The time needed by the student to learn a task is largely under that influence of student ability, with Bloom (1976) attempting to quantify the difference in time needed to learn by stating that more intelligent students may learn five times as rapidly as slower students. More recently, the research generated from the Beginning Teacher Education Study (BTES) conducted in California (Powell, 1980; Borg, 1980) defined student learning as a function of

the amount of time a student is engaged in a task of high success for that student. Thus, it appears that time spent learning is a key factor in the success of learning. The attention of the student is the mechanism whereby a student can control the actual amount of time spent learning and resulting success of the task, regardless of internal factors such as the intelligence of the student.

Since student attention has been identified as a crucial factor in learning, it becomes important to determine what influences student attention. Teacher behaviors have been associated with differences in attention with Jackson (1968) and the BTES study (Rosenshine, 1980) citing classroom management techniques as important. Other factors in attention are appropriateness of materials with students' attention being less when materials are too difficult (Gickling and Thompson, 1985; Gambrell, Wilson and Gnatt, 1981; and Center, Deitz and Kaufman, 1982). An additional influence is the instructional setting, with students being more attentive in teacher-led groups than independent work (Good and Beckerman, 1978; Rosenshine, 1980). This study chose to focus upon the effects of instructional setting upon attention.

An elementary school student's day is comprised of several academic and non-academic activities and settings. A concern of research on student attention should be to discover the instructional settings which are most and least facilitative of student attention, with emphasis upon instructional settings which constitute the majority of the school day. In the BTES study, Rosenshine (1980) found that slightly more than half the day was comprised of academic instruction with the remainder designated for non-academic activities (24%) such as music and storytelling and non-instructional activities (19%) such as lunch, class transitions and class business. The single largest academic time allotment (38%) was devoted to reading and language arts. During this time, children spent 30% of the time in teacher-led activities and 70% in seatwork. Since small group reading instruction and language arts seatwork comprised the majority of elementary students' academic time, a systematic comparison of attention in reading group and language arts seatwork is indicated.

Unfortunately, the research on student attention is limited. Only one study accurately measured student attention but did not compare across instructional settings (Felmlee and Eder, 1983; Eder and Felmlee, 1984). With one exception (BTES, 1980), the studies

have examined differences in attention between high, middle and low achieving children with typically inaccurate procedures. The research has ignored the middle elementary school years, with children from first, second, fifth and sixth grades being studied.

REVIEW OF LITERATURE

Across Setting Studies

The BTES study sought to define the attentional processes of the competent, or average, learner. This comprehensive effort was initially begun as a project to evaluate first-year teachers (Rosenshine, 1980; Borg, 1980; Fisher, Berliner, Filby, Marliave, Cohen and Dishaw, 1980; Denham and Lieberman, 1980). Data were collected over several years in second and fifth grade classrooms. The research focused on percent of attention for individual students with the average being 70 with a range of 50% to 90%. Fifth graders' percent of attention was not significantly higher than second graders. Students were observed in different instructional settings with students being more attentive in teacher-led small groups and the least attentive in individual seatwork. Observations were conducted once a week for the entire school day for 20

weeks of the school year. Each target student (six in each class) was sampled once every four minutes to determine if he was on or off task. Percent of attentive behavior was developed from this one/zero sampling. Although one/zero sampling cannot give a totally accurate picture of percent of attention, this study sought to gather extensive data on the differences in attention across instructional settings.

Two studies examined differences in high, middle and low achieving students at the sixth grade level. Good and Beckerman (1978) studied four sixth grade classrooms and found that 67% of the low versus 75% of the high achievers were attentive at a given time in the classroom, which was a measure of the attention of the ability group rather than a percentage of attention for individual students. They hypothesized that low achievers took more breaks in order to escape from too difficult assignments, but did not test this hypothesis. * Comparisons were made between attention in teacher-led instruction and seatwork, with higher rates being found in teacher-led groups than individual seatwork. However, since the measures of attention were based upon percent of children attending rather than attention of individual children, the results are not comparable to other studies.

The purpose of the second sixth grade study was to discover whether high achievers had better attitudes towards school and/or higher attentive behavior (Lahaderne, 1968). Differences in attitude toward school were not found between the groups but intelligence was correlated positively with attention in boys (.48) and girls (.44). Data were collected across different instructional settings in the four classrooms, but combined in the data analyses so that a composite of attention levels was derived rather than a comparison across settings.

Weinstein (1975) conducted a study of high, middle and low achieving children in first grade reading groups, math groups and entire class skill sessions. The findings were that all groups had a percent of attention over 90% and that by spring, differences in high and low groups were negligible. Teachers called on and praised low achievers more and maintained a higher teacher/student ratio in these groups. Weinstein (1975) used a rotating observation system so that each child was observed for six seconds approximately every ten minutes. It is possible that the levels of attention were inflated since one/zero sampling tends to overestimate behavior (Saudargas and Lentz, 1986).

