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The Impact of Drawing Post-Reading on Third Grade Reading Comprehension

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Show What You Know:

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Abstract

The purpose of this research was to investigate how drawing affects third grade students' reading comprehension. Students participated in two phases of this action research. First, students read and completed a comprehension quiz. For phase two, students read, drew a picture to show what they remembered from the story, then completed the same comprehension quiz as before but as it related to the second story. The goal was that students were able to express better comprehension after drawing and they did just that. Student scores for response accuracy improved, and even more significantly, scores for depth of response on comprehension questions improved, all with an arts integration intervention for reading comprehension.

Introduction

Reading is a tool that allows children to learn more about themselves, others, and the world around them. With good reading comprehension, children can imagine rich stories of their own, and write wonderful things too. My hope was that by encouraging an approachable, arts-based method of comprehending text, I could help students comprehend reading and ultimately learn to love it too. In this study, third grade students used drawing to help organize their thoughts about the text they read, to comprehend and improve recall. The objectives for this research align with Virginia SOL 3.5: The student will read and demonstrate comprehension of fictional text and poetry.

This study used drawing after reading to help third grade students break down text to make meaning. Students used what they read, using words as clues, to create pictures. This action-based research took place in two phases. Students read one short story and completed a comprehension quiz; then the following week, during their daily reading group time they read a different story, drew an image of what they learned in the story, and completed a comprehension quiz. Quiz responses were used as scored data to determine the impact that drawing a picture had on reading comprehension, based on a 3-point rubric. Reading comprehension is defined as the ability to process text, understand its meaning, and integrate what is read with what the reader already knows (“What is Reading Comprehension?”, n.d.).

Art can be a powerful tool for expression and can help foster rich learning. Arts integration is defined by the Kennedy Center as an approach to teaching in which students construct and demonstrate understanding through an art form. Students engage in a creative process which connects an art form to another subject area and meets evolving objectives in both (Silverstein & Layne, 2010). At its roots, arts integration is constructivist and encourages

exploration of meaning. This research investigated the impact of visual arts, specifically in the form of drawing, on reading comprehension skills of third graders.

Literature Review

The following research studies were consulted to support this research. The literature was broken down into the three main categories of support for arts integration, drawing for understanding, and arts integration and reading comprehension. Through the successful research in these areas, it is demonstrated that creating visual art to help with reading comprehension is not only a tested solution, but yet more research is needed to prove this case.

Support for Arts Integration

One of the most powerful reasons for using arts integration (AI) is its variability. There are many art forms that each can take on different interpretations, and arts integration can be applied in any setting from one-on-one to whole school. In a school wide model, AI shows great benefits for retention of content, building community, and general excitement about learning (Steele, 2016). In her research, Steele details various things that are enhanced by AI implementation such as self-confidence, social skills, connection, and communication. Students can take a strong foundation in these elements, far beyond the classroom. The particular students that were a part of this school model and interviewed years later, reported positively on the impact that AI had on their academic success and love of school.

Arts integration can be applied to all major content areas as a means for teaching any and all material. In a study by Hardiman, Rinne, and Yarmolinskaya (2014), four randomized groups of 5th graders in one school, were taught matched arts-integrated (AI) and conventional science units in astronomy and ecology. Students were randomly selected for the treatment (AI) condition and the others were in the control (conventional) condition. No differences in initial

learning were seen, but significantly better retention in the AI condition was seen. Increases in retention were greatest for students at the lowest levels of reading achievement.

While arts-integration is beneficial to all students, Baker (2011) created a single-topic qualitative case study to explore the role of art education in support of underrepresented Gifted and Talented students. Children from economically stressed communities often lack opportunities for enriched early childhood programs, she states. Limited funding in this case correlated to fewer resources for gifted education. According to the research participants, involvement in art projects utilized areas of the brain that generally worked independent of each other, strengthening neural development. One student explained that, art education taught him persistence, patience, and practice. While supporting students in talent development increased achievement, limiting opportunities had diminished student abilities. This is where AI can help.

