

The Optimal of Time of Day for Student Instruction in Reading:

Morning or Afternoon

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EDU 690: Action Research

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Abstract

Does the time of day when Reading is taught affect student learning? Do students have an opinion about their best time of day for learning? The hypothesis of this Action Research project is that student outcomes will be positively affected by teaching Reading in the afternoon. A Kindergarten class of twenty-one students was observed and studied to determine if teaching Reading in the afternoon, as opposed to traditional morning times, was more conducive to students' learning. Two units of Letterbook were taught over a two-and-a-half week time frame. Teacher observations were made, student questionnaires and interviews were given, and work samples were collected and compared. Results show that while most students learn best in the morning, those that struggle or who have been remediated are afternoon learners. These students also indicated that afternoons were their best time for learning. While this may not change Reading time, sensitivity to those, especially struggling and remediated students needs to occur.

keywords: time-of-day, Reading, afternoon, morning, best time to teach

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The Optimal of Time of Day for Student Instruction in Reading:
Morning or Afternoon

Rationale for Study

Traditionally, Reading has been taught in the morning, when the students appear to be what is termed as “fresh”. However, although Reading has traditionally been taught in the morning, it does not necessarily preclude that this is the most effective or optimal time to teach Reading skills.

Statement of the Problem

A Kindergarten teacher, who taught both morning and afternoon half-day classes, noticed that the afternoon classes typically seemed to learn information faster. When looking at this in terms of a full-day Kindergarten class, the question then becomes when is the optimal time to teach reading, in the morning or during the afternoon? As educators, it is imperative that teachers attempt to aide students in learning information in the best possible means. Discovering the optimal time for student instruction would enhance learning outcomes.

Several factors are critical when examining this issue. The first factor would be children’s readiness to learn. Diet and sleep may influence the readiness of student learning. Another factor to consider would be teacher time limitations. Specialists may be scheduled at various times and days throughout the week. Teachers do not have influence on this schedule, once it is set. Also, teachers’ schedules are just a part of a master schedule, a piece of a whole. The whole is taken into consideration, not just one individual’s teaching schedule. An uninterrupted block of time is necessary for teaching reading. This block of time may have been partially determined as a result of the schedule that a teacher is given. Finally, a third factor for

consideration would be consistency in schedule. This block of time needs to be placed consistent for students at this age.

This proposed research project would include a class of kindergartners. The class of kindergartners would be a colleague's class. The Kindergarten teacher has already agreed to participate in this study and the school principal has already been informed and has approved of this study (see Appendix A). Interest in the results has been established by the principal. If names are used, the principal mentioned that approval may need to be given. If the study is anonymous, permission will not be needed.

Primary Research Questions

1. Does time of day affect student learning?
2. Do students have an opinion regarding when they learn best?
3. Are outcomes influenced positively when Reading skills are taught in the afternoon?

Hypothesis

Teaching Reading in the afternoon, versus morning, will positively affect the learning of Reading skills.

Review of Literature

Introduction

Every educator desires that students perform at optimal levels. An important aspect of this review is discovering whether there is a peak time for student learning. If there is a peak time for learning, educators could schedule classes or teach subject areas at these optimal times of day, which would enhance student learning outcomes. It is important to seek to understand if teacher sensitivity to students' learning times of day may be integral in enhancing learning outcomes.

Circadian Rhythms and their Influence on Learning

Much research has been done in regarding circadian rhythms. These rhythms affect body temperature, sleep-wake cycles, respiration, blood pressure and hormonal levels (Callan, 1997). Davis (1987) noted that “daily rhythms appear to be related to student learning patterns” (p. 138). The biological rhythms also “influence the ways people encode, store and retrieve information” (Davis, 1987, p. 138). Understanding how these rhythms might affect student learning, and identifying if there is an optimal time of day for kindergartners to learn Reading, is a focus of this study and pertinent to the Action Research project.

Body Temperature, Learning and Time of Day

According to Callan (1997), for over one hundred years, research has been done regarding the cyclical functioning of thinking. Research has shown that body temperatures vary during the day and night, with lowest body temperatures usually around 5 a.m. and highest around 6 p.m.

An experiment by Dresslar, in 1892, determined that telegraph key tapping speed was slowest at 8 a.m., peaked at 4 p.m. and began falling after 4 p.m. This might lead one to believe that a peak time of day would be mid-afternoon (Callan, 1997). On the other hand, Callan (1997) cited research that shows that different people reach their peak temperature at different times of day.

Some people reach their peak temperature in the morning, or afternoon, or evening. Thus, we have the terminology of “morning people”, “afternoon people”, or “evening people”. Keeping this understanding in mind while doing research regarding optimal time of day for reading instruction, it should be understood there might not be one optimal time, which is the same time, for all students (Callan, 1997). In their studies, Anderson, Petros, Beckwith,

Mitchell, and Fritz (1991) also uphold to this belief that optimal time of day is individual dependent. Holloway concurs that “not all students performed best at one time of day” (p. 87).

The Teacher and Time of Day

Callan (1997) cited a study by Folkard explaining that teachers may have a different optimal time of day than students. As a result of this understanding, the time of day when the teacher is at optimum might also affect student learning of reading. Holloway (1999) stated that studies show “that students scored better when they were taught during their teacher’s ideal time of day” (p. 87). It was suggested by Klein (2001), that studies need to be done regarding the interaction between students and teachers, “whose prime periods of attention might not coincide with those of their students” (p. 308).