Single Setting Studies

One study conducted at the first grade level in only reading group setting is of note because of superior measurement of attention (Eder and Felmlee; 1984: Felmlee and Eder, 1983; Eder, 1981). The authors made eight videotapes, four in the fall and four in the spring, of one first grade class participating in small group reading instruction. Since videotapes were used, actual time of attention was recorded. Children in the high reading group were attentive 75% of the time and children in the low group, 60% of the time. Children in the low group had a higher rate of becoming inattentive (breaks in attention) and teachers performed more management acts with the low reading group. Attention duration, the time spent attending prior to a change in attention, was used as a control factor in analyzing rates of becoming inattentive. This study is helpful in documenting the attention of first grade children in reading group; however, there was no comparison of attention across instructional settings.

SUMMARY AND CONCLUSIONS

Student attention is clearly an important variable in student learning. Additional studies are needed to

carefully measure attention and compare attention across instructional settings. The purpose of this study, therefore, was to develop an in-depth descriptive picture of the differences in attention when children are engaged in small group reading instruction versus individual seatwork. Measures of attention were used which have been used by other studies: percent of attentive behavior, attention duration, and number of inattentive intervals. The specific questions to be answered are as follows:

- (a) What are the differences in attention when children are engaged in small group instruction versus individual seatwork?
- (b) What are the differences in attention between children in high and low reading groups?
- (c) What are the differences in teacher and child behaviors in the different instructional settings associated with the variation in attention level?

II. METHOD

RESEARCH DESIGN

This study employed a repeated measures design in which each subject was observed in both conditions. The two "conditions" were different instructional settings, the first being small group reading instruction and the second being individual seatwork. The independent variable was the instructional setting and the dependent variable was attention. This design allowed a comparison of students' attention in the two instructional settings, two levels of reading group, and different teacher/student behaviors in the two instructional settings. More specific descriptions of the procedures will follow.

SUBJECTS

The subjects were 29 elementary school students from two third-grade classrooms in an elementary school within the Knox County School System. Participation for the study was sought from all 44 students enrolled in the two third-grade classes (permission letter in Appendix A). The 29 students who participated in this

study were the ones from whom parent permission could be obtained and who received reading instruction in the regular classroom. Of the 29 participating students, one was a certified special education student outside the area of reading and three were students repeating the third grade. There were 14 boys and 15 girls in the study with 12 from one classroom and 17 from the other.

SETTINGS

Ninety minutes were allocated in the classrooms for reading and language arts each morning. The beginning 15 minutes consisted of instructions on assignments. This was followed by two 30-minute reading groups and two 30-minute individual seatwork assignments. Each child had approximately 30 minutes of reading instruction and 30 minutes of individual seatwork. The last 15 minutes were a "catch-up time" when the teacher worked with students who had difficulty with assignments and made transition to math activities.

MEASURES

The three measures of attention were obtained on each of the children for each day observed as well as

child/teacher behaviors. The State Event Observation System (SECOS) (Saudargas and Fellers, 1986) was used to obtain this information.

The SECOS is a direct observation instrument comprised of eight "state" behaviors and eleven "event" behaviors. State behaviors are those which yield a percent of time that the child engages in a particular activity as well as the duration of each instance of engagement (bout). Event behaviors yield a frequency count of behavior. Four behaviors were added to the SECOS for the purposes of this study. They were behaviors which occur specifically during reading group. One state and three event behaviors were added. The SECOS behaviors as well as the added behaviors are listed below.

State Behaviors:

Schoolwork - the students' eyes and head are oriented toward assigned academic work

Looking around - the student is oriented away from academic work

Out of seat - the student is out of seat for any reason

Social interaction, child/other - verbal or nonverbal communication between the observed student and another child about non-schoolwork activities

Social interaction, child/schoolwork - verbal or non-verbal interactions between the target child,

another student(s) regarding schoolwork

Social interaction with the teacher/other -
interaction between the target student and teacher
regarding non-academics

Social interaction with the teacher/schoolwork -
interaction between the target student and teacher
regarding schoolwork

Other activity - the student is engaged in an
activity other than schoolwork such as sharpening
pencils, rearranging his desk

Read aloud - during reading group, the student is
reading aloud

Event Behaviors:

*frequency
count*

Raise hand - hand raised

Call out - verbal call out to teacher in response
to question or not in response to question

Out of seat - the child is out of seat for any
reason

Object digression - destroying, defacing,
mutilating property

Approach child - verbal or nonverbal contact to
another child

Other child approach -- another child attempts to
interact with the observed child

Teacher approach/schoolwork - teacher begins
interaction with the student while he is engaged
in schoolwork

Teacher approach/other - teacher begins
interaction with the student who is engaged in an
activity not defined as schoolwork

Direction - the teacher verbally instructs child
to change from a non-teacher-directed to a
teacher-directed activity

Approval - positive comments regarding schoolwork

Disapproval - negative comments regarding academic behaviors

Other interrupt - another child, adult or public address announcement interrupts reading group

Teacher interrupt - the teacher interrupts reading group to admonish an individual or the rest of the class

Reading error - any teacher correction/help during a read-aloud turn

In order to obtain three attention measures from SECOS, the state behaviors were collapsed into those considered attention to school work and considered inattention to school work. Child occurrence behaviors, behaviors and teacher behaviors not involved in student attention or inattention were left as is in the instrument. Attention and inattention behaviors are listed below.