Drawing for Understanding

Drawing is one of the most basic forms of visual art and Bolwerk, Mack-Andrick, Lang, Dorfler, and Maihofner (2014) asked a critical question about whether visual art production and cognitive art evaluation may have different effects on the functional interplay of the brain's default mode network (DMN). The DMN is thought to be associated with introspection, self-monitoring, prospection, episodic and autobiographic memory, and comprehension of the emotional states and intentions of others. This study used fMRI data to understand what was happening in the brain when people created art. Adults took part in weekly art interventions and in the visual art production group, participants created visual art projects in an art class. The researchers observed that those who created visual art, showed improved functional connectivity in their brains. Functional connectivity is related to resilience and flexibility. Both are

characteristics that benefit people at any age, but particularly school aged students as they are always learning.

What does doodling do? To answer this question, 40 participants monitored a monotonous mock telephone message for the names of people coming to a party (Andrade, 2010). Half of the participant group was randomly assigned to a 'doodling' condition where they shaded printed shapes while listening to the telephone call. The doodling group performed better on the monitoring task and recalled 29% more information on a surprise memory test. Unlike many dual task situations, doodling while working can be incredibly beneficial, contrary to its reputation as something one might do if they are not paying attention.

Lee, Kalyuga, Wang, Guan, and Wu (2017) revealed that, compared to repeated reading, learner-generated drawing fostered learners' comprehension when their prior knowledge was relatively low. In this action research case-study, college-aged students generated drawings to help make connections to their science vocabulary. When asked to read the science text after the intervention, learners who were previously engaged with imagination spent significantly more time reading the text and fixated longer and more frequently than those in the repeated reading condition.

Arts Integration and Reading Comprehension

Hosfelt (2017) wanted to better understand how AI could specifically help with reading comprehension. She wrote her dissertation based on what she saw happening in a 3rd-grade setting. The purpose of this research study was to evaluate essential components of an AI program that may contribute to improved student achievement in elementary reading at the school of study through an evaluation of the entire program. Teachers participating in the program reported that the arts helped students take risks as well as improve their interests and

attitudes. Teachers also reported students became more collaborative and cooperative when incorporating the arts into classroom learning. She discovered that there was some effect on reading achievement of third-grade students and a relationship between teacher attitude toward arts-integration and reading achievement, but that further research was needed to confirm the relationship of arts integration and its impact on student achievement.

When discussing techniques to impact learning, and how educators should implement these techniques, it is important that we listen to the educators who are successfully trying new things with their students. O'Neil (2011) made the argument that elements that compose expression can come from a multitude of sources. She explains that visual literacy is as important as written literacy and can help students to find meaning and ultimately greater comprehension. Villarreal, Minton, and Martinez (2015) inspected and analyzed children's books and attempted to teach elementary children about pictorial tools used by illustrators. Ultimately, this was well worth the time and effort with the first graders they taught. While the first child-created books were basic and straightforward, their second set of books contained far more complex tools that required more critical thinking in visually composing the story content. Strategies used by these educators put the results of AI research into practice.

The connection between AI and reading comprehension was made yet again by Holdren (2012) when she described what happens when a teacher researcher used art projects to assess reading comprehension. This action research study was integrated into the regular classroom curriculum for 11th-grade academic (not honors) English students. Students created visual arts projects to demonstrate their understanding of a novel that they read for class. As a result, students enjoyed higher levels of engagement with text, collaborative problem solving, and increased thinking stamina. Using art projects to assess higher level reading comprehension

skills may be both rigorous and enjoyable for students, but when emotions knit with the intellect, powerful learning can occur, and connecting the art process to reading comprehension is a fruitful ground for cultivating higher level thinking skills (Holdren, 2012).