Memory Performance and Time of Day

In Folkard’s (1980) study, it was reported that “immediate memory at 9:00 a.m. was greatest for least important items” (p. 95). Delayed memory was superior when material was presented after 3:00 p.m. (Folkard, 1980). Both important and unimportant information was remembered with an afternoon presentation of material, according to Folkard (1980).

Sleep, Learning and Time of Day

According to Golombek & Cardinali (2008), the circadian cycle is slow to adapt to change. Thus, changes in a person’s sleeping schedule impact the circadian rhythms. Weekend, summer, and vacation pattern changes all affect the circadian cycle. Golombek and Cardinali (2008) expressed that inadequate sleep impairs learning. As Holloway (1999) reported, “lack of sleep causes distractibility, impulsivity, and difficulty maintaining attention” (p. 88). Menna-Baretto and Wey’s (2008) article, also, linked sleepiness with distractibility. This issue of

distractibility negatively influencing student learning outcomes is a recurring theme in the study of discovering optimal learning time.

Age, Learning and Time of Day

Kim, Dueker, Hasher and Goldstein (2002) quoted a study by Ishihara et al. (1990) which showed that as students advanced in grades, they changed their time preferences from morning to evening. This may be a result of a circadian shift which occurs around age twelve (Kim et al., 2002). However, Kim et al. (2002) mentioned that younger children have a preference of morning, while older children prefer the afternoon. A study by Klein (2001) found that “there were significant differences in attention levels at different times of day: the later the hour, the lower the level of attention” (p. 305).

Hogan, Kelly, Verrier, Newell, Hasher and Robertson (2009) reported “younger adults prefer afternoon or evening, whereas older adults prefer morning” (p. 109). It was also suggested by Hogan et al. (2009), that younger adults were more distracted during the morning, which may have resulted in poorer overall learning in the morning. This distractibility subject was also discussed by Kim et al. (2002), who stated that students were less distractible during their optimal times of day. On the other hand, Hogan et al. (2009) also explained that young adults benefited from practice in both the morning and the afternoon.

While this paper is regarding the optimal time to teach kindergarten students Reading, the information regarding when adults, both old and young, learn best is also important. It impacts our understanding of optimal time of day for teachers, having noted previously, that optimal teacher time of day affects students learning outcomes.

Other Factors Related to Learning

Because plasma hormone levels may vary depending upon the time of day, as well as age, there may be a correlation with gender also determining optimal time of day for learning (Davis 1987). Performance and memory may be influenced by these hormonal levels.

Menna-Baretto and Wey (2008) found that “brains tend to warm-up during the waking hours” (p. 25). This may explain why in four studies that are cited by Klein (2001), findings showed that “reading achievement rose during the afternoon hours” (p. 302). On the other hand, another study believed that the “classroom ecology was a factor” (Klein, 2001, p. 302).

It should be noted that in studying optimal time for mathematical instruction, the morning was found to be a better time (Klein, 2001). Yet, Klein (2001) also reported, in regards to students in fifth grade who struggled with Math, an increase in attention and achievement from morning to afternoon. Research, by Klein (2001), revealed that “those with high achievement scores had higher attention levels than the low achievers early in the day and during the last segment” (p. 305).

Individuality is another factor that should be given consideration. As discussed before, individual preferences regarding optimal learning times of day may vary. In Leigh and Reynolds (1982) studies regarding IQ testing, it was found that when subjects were tested, there was “no significant effect on mean levels of performance” (p. 94). However, Leigh and Reynolds (1982) also suggested that for individual children, the time of day may be important.

Summary

As Holloway (1999) states, “teachers should consider time of day when they plan and implement lessons” (p. 87). Davis (1987) and Klein (2001) also reiterate that studies need to be

done at various grades, because the optimal instruction time may vary depending on the ages of the students.

Attention varies during the day, and this quality of attention affects learning performance. It was reported that fifth grader attention increased as the day progressed, while attention in tenth graders declined as the day progressed (Klein, 2001). Research suggested that when students are being taught during their optimal time of day, they scored significantly higher in tests (Holloway, 1999). It is also highly recommended that more studies need to be done regarding optimal concentration time (Klein, 2001).

Finally, as Klein (2001) describes, evidence is conflicting regarding whether there is an optimal time of day to teach students a subject. As educators, it is our goal to optimize student learning and performance. Awareness of these issues is a step in this direction.

Methodology

Research Design

The purpose of this Action Research Project is to discover if teaching Reading in the afternoon will positively affect the learning of Reading skills. While traditionally, students are taught Reading skills in the morning, research shows that an afternoon instructional time might be optimal. Determining if this is true for this particular class of Kindergartners, is the goal of this study.

Data Collection Plan

In order to determine if learning outcomes will be positively affected, a Data Collection Matrix was designed (see Table 1). Collection of data fell within three categories: experience, enquiry, examination (Mills, 2007). All three of these categories, that Mills espouses, were addressed in the data collection samples, which resulted in the triangulation of the data.