Attention:

- Raise Hand
- Read Aloud
- Social Interaction with Child/Schoolwork
- Teacher Approval
- Social Interaction with Teacher/Schoolwork
- Callout
- Schoolwork

Inattention:

- Social Interaction/Other
- Other Interrupt
- Teacher Interrupt

Object Aggression
Look
Other Activity
Approach Child
Social Interaction
Teacher Approach/Other
* - Other child's approach is attention
depending on behaviors that follow.

All behaviors were recorded on a Hewlett Packard HP71-B hand-held computer programmed to record the behaviors. The Hewlett Packard interfaced with an IBM-PC to yield percent of time in each state as well as duration of each instance of state behavior plus frequency counts for all event behaviors.

OBSERVER TRAINING

Observers were trained in two weekly one-hour sessions over a period of eight weeks. After learning the definitions of the behaviors, observers were trained by viewing videotapes of a simulated classroom (Saudargas and Dukes, in press). After a criterion of 80% interobserver agreement was reached, the observers conducted "practice" observations in elementary school classrooms not associated with this study. Before collecting data for this research, observers reached an 80% level of agreement. Interobserver agreement checks

were conducted for 20% of the observations in the study by having two of the observers observe the same child. Rates of agreement were computed for the three dependent variables as well as the event behaviors. Overall, rate of agreement was 85% with a range from 66% to 99%.

*3 event
one state*

PROCEDURES

Observations were made on a daily basis for six weeks in the fall. Each child was randomly observed on two different days for approximately 15 minutes in the two instructional settings for a total of 60 minutes of observation. Each child was observed during the first 15 minutes of his reading group and during the second 15 minutes of his individual seatwork time. Both teachers had the high-level reading group first, therefore, children were always observed in the same order.

III. RESULTS

Data analyses focused upon the three research questions. The first was to determine if there were differences in children's attention when they were engaged in small group reading instruction versus individual seatwork. The second, if there were differences between children in different reading groups. The third was to define the differences in the two settings associated with any differences found in attention.

DIFFERENCES IN ATTENTION

Since the three measures of attention span were neither normally nor symmetrically distributed, a non-parametric statistical approach was used. This distribution of data rendered transformations inadvisable and non-parametric approaches have proven more powerful than parametric approaches when the data are distributed non-symmetrically (Conover, 1980; Hollander and Wolfe, 1973). Two statistics were used to analyze the data. The first was the McNemar Test for Significance of Changes, which is suited particularly for "before and after" designs in which a person serves

as his own control and tests the effectiveness of a particular "treatment" (Siegel, 1956). In this case, the before and after were the two different settings. To determine the differences between different sub-groups of children (different reading groups, sexes and classrooms), the median test was used, which determines whether the central tendencies of two independent samples are different (Siegel, 1956).

Prior to determining whether or not there was a difference between instructional settings, a comparison of attention measures was made between boys and girls, high group and low group readers, and the two classrooms. Median tests performed on each attention measure for each setting were non-significant (Appendix B). In addition, median tests for differences in attention for the first and second half of the observation period were non-significant (Appendix C). Since the central tendencies of the attention measures were not different for any groups, the data were collapsed for further analysis of differences in attention in instructional setting.

The McNemar Test (Table 1) showed that significantly more children exhibited a higher percent of attention in reading group than in seatwork ($\chi^2 = 6.76$, d.f. = 1, $p < .01$). For the measure of attention

TABLE 1

NUMBER OF CHILDREN WITH HIGHER ATTENTION
IN READING GROUP VERSUS SEATWORK

N = 29

	Reading Group	Seatwork
Percent of Attention	22++	7
Attention Duration	11	18
Rate/Minute of Inattention	21+	8
+ = p < .01 ++ = p < .05		

duration, there were no significant differences in the number of children who sustained attention longer in seatwork than reading group. More children had higher rates of inattentive intervals in reading group than in seatwork ($\chi^2 = 4.97$, d.f. = 1, $p < .05$). The overall results indicate that children shift their attention more quickly in small group reading instruction but maintain a higher percent of attention despite more frequent shifting.

A descriptive analysis was performed on each of the three measures of attention in each setting (Table 2). The children devoted a larger percentage of their time to schoolwork during reading group than during seatwork ($\bar{x} = 78.85\%$) than seatwork ($\bar{x} = 65.65\%$). In addition, the percentage of time the children spent doing schoolwork during seatwork was more variable than during reading group. The mean number of seconds the children attended to schoolwork before breaking attention was longer in seatwork ($\bar{x} = 46.52$) than in reading group ($\bar{x} = 38.16$). The rate per minute of changes from attentive to inattentive behavior was higher in reading group ($\bar{x} = 1.5$) than seatwork ($\bar{x} = 1.1$) with the variability being similar in both settings.