In this research I have explored the use of drawing in a 3rd-grade classroom. I aimed to help students dive deeper into their reading and improve their reading comprehension skills with drawing. The arts, by their nature, can help anyone connect more thoroughly to human expression. By creating art, students connected what they knew to what they learned, making for a more well-rounded learning experience.

Methodology

In this study, arts integration was used to aid reading comprehension after students read a short story in their pre-determined reading groups. The students in this class were already familiar with a similar strategy that used drawing during on white boards read aloud time, to make predictions. Evidence from prior research supports multiple strategies using visual arts to teach elementary content. This quantitative, case study approach was used to compare data from all students in two phases. The first phase required students to read and take a brief comprehension quiz. In the next phase students read a different story, drew a picture to demonstrate their understanding, and then completed a comprehension quiz with the same general comprehension questions as in phase one. My research question was, how will drawing impact reading comprehension of third graders in the general education classroom?

Participants

This action research was conducted in a 3rd-grade classroom in suburban Virginia, which serves about 550 total students between kindergarten and fifth grade and that is currently working towards its CETA certification, an official certification in arts integration from the

Kennedy Center. The class where this study took place had 22 students, 11 girls and 11 boys. There was one student who spoke Spanish at home but did not receive ELL services. There were three students with 504 plans. The students were already split up into four reading groups within the class, that were organized by reading level, as determined by running records. These running record scores were broken down into the sub-categories of number of words correctly read, fluency while reading, story retell, and accuracy of answers to comprehension questions. Students in this 3rd-grade class show consistently low scores in the sub-category of comprehension, regardless of overall reading level. Reading groups meet every day of the week. 18 of the 22 students returned parental consent forms and assent forms and were available to participate in the study (Appendix A and B).

Data Collection

The students read grade level, fictional passages, provided by Reading A-Z, titled *The Big Test* and *Missing Mom*. The first phase of the study all students independently read *The Big Test* and immediately answered comprehension questions in the form of a short free-response style quiz (Appendix C). I also read a series of guiding statements to the students as they attempted to answer the quiz questions (Appendix D). The statements and the quiz questions remained the same for phase one and phase two of this study. In phase two, students read a new short story, *Missing Mom,* and before answering the comprehension questions, they were asked to create a drawing on a blank sheet of paper that included the story elements that they could remembered from the passage. The drawings could include future predictions, characters, events, setting, or other story elements that they recall. This was intentionally open-ended so that the impact of drawing itself could be determined. They then answered the written response comprehension questions. A 3-point rubric with the two categories of Accuracy and Depth of

Response, was used to grade the quality of responses from the pre-test and post-test (Appendix E). Accuracy of response was determined either completely accurate, almost accurate, or not accurate. Depth of response was determined by number of details to support the answers given.

Data Analysis

Descriptive statistics were calculated for overall class data, ultimately looking to see differences in comprehension between phase one and phase two. To make sure that each reading group met twice and there was some extra time built in, this study took place over two weeks. Reading group instruction and data collection began in the last week of January 2020 and continued through the first week of February.

Results

This study was aimed at determining the effect of arts integration on reading comprehension for third graders. Specifically, drawing was used to bridge reading and written response to comprehension questions that asked students to describe the setting, character development, problem and solution, and theme of the grade level passage that they read.

Data was analyzed using descriptive statistics, specifically the indicators of mean and mode. It was decided after the data was collected that finding median would not contribute to a greater understanding of the findings, as there were only the values of 1, 2, and 3 points to choose from for the median. Through this process, two themes appeared: on average students were able to draw more accurate responses to comprehension questions and they were better able to provide detailed responses.

Growth in Accuracy

When comprehension responses were graded for accuracy, not a single student regressed in their scores from phase one, without drawing, to phase two, with drawing. While some

maintained the level of accuracy for their responses, more than half of the class improved in accuracy scores from phase one to phase two. The mean score for phase one accuracy on the 3-point rubric was 2.21 points, and for phase two the mean score was 2.72 points. The difference in mean scores was 0.51, indicating that these third-grade students showed growth in accuracy after the drawing task was introduced to this reading comprehension activity. The student data for accuracy are presented below in Table 1.