Table 1

Data Collection Matrix

Questions	Data source 1	Data source 2	Data source 3
Time of day affect student learning?	Daily work samples	Teacher observations (participant observer)	Field notes/ paradoxes
Student attitude?	Questionnaire	Informal interview	Field notes/ anecdotes
Learning outcomes positively affected?	Daily work samples	Field notes/ observe & look for nothing in particular	

Table 1

The collection of data occurred over a two-and-a-half week period, the amount of time that it took to teach two Letterbooks (Reading curriculum that the school uses). The first set of data, the letter “U,u”, was collected while Reading instruction occurred in the morning (9:00 a.m.). The second set of data, the letter “B,b”, was collected while instruction was in the afternoon (12:30 p.m.). All data were compiled and analyzed in order to determine if afternoon instruction is more effective for students.

Sample Selection

A full-day Kindergarten class, comprised of twenty-one students was the focus of this study. This class contained ten boys and eleven girls. One child was diagnosed with an auditory disorder. Four students perform above grade level, fifteen meet grade level expectations, and four struggle.

Instruments

As discussed earlier, data in three areas were collected: experience, enquiry, and examination. These instruments triangulated the data, making sure that not one source of data was relied upon (Mills, 2007).

Teacher observations/fieldnotes (experience). One form of gathering data included teacher observations/fieldnotes. The teacher, as a participant observer, recorded notes in journal or email form. These notes included observations regarding various students and their attitudes. Outcomes were observed and paradoxes (or bumps/unexpected happenings) were noted. Anecdotes of student comments were also recorded. Student attitude toward time of day instruction, and if learning outcomes are positively influenced were documented through these fieldnotes.

Questionnaires/interviews (enquiry). Another form of data collection that was used was a questionnaire. This was a simple circling of a sun coming up (representing morning instruction) or sun in the sky (representing afternoon instruction) in order to show what time they preferred Reading instruction. These two time concepts have already been taught in class in the students' Math unit, so the students were familiar with the symbols.

An informal interview was also done. This interview was one-on-one with students being asked if they preferred morning or afternoon Reading times, and why.

Daily work samples (examination). Finally, work samples were collected, in booklet form. Two booklets were completed, one during morning instruction (the letter "U,u"), one during afternoon instruction (the letter "B,b"). These work samples, were compared to determine if there is a difference in learning/work outcomes, pertaining to morning versus afternoon instruction. It was also an indicator if the time of day was a factor in student learning.

Validity

Peer feedback validity participants. Feedback was sought from a variety of participants. The Kindergarten teacher who implemented the lesson, a specialist who works with Kindergarten through sixth graders that struggle, and a director of education who was at one time an elementary school principal were asked for input regarding the research validity. The amount of input varied per individual.

Data source validity. According to Mills (2007), there are three concepts that should be included in Action Research: validity, reliability, and generalizability. In order to establish quality, these aspects were analyzed.

One way to look at validity, according to Guba (as cited in Mill, 2007), is to determine if the inquiry is credible and trustworthy (Mills, 2007). As the data collection plans were evaluated, a peer mentioned a concern regarding the short amount of time over which the study is being conducted. A suggestion was made regarding doubling the amount of time, because external factors in students' lives may affect results. At this age, students are extremely influenced by a variety of factors which may include sleep, exciting things happening in their lives, illness, rain or variations in home life. These factors could lead to misinterpretation of data. A suggestion was made to repeat the study cycle: one unit of Letterbooks taught in the morning, one unit taught in the afternoon. This repeat could be directly after the first cycle, or a several week break could occur with the repeat then being implemented.

The triangulation of data was confirmed, with the variety of data sources proving credibility and confirmability of the study. A peer commented regarding using both an interview and a questionnaire. The peer noted that using both also confirms validity because through the combination of the two, a more honest answer was given. Students are less liable to answer to

please the teacher. The field-notes taken, which included paradoxes, anecdotes, and observations (looking for nothing in particular), fulfilled Maxwell's (as cited in Mills, 2007) criteria for descriptive validity. Regarding Maxwell's stance of validity, generalizability was shown. The information can be used and generalized both internally and externally.

Anderson, Herr, and Nihlen (as cited in Mills, 2007) add trustworthiness to validation of the study. The process validity, dependability and competence, of the study were acknowledged, with the structure of the data collections being confirmed by feedback participants. Dialogic validity has occurred through the peer review process, which also confirmed validity.

Peers also determined that the data collections were also reliable. The data measured consistently measured what it was supposed to (Mills, 2007). Increasing the length of time in which the study is implemented (four Letterbook units versus two Letterbook units) further strengthens the reliability.

Finally, the research from the study can be generalized. Teaching reading in the afternoon, if the hypothesis is correct, can be generalized. It may be applied to just this group of students, but it may also be applied to other Kindergarten classes, and to other grade levels within the school, and to other schools.

Results

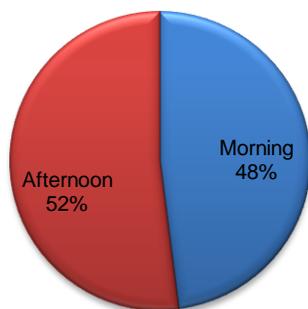
Data Presentation

Teacher observations/fieldnotes (experience). Observations over the course of this study were noted in the fieldnotes in Appendix G. The first day that Letterbook was taught in the afternoon, a student asked, "Why are we doing Letterbook in the afternoon?" Another student said, "Did the Letterbooks just get here?" According to an email from the teacher, another student said, "What took so long to get those Letterbooks here?" (Appendices F and G)

Students were more attentive the first day that Letterbook was taught in the afternoon, according to the teacher (see the email in Appendix F). As the study progressed, the teacher observed that students were more “chatty” and needed to be reminded to stay on task. The teacher also noted that student work in the afternoon and attention to detail was of a lower quality than when Letterbook was done in the morning. However, the teacher did note that it appeared that the class accomplished more and they were able to do more extension activities when Letterbook was taught in the afternoon.