The median tests (as cited earlier) comparing attention measuring the different genders, classrooms

TABLE 2

Description of Attention Behavior in
Reading Group and Seatwork

N = 29

Reading Group	Seatwork
Percent of Attentive Behavior	
$\bar{x} = 78.85$	$\bar{x} = 65.65$
sd = 8.69	sd = 19.68
md = 80.51	md = 72.4
Attention Duration	
$\bar{x} = 38.16$	$\bar{x} = 46.52$
sd = 16.88	sd = 26.99
md = 35.25	md = 34.46
Rate per Minute of Inattention	
$\bar{x} = 1.50$	$\bar{x} = 1.1$
sd = .48	sd = .43
md = 1.51	md = 1.1

and levels of reading group were all non-significant. This analysis addresses the question of whether there were differences in attention between high and low reading groups, of which none appeared.

DIFFERENCES IN TEACHER AND CHILD BEHAVIORS

A comparison of teacher and child behaviors in the different settings was made (Table 3). Certain teacher behaviors occurred only in reading group; teacher interrupt, other interrupt, group direction, group praise, group opportunity to respond, group approval, group disapproval, reading error, individual opportunity to respond, and individual approval. Of the child and teacher behaviors that occurred during both reading group and seatwork, some were more frequent in one of the settings than the other. The McNemar Test for Significance of Changes indicated (Table 5) that teacher approaches and teacher interactions with children regarding schoolwork were more likely to change from a high rate in reading group to a low rate in seatwork. Teachers issued more disapproval in reading groups than seatwork ($\chi^2 = .05$, d.f. = 1, $p < .05$). As an aside, directions from teachers ($\chi^2 = 2.77$, d.f. = 1, $p < .1$) as well as teacher approaches ($\chi^2 = 3.76$, d.f. = 1, $p <$

TABLE 3

Differences in Teacher and Child Behaviors From
Reading Group to Seatwork
McNemar Test for Significance of Changes
N =

Behaviors	Percent Higher in Reading Group	Percent Higher in Seatwork
<u>Teacher Behaviors</u>		
Group Direction	*	*
Group Disapproval	*	*
Group Opportunity to Respond	*	*
Group Approval	*	*
Direction	17	5
Approval	*	*
Opportunity to Respond	*	*
Teacher Interrupt	*	*
Teacher Approach/Schoolwork	91++++	0
Teacher Approach/Other	22+	7
Social Interaction/Teacher/ Schoolwork	86++++	0
Social Interaction/Teacher/ Other	21	10
Disapproval	16	2
<u>Child Behaviors</u>		
Other Interrupt	*	*
Raise Hands	67++++	2
Reading Error	68	*
Object Aggression	19	22
Read Aloud	*	*
Other Activity	28	64++
Approach Child	47	48
Other Child Approach	28	31
Social Interaction/Child/ Schoolwork	31	26
Social Interaction/Child/ Other	40	43
Callout	76	0
Out of Seat	7	64++++

Note: Since some children did not change their rate, the percentages do not always total 100.

* - No Occurrence in Seatwork
+ - $p < .10$
++ - $p < .05$
+++ - $p < .01$
++++ - $p < .001$

.1) regarding activities other than schoolwork approached significance with higher rates in reading groups. Children's rates of raising hands ($X^2 = 34.225$, d.f. = 1, $P < .001$) and calling out ($X^2 = 42.02$, d.f. = 1, $p < .001$) were higher in reading group. Activities of higher rates in seatwork than reading group were other activity ($X^2 = 7.55$, d.f. = 1, $p < .01$) and out of seat ($X^2 = 24.98$, d.f. = 1, $p < .001$).

As a point of interest, the differences between the two classrooms, the two levels of reading group and boys and girls on the SECOS behaviors, were examined via median tests (Table 4). Children in classroom 1 were given significantly more group opportunities to respond ($X^2 = 26.49$, d.f. = 1, $p < .001$) than children in classroom 2. In addition, the children in classroom 1 raised their hands more often ($X^2 = 17.82$, d.f. = 1, $p < .001$), were more likely to engage in interactions with peers about things other than schoolwork ($X^2 = 4.13$, d.f. = 1, $p < .05$), and were more likely to engage in object aggression ($X^2 = 6.94$, d.f. = 1, $p < .01$). There was only one significant finding when the two levels of reading group were compared. The difference was a higher rate of interactions with the teacher about schoolwork during seatwork for children in the lower reading group ($X^2 = 3.96$, d.f. = 1, $p < .05$). Another

TABLE 4

Differences in Behavior in Reading Group
and Seatwork for Genders, Classroom and
Reading Groups, Median Test, X2 =