Table 1

Comparison of Pre and Post Accuracy

Student	Pre-test Accuracy	Post-test Accuracy	Difference
1	2	3	1
2	2	3	1
3	2	2	0
4	2	2	0
5	2	3	1
6	2	3	1
7	2	2	0
8	2	2	0
9	2	3	1
10	2	3	1
11	3	3	0
12	2	3	1
13	1	3	2
14	3	3	0
15	2	2	0
16	2	3	1
17	3	3	0
18	3	3	0
Mean	2.21	2.72	0.51
Mode	2	3	

Growth in Depth of Response

The majority of the class also demonstrated growth in their depth of response. As seen in Table 2, three students regressed in their depth of response; however, 12 of the 18 students improved their depth score from phase one. Regression may be linked to a time crunch; some students felt a bit rushed during the last reading group session and were not given enough time to answer the questions thoroughly. The mean score for depth of response on reading comprehension questions in phase one was 1.71 points. When the arts integration task was introduced and the students were instructed to draw what they had read about, their overall mean score became 2.33 points out of 3. The difference in these means is 0.62, again suggesting that the use of arts integration, specifically drawing in this case, helped students answer comprehension questions about their reading.

From the pre to post-test scores seen for both of the graded categories, there is a general positive trend. Pre and post-test scores for response accuracy were higher on average, but there was not as much growth seen overall; many students stayed at the same score for accuracy and no one regressed. With depth of response, the mean scores were generally lower, but there was a bigger difference between the average pre and post test scores. The notable differences in average scores between accuracy and depth of response on post-tests, demonstrates that drawing enabled these third graders to expand their comprehension and elaborate in their responses. While both areas demonstrated growth, there was more improvement made in depth of response from pre-test to post-test.

Table 2

Comparison of Pre and Post Depth of Response

Student	Pre-test Depth of Response	Post-test Depth of Response	Difference
1	1	2	1
2	2	3	1
3	2	2	0
4	2	1	-1
5	3	3	0
6	1	2	1
7	2	1	-1
8	1	3	2
9	2	3	1
10	2	3	1
11	2	3	1
12	1	2	1
13	2	2	0
14	1	2	1
15	1	2	1
16	3	2	-1
17	2	3	1
18	2	3	1
Mean	1.71	2.33	0.62
Mode	2	2, 3	

While scores were used to detect growth after the implementation of arts integration, much can be seen in the art itself. Below, in Figure 1, Figure 2 and Figure 3, examples of student drawings show characters, setting, feeling and character traits, problem and solution, and other story elements from the passages they read. All three of these students showed growth in their accuracy and depth of response scores after they drew pictures. The students were prompted to draw about what they read but it was their choice as to how that would be represented. By recalling the elements of the story and piecing together the plot through drawing, they were better able to recall their comprehension when it came time to answering the comprehension questions.

Figure 1. Student Drawing #1. This figure depicts the setting, plot, and character feelings from the passage.

Figure 2. Student Drawing #2. This figure shows that the student understands why the main character was upset.

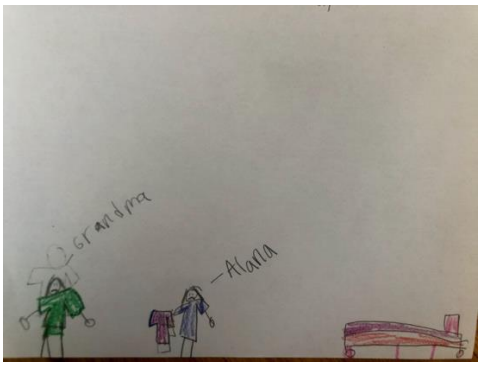

Figure 3. Student Drawing #3. This figure shows the students' use of labels to explain who the passage was about and what the characters were doing.