Questionnaires/interviews (enquiry). When asked, “Which time of day do you like to do Letterbook, morning or afternoon?” the first day that Letterbook was taught in the afternoon 48% of the students liked to learn it in the morning, while 52% of the students liked it in the afternoon (see Figure 1). This could be further broken down into boy and girl respondents; 24% of boys and 24% of girls prefer Letterbook in the morning, while 24% of boys and 28% of girls preferred it in the afternoon. Table 2, after the Appendix, cites each individual student’s responses.

**Which time of day do you like to do Letterbook?
Morning or Afternoon**



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Morning or Afternoon**

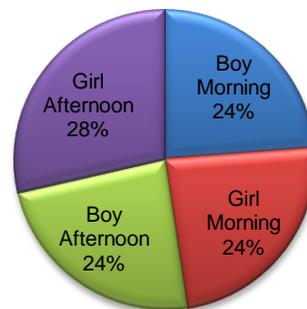
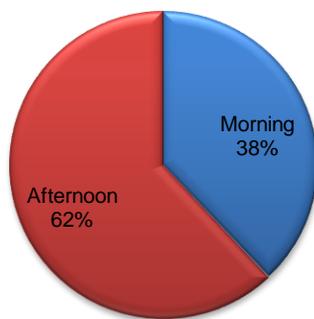


Figure 1. Student questionnaire during the study.

When asked on the last day that they were taught Letterbook in the afternoon, “Which time of day do you like to do Letterbook, morning or afternoon?” 38% of the students responded that they prefer Letterbook in the morning, while 62% prefer it taught in the afternoon (see Figure 2). When the data are looked at in more detail, 10% of boys and 28% of girls prefer Letterbook in the morning as opposed to 38% of boys and 24% of girls prefer it taught in the afternoon (see Table 2).

**Which time of day do you like to do Letterbook?
Morning or Afternoon**



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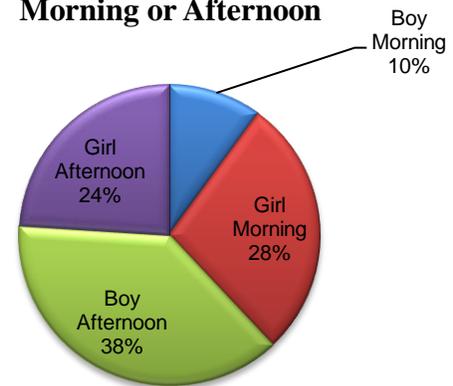
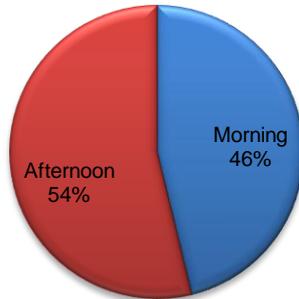


Figure 2. Student questionnaire at the end of the study.

When asked in a personal interview when the study was completed, “Do you like to do Letterbook in the morning (before snack time) or in the afternoon (after lunch recess)?” (see Figure 3). Forty-six percent of students prefer learning Letterbook in the morning, while 54% of students prefer the afternoon time. This can be further broken down; 19% of boys and 23% of girls prefer Letterbook the morning, while 29% of boys and 29% of girls prefer it in the afternoon (see Table 2).

Do you like to do Letterbook in the morning (before snack time) or in the afternoon (after lunch recess)?



Do you like to do Letterbook in the morning (before snack time) or in the afternoon (after lunch recess)?

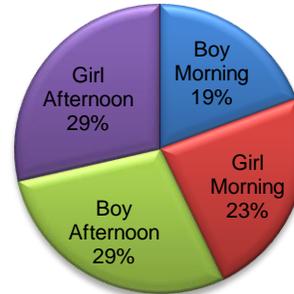


Figure 3. Student interview after the study.

Student responses to the question “Why—do you like to do Letterbook in the morning or in the afternoon” were varied (see Appendix H). Regarding student preference for morning, several mentioned that they have “more time to do other things in the afternoon such as art and activity”, “we get more time to play in the afternoon”, “we don’t have to worry about it later in the day”, and “we don’t have to wait for it”.

Student responses preferring the afternoon time included “...just to be different”, “I like it”, “...more time for carpet”, and “I like to do other stuff first”.

Daily work samples (examination). Through analyzing the data received, which include student work samples, 33% of the data matches and affirms student preferences for as learning better during either the morning or afternoon, and 67% of the data does not support student’s chosen preferences for either morning or afternoon Letterbook (see Figure 4).

Data and Student Preferences

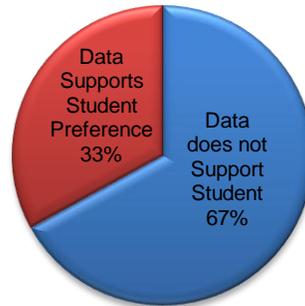


Figure 4. Data and student preferences. This figure illustrates data supporting student opinion regarding their best time for learning Letterbook.

According to data collected through work samples, 57% of students perform better in Letterbook activities in the morning, 19% perform better in the afternoon, while 24% perform equally as well at either times of day (see Figure 5).