	Reading Group	Seatwork
Class 1 or 2:		
<u>Teacher Behaviors</u>		
Group Direction	.008	*
Group Disapproval	.05	*
Group Opportunity		
To Respond	26.49++++	*
Group Approval	1.11	*
Direction	.33	.22
Approval	.07	*
Opportunity to Respond	.89	*
Teacher Approach/		
Schoolwork	.002	.74
Teacher Approach/		
Other	.12	.04
Social Interaction		
with Teacher		
About Schoolwork	.19	.78
Social Interaction		
with Teacher/Other	.12	.02
Disapproval	.07	.03
<u>Child Behaviors</u>		
Other Interrupt	2.19	*
Raise Hand	19.48++++	.23
Reading Error	.00	*
Object Aggression	.09	6.94+++
Read Aloud	.01	*
Other Activity	.77	.34
Approach Child	1.04	.45
Other Child Approach	.17	.02
Social Interaction/		
Schoolwork	.08	.1
Social Interaction/		
Other	4.3+++	.64
Callout	1.04	1.1
Out of Seat	.03	.09

TABLE 4 (continued)

	Reading Group	Seatwork
Boys and Girls:		
<u>Teacher Behaviors</u>		
Group Direction	.01	*
Group Disapproval	.03	*
Group Opportunity to Respond	.08	*
Group Approval	.01	*
Direction	.7	1.56
Approval	.07	*
Opportunity to Respond	.27	*
Teacher Approach/ Schoolwork	.62	.35
Teacher Approach/ Other	.04	2.4
Social Interaction/ Teacher/Schoolwork	1.05	.12
Social Interaction/ Teacher/Other	7.88+++	.82
Disapproval	.05	.002
<u>Child Behaviors</u>		
Other Interrupt	1.76	*
Raise Hand	.004	.45
Reading Error	.46	*
Object Aggression	.70	.02
Read Aloud	.62	*
Other Activity	.62	.25
Approach Child	6.8+++	.07
Other Child Approach	.06	.07
Social Interaction/ Schoolwork	.29	.04
Social Interaction/ Other	.6	.65
Callout	17.62++++	2.9
Out of Seat	.03	.05

TABLE 4 (continued)

	Reading Group	Seatwork
High and Low Reading Groups:		
<u>Teacher Behaviors</u>		
Group Direction	.02	*
Group Disapproval	.02	*
Group Opportunity to Respond	.06	*
Group Approval	.05	*
Direction	.04	.15
Approval	.66	*
Opportunity to Respond	1.32	*
Teacher Approach/ Schoolwork	.02	.2
Teacher Approach/ Other	.26	.18
Social Interaction/ Teacher/Schoolwork	2.9+	3.96++
Social Interaction/ Teacher/Other	1.57	.17
Disapproval	.04	.09
<u>Child Behaviors</u>		
Other Interrupt	1.61	*
Raise Hand	.02	1.2
Reading Error	.04	*
Object Aggression	.01	.14
Read Aloud	.004	*
Other Activity	.47	.004
Approach Child	.01	.12
Other Child Approach	.001	.31
Social Interaction/ Schoolwork	.002	.12
Social Interaction/ Other	.004	.23
Callout	.23	.49
Out of Seat	.03	.46

* - No Occurrence in Seatwork

+ - $p < .10$ ++ - $p < .05$ +++ - $p < .01$ ++++ - $p < .001$

trend approached significance: the incidence of teacher approaches regarding things other than schoolwork ($\chi^2 = 2.9$, d.f. = 1, $p < .10$). This slight difference was in the favor of children in the lower group being approached during reading group.

In the comparison of boys' and girls' behavior during reading group and seatwork, boys called out at a higher rate than girls in reading group ($\chi^2 = 17.62$, d.f. = 1, $p < .01$), approached other children more often in reading group ($\chi^2 = 6.87$, d.f. = 1, $p < .01$) and received more approaches from the teacher about things other than schoolwork ($\chi^2 = 7.88$, d.f. = 1, $p < .01$).

IV. DISCUSSION

ATTENTION AND INSTRUCTIONAL SETTING

The primary focus of this study was to determine what were the differences in attention between two instructional settings. The results showed that at the third grade, children were more attentive during reading group than seatwork which replicates other research (Good and Beckerman, 1978; Rosenshine, 1980). The percent of time that children were on task was similar to the percent of time on task that those researchers found.

Same results

Although children exhibited a higher percent of attention during reading group, they also had a higher rate of inattentive breaks than in seatwork. It appeared that becoming inattentive did not affect the amount of time spent on schoolwork if the child quickly returned to schoolwork, which was the case in reading group. Since teacher feedback and response opportunities were more frequent in reading group, it is possible that these were sufficient to bring the children back to task. Frequent but brief breaks in attention may not be detrimental to overall attention to task.

The most surprising finding regarding attention duration was that the average period of attention span was quite short. The primary importance of mean duration may be its descriptive value. A student who cannot sustain attention for an "appropriate" amount of time is frequently referred by teachers (Bolstad and Johnson, 1977). Lahaderne (1968) has suggested that this is due, in part, to the fact that a student's attention to teaching serves as an immediate reinforcement to the teacher. Hence, data which indicate what an average duration of attention is for a typical third grader can help teachers develop appropriate expectations for the children in their classrooms.