Discussion

In line with previous research, this data suggests that connection and communication skills are strengthened through the use of AI. Steele (2016) discussed in her work with slightly older students, that various things that are enhanced by AI implementation such as self-confidence, social skills, connection, and communication. Bolwerk, Mack-Andrick, Lang, Dorfler, and Maihofner (2014) observed that those who created visual art, showed improved functional connectivity in their brains. Functional connectivity is related to resilience and flexibility. This same idea is evident in the results from this 3rd-grade class.

As far as recall, the results of this research show similar patterns to those found in the research by Andrade (2010), during which participants showed increased ability to recall information when they were given a doodling task. Suggesting that unlike many dual task situations, doodling while working can be incredibly beneficial, contrary to its reputation as something one might do if they are not paying attention.

Limitations

The trouble with designing this study before working with the students I would be teaching, is that I was not entirely sure what they were capable of or what their prior knowledge looked like. Had I spent some more time with this class, during the designing of this study, I might have adjusted the rubric I used to grade their comprehension checks. According to the rubric, responses with three supporting details were worth three points, two details two points, and one or no supporting detail was worth one point for depth of response. I would have made more generous and allowed two or more supporting details to be worth three points, one detail two points, and no detail could be one point. The use of the original rubric may be why some students did not show much or any growth from the first phase to the second.

Our daily reading groups met for about 20 minutes per day. This was plenty of time in the week of phase one when students were reading and then immediately answering comprehension questions. However, for phase two, this was not quite enough time. Some students who read quickly, managed to get it all done in one session. Others, who needed more time to read, felt a bit rushed during their drawings and needed to continue past the 20-minute mark to answer the questions. If I could have given them more time, that would have been ideal.

The passages that the students read, while they worked well for the amount of time we had, they were short and did not contain very much detail. These passages were chosen as they are very similar to what the students would see on the SOL and this activity was good practice for that test. It would have been nice if they could have had more details to choose from as they had to do a bit in inferencing which may have hurt the results. Inferencing is not a skill that they had very much practice with just yet.

The students, with their eager and kind spirits, loved to share ideas and thoughts. While this may have helped their creative process, they also naturally helped their classmates who were struggling.

Implications

While this was not a particularly comprehensive study of how or why arts integration may help readers comprehend, it does tell us something about how they are capable of expressing their understanding through drawing. Not only are the positive impacts shown in their scores, but the students enjoyed the task, and that is an important piece of learning too.

The design of this study could be adapted to fit many different types of learning, as reading is a tool used for most learning. Students could use drawing to help with science or social study concept attainment, or in any nonfiction reading to organize thoughts and ideas. If

the purpose is for students to comprehend and apply what they are reading, this is applicable to all reading levels and grade levels. Those who are struggling with writing, might benefit the most as it alleviates that pressure.

Future Research

Using the study design and data from this action research, other educators could build upon this idea to help students learn new ideas or concepts. Deeper layers of comprehension could be uncovered for higher level texts, if drawings could be added too or new colors applied each time the text is reread. It would be interesting to see what students do if they are asked to draw a prediction or guess during a fiction or non-fiction reading, then learn a true meaning. Drawing is great for communicating feelings. A drawing task could be used every day to help students demonstrate how a day or particular event made them feel, using colors and textures.

Conclusion

When a child is drawing, they are making connections whether they know it or not. In this study, third graders were asked to draw after reading a fiction passage. This drawing task would then help them answer comprehension questions. The data from the same task without drawing and with drawing were compared to uncover a significant connection. Scores on the posttests from the drawing phase suggested that drawing is a tool to help children successfully comprehend reading to make meaning.

To draw, few supplies are needed other than paper, a few colors, and an idea. This tool of drawing is not only accessible for most students but can help even the best readers build connections and develop their thoughts. Everyone enjoys casually doodling; turning it into a tool for learning can alleviate the stress that creating art can hold for those who may believe they are not artists. Everyone is an artist.