Best Time of Day According to Data

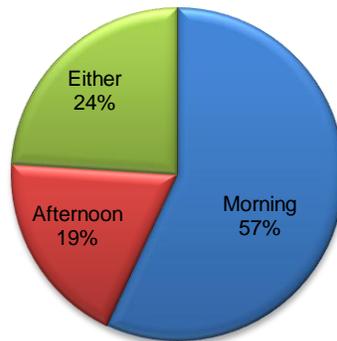


Figure 5. Best time of day for students according to the data collected.

Discussion of Findings

It appears that most students performed better when Letterbook was taught during the morning. Attention was more pronounced, distracting behaviors occurred less often, and the quality of work was better for the majority of students (see Data Findings on Table 2.) Figure 5

also illustrates, according to data collected that for the majority of students the morning time was optimal for Letterbook. Table 3 shows that the majority of high achieving students performed better in the morning.

Table 3

Data Collection Regarding High Achieving Students

High Achieving Students						
Student Number	Boy/Girl	Questionnaire During	Questionnaire After	Interview Answers	Data Findings	
3	B	M	A	M	M	
5	B	A	A	A	M	
6	B	A	A	A	A	
19	G	M	M	M	M	

Table 3

Note. Students are in random numerical order to prevent identification.

Key: B=Boy, G=Girl, M=Morning, A=Afternoon, E=either morning or afternoon (no significant differences in quality or errors were noted for either time period).

It was interesting to note, however, that when data were studied for students that were struggling, or those who had been retained, they preferred afternoon. Data show that two struggling students performed equally as well in the morning as in the afternoon (see Table 4), while one struggling student performed better in the afternoon and another performed better in the morning.

Table 4

Data Collection Regarding Struggling Students

Struggling Students						
Student Number	Boy/Girl	Questionnaire During	Questionnaire After	Interview Answers	Data Findings	
9	B	A	A	A	E	
13	G	A	A	M	M	
14	G	A	A	A	E	
18	G	M	M	M	A	

Table 4

Note. Students are in random numerical order to prevent identification.

Key: B=Boy, G=Girl, M=Morning, A=Afternoon, E=either morning or afternoon

(no significant differences in quality or errors were noted for either time period).

All students who have repeated Kindergarten prefer learning Letterbook in the afternoon.

The data findings (see Table 5) indicates that two perform better in the morning, one student does equally as well at either time of day, and two students perform better in the afternoon.

Table 5

Data Collection Regarding Remediated Students (those having repeated Kindergarten)

Remediated Students						
Student Number	Boy/Girl	Questionnaire During	Questionnaire After	Interview Answers	Data Findings	
2	B	A	A	A	A	
5	B	A	A	A	M	
9	B	A	A	A	E	
10	B	A	A	A	A	
20	G	A	A	A	M	

Table 5

Note. Students are in random numerical order to prevent identification.

Key: B=Boy, G=Girl, M=Morning, A=Afternoon, E=either morning or afternoon

(no significant differences in quality or errors were noted for either time period).

Limitations of Study

This study has several limitations. First, it was conducted through a colleague, and thus fieldnotes and observations reported were not first-hand and they were limited in information. Second, the amount of time of this study was a limiting factor. A repeat sequence of teaching Letterbook in the morning and then again in the afternoon, as was suggested in the validity section, should be performed. Unfortunately, due to time restraints and it having been conducted by a second party, this is not feasible.

Third, student work samples were not entirely conclusive. With a prolonged study and more samples, a stronger conclusion could be made. Because it couldn't not definitely be determined by work samples what time of day was best in learning reading for some students, an "either" category had to be made. Further observations over a longer period of time, and more data would be necessary to truly determine a better time of instruction. Those remediated and struggling, which now indicate morning could actually be afternoon learners, if more data and observations were gathered.

Finally, many Kindergartners do not know what they like. Some changed their mind each time they were questioned or interviewed. In addition, because of developmental levels, many students could not explain why they liked it better at the time of their choice. Many of their answers also befuddled the teacher, and made her laugh, because the time periods that Reading was taught were the same. Students did not get longer recesses, or get to recess earlier as some students stated.

Significance/Implications/Application

The implications of the results suggest that students who struggle or those who have been remediated prefer afternoon and have a tendency to learn Reading better in the afternoon. While

this affects a smaller portion of the class, it is important to keep this in mind when working with these students. Reinforcement of reading concepts in the afternoon would appear to be in order and extremely beneficial to these students.

Further Research

This study does indicate that further research would be beneficial. A longer study period, a larger pool of students, and more work samples would add to the validity and strengthen the findings. This appears to be an area of knowledge which could be useful in regards to working with students who struggle and could also prove very important in timing when to teach or reinforce these students. It is believed that a more in-depth study would make a strong doctoral thesis.

Action Plan

While this research project has come to a conclusion as a result of time, much more work still needs to be done in this area. Another classroom data trial will be done at one point. More observations will be gathered, and more detailed notes will be taken. It is uncertain if the same results will occur because each class is unique, as is each teacher. The teacher that had performed the first data gathering was a “morning person”, whereas the next teacher will be a “mid-morning” person. As discussed in the Literature Review, this may also affect results. However, the most important aspect is not whether it is better to teach Reading in the morning or in the afternoon, but what is best for each student. Taking instructional time-of-day into consideration, especially for those who struggle, is imperative.