Further research

The order of reading group and seatwork presentation is not considered to be a factor in the results since attention did not differ between children receiving reading group or seatwork first or second. In addition, attention levels were the same during both halves of the observation block. Total elimination of an order effect is not possible, however, because high reading groups always received instruction first while low groups engaged in seatwork.

THE EFFECTS OF ABILITY GROUPING

There were no differences in the attentive behavior of high and low achievers in reading group or seatwork. Studies conducted at the first grade level had yielded mixed results with Weinstein (1975) finding little difference between high and low groups and Felmlee and Eder (1983, 1984) and Eder (1981) finding differences.

Two possibilities emerge to explain the lack of difference between high and low reading group behaviors. The first is that as children become more socialized into the school process, initial differences between high and low children may disappear. Children in third grade have had opportunity to adjust to the rules and regulations of school and develop appropriate task-related behaviors, such as attention to task. A second possibility is that this particular elementary school, which draws from a small geographical area, contained a more homogeneous population for reasons unknown.

In recent years, there has been a focus on the relative usefulness of ability grouping for the purposes of instruction. Dawson (1987) in her review of this practice, indicates that historically, educators have assumed that ability grouping children fostered

self-concept and facilitated learning. However, Goodlad (1984) indicated that neither occurs and has called for the practice to be abolished. Other authors (Slavin, 1985) have indicated that ability grouping within heterogeneously grouped classes can be helpful. In the area of reading, children can be successfully regrouped to learn specific skills. This reduces the size of the group receiving instruction and equalizes the skill level of children receiving instruction. The present study provides indication that there are no effects upon attention for ability grouping within a heterogeneous classroom for reading instruction. Therefore, it cannot be argued that the children in the low reading group create a socialization situation which inhibits attention as Felmlee and Eder (1983) have suggested. In addition, when one looks at the differences in behaviors of children in the high to low reading groups, they were simply nonexistent. The only difference was that children were more likely to receive help from the teacher during seatwork if they were identified as a low level reading student. This one significant difference out of 42 possibilities could have been due to chance. Based on the results of this study, there are not effects on children's attention by homogeneous ability grouping for reading instruction.

WHY A SETTING IS SO IMPORTANT

As children are clearly more attentive in reading group than in seatwork, attention must be focused on what teacher behaviors and what setting differences are that would account for these differences in behavior. In exploring the setting differences, one must again consider the teacher behaviors in reading group. In the reading group, the teacher is more frequently asking questions, giving praise, giving directions, all of which have been found to increase the focus of children on schoolwork. Lentz and Shapiro (1986) have described the environmental factors which contribute to pupil engagement and they identified teacher attention, feedback and praise. These are the same elements of a small group instructional mode. It is the contention of Lentz and Shapiro (1986) that these environmental factors provide a steady pacing of the child's work, whether in seatwork or in reading group. Data from the present study indicate that teacher behaviors such as opportunities to respond, praise, disapproval, and feedback on the accuracy of the work happen much more frequently in reading group than they do in individual seatwork. There exists, therefore, a "natural"

combination of factors which facilitate attention. This pacing is evident in the data on rate per minute behaviors from the present study. Although in classroom, there were significantly higher rates of opportunity to respond and children raising their hands, the attentional differences between the classes were not significant. A closer examination of the rate per minute behaviors which were non-significant indicates that in one class, the teacher gave more opportunities to respond to the group, while in the other class, the teacher gave more opportunities to respond to individual children and called on them. These children did not raise their hand or call out answers at a higher rate, and yet, a pacing of their learning process was provided by the teacher. Teacher contact may occur, therefore, at a moderate rate and still facilitate student attention, which replicates Carnine's (1976) work, which indicated that teacher pacing is more effective than allowing students not to respond.

In contrast, there is minimal teacher contact during seatwork and children engaged in more different behaviors in individual seatwork. They engaged in other activities than schoolwork, such as, sharpening their pencils or arranging crayons on their desks, and got out of their seat at a much higher rate than they did when

they were in reading group. These behaviors may compete with schoolwork and lower the percent of time they spent on task.

It is interesting to consider the few sex differences that appeared in children's behavior. Boys were "more active" in reading group and seatwork. They engaged in a higher rate of calling out, interacting with the teacher, and approaching other children during reading group and, during seatwork, were more likely to engage in a social interaction with another child. Although these findings are interesting, it should be noted that the differences between the two genders in behavior were not extreme. For example, boys were not more likely to engage in object aggression or get out of their seat or receive directions during reading group or seatwork.

SUMMARY AND CONCLUSIONS

The results of this study clearly indicate that children spend a higher percent of time engaged in schoolwork during a small group reading instruction than during individual seatwork. Although this is interesting, one must question whether it is important and/or feasible to increase attention during the other

parts of the day. Since attention appears to have a strong link to learning, it is assumed that increasing attention, however, could increase learning. One limitation of this study is that there was no indication of an optimal level of attention in each setting. However, since the association between learning and attention is so well established, it seems appropriate to consider strategies to increase attention when it is comparatively low. It is the opinion of this author that there are essentially two strategies to employ in increasing attentional behaviors. The first is to make higher use of the attention-related teacher behaviors in other settings, and the second is to limit the use of settings which are known to have a negative effect on children's attentional levels. First, let us turn to a discussion of increasing teacher interaction during individual seatwork.