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Appendix A
PARENTAL INFORMED CONSENT FORM

Brief Description of Research Study

The purpose of the research described below is to investigate how creating drawings after reading affects children's reading comprehension during a comprehension quiz. During this study children will receive their normal reading group instruction. The risks to children in this study are minimal, but the benefits could be improved reading comprehension and a strategy for them to use when reading in the future. **Please read the rest of this form before deciding if you will allow your child to be in this research study.**

My name is Emma Rooney and I am a student at the University of Mary Washington and the student teacher in your child's third grade classroom. Because you are the parent or legally authorized representative of a child in this classroom, I am seeking your permission to let your child participate in this research study. Involvement in the study is voluntary, so you may decide whether to let your child participate or not. I will also ask your child if he or she wants to be in the study, and I will only use the information in my study if both you and your child agree. Before making your decision, please read the information below and ask me any questions that you have about the research; I will be happy to explain anything in greater detail.

Details of the Child's Involvement

Students in your child's third grade class who participate in this study will read two fiction stories that are at their appropriate reading level, during reading group instruction, beginning around March 1st. Hartwood is an arts-integration focused school, so they already receive arts-integration lessons. I will not be introducing any new forms of instruction.

After reading the first story reading, students will complete a brief comprehension quiz. Following the second, new story, I will ask students to draw a picture detailing what they recall from their reading. This will be followed by the same set of comprehension questions as before that are to be applied to the second book. I will be collecting scores for accuracy of response and depth of response. These scores will not be used in the official gradebook.

All students in the class will receive the instruction they are entitled to, whether or not they are participants in this study. Even if your child does not take part in my study, he or she will still be able to do the exercises if they choose and are able, but I will not use any data about them in my study.

Privacy and Confidentiality

This study will take place while children are in their classroom, so they will only be in the company of myself, their lead teacher, and peers. To ensure confidentiality I will not reveal any scores or academic information about your child to anyone, unless required by law to do so. Comprehension quizzes and feedback records will be in my possession at all times, and only I will know which records go with which child. When my study is complete, I will destroy all of the information I collected that identifies individual students. In any reports I make about this study, I will not use your child's name or any other information that could be used to identify him or her directly or indirectly.

Risks and Benefits of Participation

This study will have very minimal risks. There are no rewards or extra credit grades for students who take part in this study, and no penalties of any kind if they do not take part. However, being in this research study might have important educational benefits for your child. Research has already shown that incorporating visual arts into reading related tasks can improve comprehension and recall. If the results of this study show a positive impact on children's reading comprehension, it could improve education for more children in the future.

Participant Rights

You have the right to ***ask any questions you have*** before, during or after the study, and I encourage you to do so. If you do not want your child to be in this study, there will be no penalties or loss of benefits that he or she is entitled to. If you agree to let your child be in this study and later change your mind, you have the right to take him or her out simply by contacting me at the email address below, and I will destroy any research data collected about your child. This research has been approved by the University of Mary Washington Institutional Review Board, a

committee responsible for ensuring that the safety and rights of research participants are protected. For information about your and your child's rights regarding this research, contact the IRB chair, Dr. Jo Tyler (jtyler@umw.edu).

Contact Information

For more information about this research before, during or after your child's participation, please contact me (erooney@umw.edu) or my university supervisor, Dr. Melissa Wells (mwells@umw.edu). To report any unanticipated problems relating to the research that your child experiences during or following participation, contact my university supervisor, Dr. Melissa Wells (mwells@umw.edu). **Please keep a copy of this form for future reference, and return the signed version to me by January 31st.**

Before signing this form, please ask me any questions you have about participation in this study.

To be Completed by Participant

I have read all of the information on this form, and all of my questions and concerns about the research described above have been addressed. I choose, voluntarily, to permit my child to take part in this research study. I certify that I am at least 18 years of age.