The results of the research have been reported to the teacher (see Figure 6) who implemented the research portion. Although it appears as though Letterbook will continue to be taught in the morning, there is sensitivity for students who struggle or who have been

remediated. Students have asked when Letterbook would be taught in the afternoon again, and it is a possibility, according to the teacher.

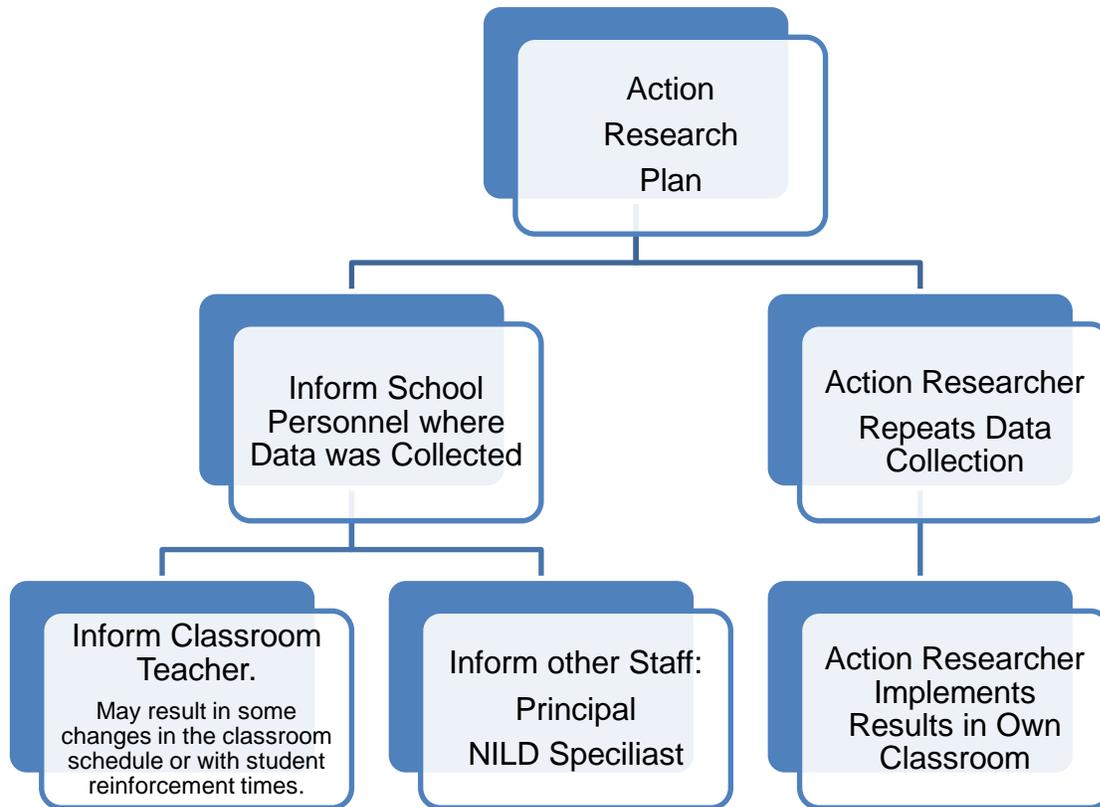


Figure 6. Flow chart for the Action Plan.

A second individual with whom results were shared was the NILD Specialist, who works with some students who struggle academically. While the specialist is limited in times that students may be seen, not everyone can be taught in the afternoon because there is not enough time and a solid block of time, for each student, is required for her program. This block of time is one that poses the least conflicts for the student and their teacher. The specialist is aware of results and in tune with the student.

The school principal was another individual with whom the results were discussed. While no action will be taken on a large scale, this is an issue in which she is aware. Allowing teachers the freedom to determine their own daily schedule is important. In addition, allowing

teachers to research and to act on that research is also a concept that is held in high regard. Being innovative, forward thinking, sensitive, and most importantly learner-centered is what makes the school appealing to parents and esteemed in the community.

While this Action Plan has two different directions, that with the original school where the study was done, along with that of where the researcher's eventual classroom implementation, the outcomes should be nearly identical. The goal of teaching is to help students learn. Through sensitivity of not only accommodating a variety of learning styles, but also taking into account time-of-day preference, we can help our students be more successful learners, which will result in more enthusiasm in regards to education.

Conclusion

Students are what teaching is about. Discovering, through research, implementation of methods, gathering and analyzing data, and using those results to guide or change practices is what Action Research is about. Melding the two together creates an effective teacher. This project was about students, and how practices of whether to teach Reading in the morning or in the afternoon, can best serve students. The answer is not clear. Much is left to be done; however, a start has been made. A researcher/teacher has been changed.

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Definition of Terms

Letterbook(s): The Kindergarten Reading curriculum, by Scribner-Laidlaw/Macmillan, Inc., that King's Elementary School uses.

NILD: National Institute of Learning Development. An educational therapy model. More information may be found at <http://www.nild.net/>.