Other authors (Shapiro and Lentz, 1986; Carnine, 1984) as well as the present study have indicated that teacher behavior such as opportunity to respond, approval, feedback on correctness of work, disapproval and directions are associated with increases in the attentional level of children. If this be the case, it is possible to increase said behaviors during the period of individual seatwork. Teachers may have a period

between reading groups during which they interact with children engaged in individual seatwork. Another option is for teachers to assign reading groups to short assignments (five to ten minutes) during reading group and use that time to interact with the children involved in individual seatwork. It is logical to assume that if teacher interaction is increased during individual seatwork time, that attention may also increase.

Another strategy would be to limit, when possible, the amount of individual seatwork time. Teachers could do this by providing smaller amounts of time in seatwork and engaging in more activities in group. They could also do this by having individual seatwork for shorter periods interspersed with other activities that involve interaction. Either of these strategies would probably decrease the "attentional drift" that occurs during individual seatwork.

① Future research could focus on the attentional differences that occur when teachers modify their use of individual seatwork to determine if children's attentional levels do, in fact, rise. Another direction for future research would be to see if overall achievement level is increased when children increase their level of attention during individual seatwork. At the present time, children are engaged in the elementary

school in long periods of seatwork for which their attentional level is low. If strategies could be used to increase this, it is feasible that they would, in effect, spend longer time learning and have achievement that is higher.

LIST OF REFERENCES

REFERENCES

- Abikoff, H.; Gittelman-Klein, R.; and D. Klein (1977). Validation of a classroom observation code for hyperactive children. Journal of Clinical and Consulting Psychology, 45.
- Bloom, B.S. (1974). Time and learning. American Psychologist, 29.
- Bolstad, O.D. and S.M. Johnson (1977). The Relationship between teachers' assessment of students and the students' actual behavior in the classroom. Child Development, 48.
- Borg, W.R. (1980). Time and school learning. Time to Learn, (Denham and Lieberman, eds.). U.S. Department of Education.
- Carnine, D. (1976). Effects of two teacher presentation rates on off-task behavior, answering correctly, and participation. Journal of Applied Behavior Analysis, 9, 199-206.
- Center, D.B.; Deitz, S.M.; and M.E. Kaufman (1982). Student ability, task difficulty, and inappropriate classroom behavior. Behavior Modification, vol. 6, no. 3.
- Conover, W.J. (1980). Practical Nonparametric Statistics. John Wiley and Sons, New York.
- Dawson, N.N. (1987). Beyond ability grouping: A review of the effectiveness of ability grouping and its alternatives. School Psychology Review, vol. 16, no. 3.
- Denham and Lieberman (eds.) (1980). Time to Learn. U.S. Department of Education.
- Dukes, M. and R.A. Saudargas. (In Press). Teacher evaluation bias of L.D. children attenuating effects of the classroom ecology. Learning Disability Quarterly.
- Eder, D. (1981). Ability grouping as a self-fulfilling prophesy: A micro-analysis of teacher-student interaction. Sociology of Education, vol. 54.

- Eder, D. and D. Felmlee (1984). The development of attention norms in ability groups, in The Social Context of Instruction, Peterson, Wilkinson and Hallinan (eds.). New York: Academic Press.
- Felmlee, D. and D. Eder (1983). Contextual effects in the classroom: The impact of ability groups on student attention. Sociology of Education, vol. 56.
- Fisher, C.W.; Berliner, D.C.; Filby, N.M.; Marliave, R.; Cohen, L.S.; and M.M. Dishaw (1980). Teaching behaviors, academic learning time, and student achievement: An overview. Time to Learn. Denham and Lieberman (eds.). U.S. Dept. of Ed.
- Gagne, R.M. (1977). The Conditions of Learning. Atlanta: Holt, Rhinehart and Winston.
- Gambrell, L.B.; Wilson, R.M.; and W.N. Gantt (1981). Classroom observations of task attending behaviors of good and poor readers. Journal of Educational Research, vol. 74.
- Gickling, E.E. and V. P. Thompson (1985). A personal view of curriculum-based assessment. Exceptional Children, vol. 52.
- Good, T.L. and M. Beckerman (1978). Time on task: A naturalistic study in sixth grade classrooms. The Elementary School Journal, 78, 3.
- Goodlad, A. (1984). A Place Called School: Prospects for the Future. New York: McGraw and Hill.
- Hollander, N. and D. A. Wolfe (1973). Nonparametric Statistical Methods. John Wiley and Sons, New York.
- Jackson, P.W. (1968). Life in Classrooms. Atlanta: Holt, Rhinehart and Winston, Inc.
- Krathwohl, D.R.; Bloom, B.S.; and B.B. Masia (1964). The Taxonomy of Educational Objective: The Classification of Educational Goals -- Handbook II, Affective Domain. New York: David McKay Co., Inc.