_____

Print name of child

_____

Print name of parent or legally authorized representative

_____ _____

Signature of parent or legally authorized representative Date

To be completed by Researcher

I confirm that the legally authorized representative of the child named above has been given an opportunity to ask questions about the study, and all the questions asked have been answered to the best of my knowledge and ability. A copy of this Consent Form has been provided to the child's legally authorized representative, and I will keep the original at least until the research is completed.

_____

Print name of researcher

_____ _____

Signature of researcher Date

Appendix B
CHILD ASSENT FORM

Dear Student,

My name is Ms. Rooney, and the reason for this letter is to ask if you want to be in a research study I am doing. By "research" I mean that I am trying to find out more about something. In this study I am trying to find out more about how students understand what they read when they work can draw pictures to help them think.

I have already asked your parent or guardian if they will permit you to be in this study. If they did not agree, you will not be asked to sign this form. If they did agree, it is still your choice to make, and I am now going to describe what you will do if you agree to be in this study. I am going to read this information to you, so listen carefully and ask any questions you have before you decide whether to be in the study or not.

What will you do if you are in this study?

During the next two weeks in language arts time, we will be reading two short fiction stories per reading group. Each reading group will have different books. After you read the first story, you will answer a few questions to show me that you can remember what you read about. After the second story you read, you'll draw a picture of all the things you learned as you read, then you will answer some questions, just like you did with the first story. Included with the second quiz is a section that asks about your experience with this activity. All of this will happen at the back table, with your reading group. If you agree to be in my study, you will do the same work as other students and have the same grading requirements. Also, if you agree to be in my study, I will keep track of your quiz scores to use in my research study. Throughout all of this, I just ask that you do your best. The scores on your quizzes will not go into the official gradebook but will help me with my research.

What will you do if you are not in this study?

Nothing bad will happen to you if you do not want to be in the study, and it will not hurt your grade in the class. You will still do the group activities and take the quizzes, but I will not keep track of your scores for my study.

Will anything bad happen to you in this study?

If you decide to be in this study, you will not have any extra work. I will take special steps to make sure that you feel okay during the whole process and that you feel like you understand what I am asking you do to. I will also make sure that you do not miss any instruction that other students get during that time.

Will anything good happen to you in this study?

You will not receive any special rewards or extra credit points for agreeing to be in this study. In other research studies like this, some students did better in class because learned a strategy to help them better comprehend when they read new books or stories.

Will anyone else know what you do or say in this study?

In my study, I will not use the names of any students or give any other information that could identify you. I will not tell anyone else about what you answered on your quizzes or what your drawings looked like.

What if you have any questions?

Be sure to ask me any questions you have before deciding whether to be in this study or not. Even if you don't have questions now, you can ask me about this study at any time. If you would like time to discuss it with your parents before making your decision, please tell me.

What if you change your mind?

If you decide to be in this study and later change your mind, just tell me that you do not want to do it anymore. I will stop collecting information from you for my study and will take out all of the information I already have about you. I will finish my study on April 1st, so that is the deadline when you should tell me if you want your information taken out of the study.

_____

Print name of researcher

Signature of researcher Date

To the Student: Your signature below indicates that you have read the information on this form [*or* that I have read the information on this form aloud to you], and that all of your questions about this research study have been answered.

Please put an X next to your decision:

____ I agree to take part in this research

____ I DO NOT want to have any information about me used in this research

Print name of student

Signature of student Date

Appendix C

Name:_____

Reading Comprehension Check
*insert group and book title here

Directions:
Please answer the following questions based on the book you just read, using complete sentences.

Describe, with details, where this story took place.

Did the main character change from the beginning to the end of the story? How do you know?

What was the problem?

What was the solution?

Appendix D
Probing Questions

Teacher:
“What do you remember from the story you just read?”
“How can you represent what you remember in the form of a drawing?” (Phase two only)

Appendix E
Grading Rubric for Comprehension Questions

Accuracy	3 points Completely accurate	2 points Almost accurate	1 point Not accurate
Depth of response	3 points Three details to support answer	2 points Two details to support answer	1 point No details or only one detail to support answer