Table 2

Data Regarding Optimal Time for Reading Instruction

Student Number	Boy/ Girl	Questionnaire During	Questionnaire After	Interview Answers	Data Findings
1	B	M	M	M	M
2	B	A	A	A	A
3	B	M	A	M	M
4	B	M	A	A	M
5	B	A	A	A	M
6	B	A	A	A	A
7	B	M	A	M	M
8	B	M	M	M	E
9	B	A	A	A	E
10	B	A	A	A	A
11	G	A	M	A	M
12	G	A	M	A	E
13	G	A	A	M	M
14	G	A	A	A	E
15	G	M	M	A	M
16	G	A	A	A	M
17	G	M	A	M	M
18	G	M	M	M	A
19	G	M	M	M	M
20	G	A	A	A	M
21	G	M	M	M	E

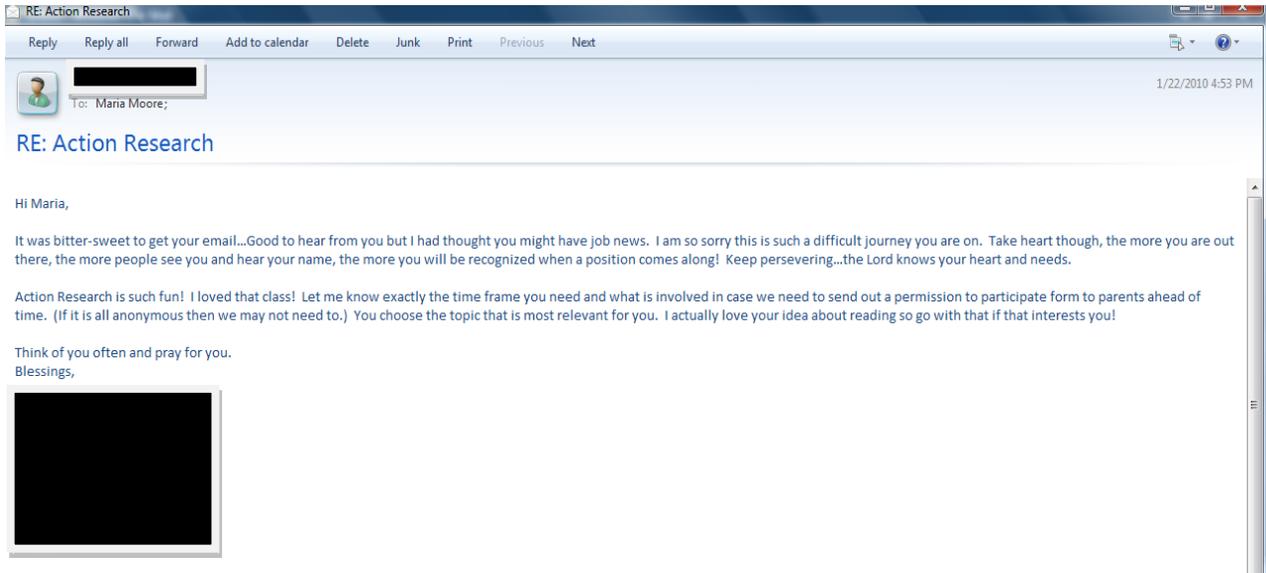
Note. Students are in random numerical order to prevent identification.

Key: B=Boy, G=Girl, M=Morning, A=Afternoon, E=either morning or afternoon

(no significant differences in quality or errors were noted for either time period).

Appendix A

Approval for Action Research Project



Appendix B

Letterbook "U,u" Data Collection Booklet



“U,u” Book”

Name:

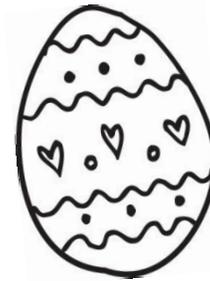
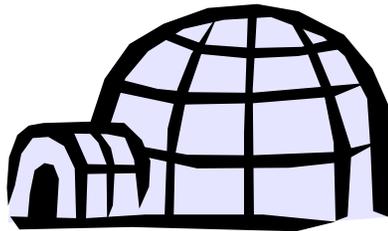
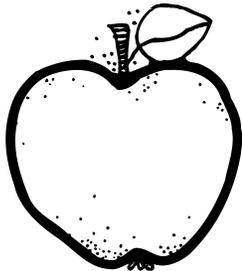
Write "U"

Name: _____

Write lower-case u.

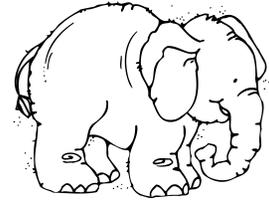
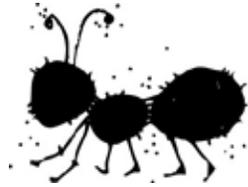
Name: _____

Circle the objects that begin with the short "u" sound.

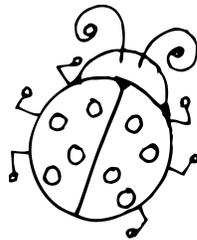
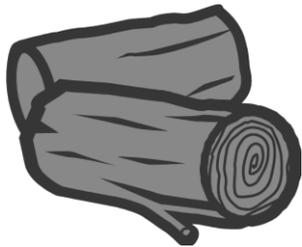


Name: _____

Write the beginning letter of each picture.



Name: _____



leg log

bug bag

son sun

Name: _____

Write the missing letter.



u _____

u _____

u _____

Name: _____

Draw two things that start with the short "u" sound.