- Lahaderne, H. (1968). The attitudinal and intellectual correlates of attention: A study of four sixth grade classrooms. Journal of Educational Psychology, vol. 59.
- Lentz and Shapiro (1986). Functional assessment of the academic environment. School Psychology Review, vol. 15, no. 3.
- McNamara, D.R. (1981). Attention, time on-task and children's learning: Research or ideology? Journal of Education for Teaching, vol. 7.
- Morrison, H.C. (1927). The practice of Teaching in the Secondary School. Chicago: Univer. of Chicago Press.
- Rosenshine, B.V. (1980). How time is spent in elementary classrooms. Time to Learn, Denham and Lieberman (eds.). U.S. Dept. of Education.
- Routh, D.K. (1980). Developmental and social aspects of hyperactivity, in Hyperactive Children: The Social Ecology of Identification and Treatment, Whalen and Henker (eds.). New York: Academic Press.
- Saudargas, R.A. and G. Fellers (1986). State-Event Classroom Observation System. Unpublished Observation Manual. University of Tennessee, Knoxville.
- Saudargas, R.A. and F.E. Lentz (1986). Estimating percent of time and rate via direct observation: a suggested observational procedure and format. School Psychology Review, 1986, vol. 15.
- Siegal, S. (1956). Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill Book Company, Inc.
- Slavin (1985), American Ed. Governed Research, 22, 35, 36.
- Weinstein, R.S. (1975). Reading group membership in first grade: Teacher behaviors and pupil experience over time. Educational Psychology.

APPENDICES

APPENDIX A

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

September 28, 1987

Dear Parents:



College of
Liberal Arts
Department of
Psychology

We are writing in order to ask your permission for your child to participate in a research project being conducted at his/her school this Fall. We are asking all the children in the class to participate. The purpose of the research is to learn more about children's classroom behaviors and their relationship to academic work completion and accuracy. Each child in the classroom will be observed twice during reading group and individual seatwork time. Observations will be conducted by University of Tennessee undergraduate and graduate students trained by Dr. Saudargas and Ms. Wadlington. The observers will come into the classroom during reading group and individual seatwork times and code the behaviors of the students. There will be no interactions between the observers and the children. In addition to the classroom observations, the academic work completion and accuracy of each child will be obtained from the teacher on the days the child is observed.

We would like permission to observe your child. There are no risks in being observed and no names will be used in written reports of the project. Giving your permission is voluntary and not giving your permission will not affect your child's program in any way. Also, you may withdraw your permission at any time.

I will be happy to answer any questions about the project. My phone number is 974-6846. To give your permission, please sign below. Return one copy to your child's teacher and keep one copy for yourself. Thank you very much.

Sincerely,

Richard A. Saudargas, Ph.D.
Associate Professor

Laura Wadlington, MS
graduate student

I understand the purposes of the project described in this letter and give my permission for my child to be observed.

Name of Child: _____

Parent Signature: _____

Date: _____

APPENDIX B

Comparison of Median Attention of Genders, Classrooms and Reading Levels

	Percent of Attention	Attention Duration (Seconds)	Rate per Minute of Inattention
Boys			
Seatwork	X2 = .30	X2 = .04	X2 = .08
Reading Group	X2 = .04	X2 = .04	X2 = .04
Class 1			
Seatwork	X2 = .28	X2 = .05	X2 = 1.66
Reading Group	X2 = .28	X2 = .001	X2 = .44
High Group			
Seatwork	X2 = .02	X2 = .02	X2 = .83
Reading Group	X2 = .02	X2 = .02	X2 = .11

Note: None were significant by median test.

APPENDIX C

Comparison of Attention in First and Second Parts of the Language Arts/Reading Group Block

N = 29

	Number Above Median - 1st Half	Number Above Median - 2nd Half	Ch. Square
Percent of Attention	15	14	.07
Attention Duration	14	14	.07
Rate/Minute of Inattention	15	15	.08

VITA

Laura Wadlington was born in Raleigh, North Carolina. She attended public schools in Raleigh and graduated from Needham Broughton High School. Other degrees include the Bachelor of Arts, cum laude, from Meredith College with a major in Psychology and Home Economics, a Master of Science from the University of Georgia with a major in Child and Family Relationships, and a Doctor of Philosophy (pending 1988 graduation) degree from the University of Knoxville, Tennessee with a major in Psychology.

Following graduation from the University of Georgia, Ms. Wadlington was Director of the Child Development Center and Instructor in Child Development at Delta State University in Cleveland, Mississippi. Since attending the University of Tennessee, she has worked as a school psychology intern with the Knoxville City Schools and Coordinator of School Psychological Services at Cherokee Mental Health Center. She is currently a part-time Instructor at Carson-Newman College in Jefferson City and an associate with Clinical and School Associates in Morristown, Tennessee.

Ms. Wadlington is a certified school psychologist and licensed psychological examiner. She has

memberships in Kappa Delta Phi and Phi Omicron Nu
honorary fraternities.