Appendix C

Letterbook "B,b" Data Collection Booklet



“B, b Book”

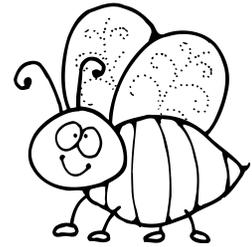
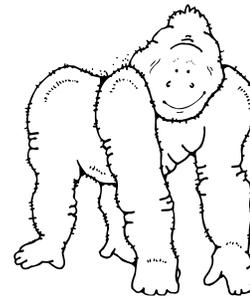
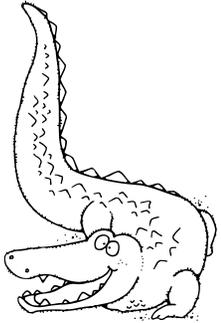
Name: _____

Write upper-case B.

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Name: _____

Circle the objects that begin with the "B,b" sound.



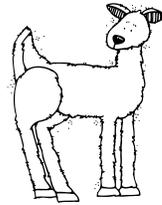
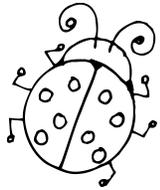
Name: _____

Write lower-case b.

_____	_____	_____	_____	_____
-----	-----	-----	-----	-----
_____	_____	_____	_____	_____

Name: _____

Write the beginning letter of each picture.



Name: _____

Draw a line to the picture that goes with the sentence.

Bill has a soft bed.

Bob bit the hot dog.



Name: _____

Trace and Draw.

I see a bug.

Name: _____

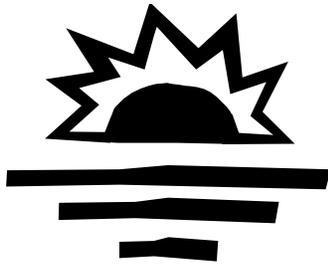
Draw 2 things that start with the letter "B,b".

Appendix D

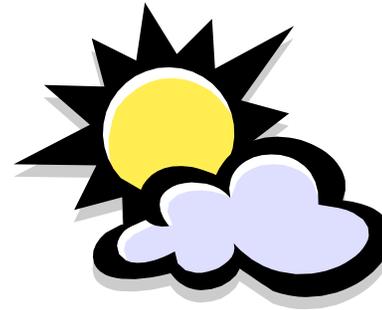
Questionnaire

Name: _____

Circle which time of day you like to do Letterbook.



Morning



Afternoon

Note: "Letterbook" is the reading curriculum that the school uses. This questionnaire will be given the first day of the unit and again on the last day of the unit.

Appendix E

Interview Questions

Name: _____

Do you like to do Letterbook in the morning (before snack time) or in the afternoon (after lunch recess)?

Why?

Note: "Letterbook" is the reading curriculum that the school uses.

Appendix F

Email

From: Linda
Sent: Friday, February 26, 2010 8:52 AM
To: Maria
Subject: RE: Questionnaire

Maria,
They actually seemed more attentive...we'll see what happens today!

Linda

From: Maria
Sent: Thursday, February 25, 2010 6:18 PM
To: Linda
Subject: Re: Questionnaire

Thanks, Linda! I love that last comment, too!! Did you notice any differences in attention or focusing?

Sent from my iPod

On Feb 25, 2010, at 5:37 PM, Linda wrote:

Maria,
Here are a few of today's comments. We went back to our desks after Bible and someone said "I don't have a Letterbook." I started to pass out Button Books and someone said are those our Letterbooks? Another said "what are we doing". My favorite had to be after lunch when we started to do Letterbook...one little boy said...What took so long to get those Letterbooks here?
The questionnaire was interesting...I think about half said they liked doing it in the afternoon...we'll see if that holds.
Linda

Note. Email received February 25, 2010 and February 26, 2010 from the teacher implementing the study.

Appendix G

Teacher Fieldnotes

Over the past two weeks our class participated in research involving learning in the morning versus learning in the afternoon. We as a rule teach Reading in the morning. Our Letterbook program is phonics based and has a great variety of activities in each book.

During the first week we continued to teach Reading in the morning. Our letter of focus was Bb. This particular class is very social and it tends to take them awhile to complete any assignment as a rule. The morning is a quieter time and they appear alert and ready to learn. In general most of the class tends to use their time wisely and are pretty good listeners in the morning.

The next week or so we moved onto letter Uu. We also began to do Letterbook in the afternoon. During the morning I don't recall anything being said about doing LB that first morning...however when I pulled the LB out that afternoon...the comments began.

"Why are we doing LB now?"

"Did the books just get here?"

"Didn't we already do LB?"

"Are we going to do these in afternoon tomorrow?"

The children enjoyed the change esp. the first day and they were pretty attentive. I felt as the week wore on however that the afternoon was not their best time. They were very chatty and had to be reminded to stay on task.

It was interesting that after they were surveyed the majority said they liked working in the afternoon. I think they felt there was more time somehow in the afternoon. I gave the survey after the first day and then after the two weeks were over.

As we have now begun a new Letterbook, the questions began again. Are we going to LB in the afternoon again? We'll see!

Appendix H

Student Responses

“Why do you like to do Letterbook in the morning (before snack time) or in the afternoon (after lunch recess?”

Morning:

So I can...more things in the afternoon—art, activity.

We get more time to play in the afternoon.

Then we'll have time to do activity.

We don't have to worry about it later in the day.

We don't have to wait for it.

We have more free time in the afternoon.

Cause we always get our last recess.

Afternoon:

Because we get to recess faster.

Just to be different.

I like my letters.

I just like it.

More time for carpet.

Get more recess.

I like to do other stuff first.

More time to play.

Note. There was no difference in the amount of time that Letterbook was taught in morning and afternoon. Both were a 30-40 minute time period.