

The Impact of Graphic Organizers on Kindergarteners' Ability to Comprehend On-Level Text

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Abstract

The purpose of this study was to investigate how the use of graphic organizers impacts kindergarteners' ability to comprehend on-level text. The measurement tool was the Fountas and Pinnell Benchmark Assessment. This study involved use of a quasi-experimental design using a pre- and post-test. The application of graphic organizers during reading instruction did not significantly impact kindergarten students' comprehension skills. Research in this area should continue as there is very little information available regarding using graphic organizers to impact comprehension of kindergarten students.

CHAPTER I

INTRODUCTION

Reading comprehension is the ability to read and understand a text. According to Mahdavi and Tensfeld (2013), reading comprehension occurs when readers combine a variety of strategies with metacognitive negotiations until they reach an understanding of the text. Reading comprehension is a complex skill. It is more than just reading the words on the page. The Common Core State Standards have required today's students to become more proficient, even in the primary grades, with reading comprehension. Reading comprehension requires readers to integrate vocabulary, increase fluency, decode words, and access background knowledge. Since reading comprehension is such a complex skill, many students have difficulty in this area. According to Narkon and Wells (2013), "Reading comprehension is a complex interaction between the reader's (a) vocabulary knowledge, (b) interaction with the text, and (c) application of reading comprehension strategies" (p. 231). Students must possess the ability to multitask by reading and understanding simultaneously. Reading comprehension is not a skill that comes naturally for most learners. If students cannot remember the story after they read it, then they cannot retell what happened. If they cannot transfer their knowledge, then they will not be able to make inferences. If they cannot process information, then they will not be able to draw conclusions. Students who have deficits in these areas will need explicit instruction and a multitude of targeted strategies to overcome them.

Teachers can use a variety of strategies in order to help students struggling with reading comprehension. According to Kragler, Martin, and Schreier (2015), primary students view reading as a problem solving task where they use strategies to help themselves as they read. If teachers develop strategies early on, students will be able to self-monitor and self-regulate as

they are reading more complex text. It is crucial that teachers are spending their time on strategies that are effective and are based around what the student needs. There are many interventions and strategies that have been researched and studied, including graphic organizers.

A graphic organizer is “a spatial arrangement of words or word groups that represent the conceptual structure of a text passage” (Ponce, Mayer & Lopez, 2013, p. 820). Graphic organizers can be used in a variety of subject areas with any type of text. As with every strategy and tool, teachers must instruct students when and how to use a graphic organizer in order for it to be effective. Graphic organizers can include story maps (character, setting, plot), problem and solution, compare and contrast, cause and effect, sequence of events, main idea and details, character traits, and so many more. Students can use paper and pencil or even digital graphic organizers. Graphic organizers are a tool that can be used before, during, and after reading. Graphic organizers give students a framework for organizing their thoughts, ideas, and learning so that an understanding of the text can be achieved.

Statement of the Problem

The purpose of this study is to investigate how the use of graphic organizers impacts kindergarteners’ ability to comprehend on-level text.

Hypothesis

The application of graphic organizers during reading instruction does not impact kindergarten students’ comprehension skills.

Operational Definitions

The independent variable is the use of reading comprehension strategies. Operationally defined as the use of a variety of graphic organizers. These include organizers for retelling, main

idea and details, and a story map (character, setting, plot). Examples of each organizers are shown later in Appendix A of this study.

The dependent variable is the ability to comprehend on-level text. On-level text is text that students can read on their own with accuracy and fluency. Their reading comprehension scores will be measured by performance on the Fountas and Pinnell Benchmark Assessment. This assessment includes a set of comprehension questions for each text in the benchmark system. Students are given a score between 0-7. The scoring bands are as follows: 6-7 is excellent comprehension, 5 is satisfactory comprehension, 4 is limited comprehension, and 0-3 is unsatisfactory comprehension. Data on the Winter and Spring administration of this assessment will be compared.

CHAPTER II

A REVIEW OF THE LITERATURE

This literature review seeks to explore the topic of reading comprehension at the primary level. Section one provides an overview of the importance of reading comprehension. Section two identifies readers who struggle with comprehension. Section three explores strategies to assist students in reading comprehension. Section four delves into using graphic organizers to improve reading comprehension.

Importance of Reading Comprehension

Comprehension is the ultimate goal of reading. Because reading is required in most jobs and careers, reading comprehension is an essential skill for success in today's world. According to Mahdavi and Tensfeld (2013), reading comprehension occurs when readers combine a variety of strategies with metacognitive negotiations until they reach an understanding of the text. According to Grünke, Wilbert, and Stegemann (2013), readers need to revise existing knowledge to new information that they have gathered. In other words, readers apply what they know to what they read and gather new information as they read.

Reading comprehension is a complex skill. It is more than just reading the words on the page. Reading comprehension requires readers to integrate vocabulary, increase fluency, decode words, and access background knowledge (Mahdavi & Tensfeld, 2013). Reading comprehension is not a skill that comes naturally for most students. Most require reading instruction to become proficient readers. Good readers have substantial background knowledge combined with a variety of strategies to utilize while they read. The strategies they use are effective and sometimes implemented without the reader even being aware that they are employing them (Grünke et al., 2013).

Since reading comprehension is a complex skill that involves several mental processes, many students have to be taught how to understand what they read. However, teachers may find it difficult to know even where to begin instruction. According to Gregory and Cahill (2010), teachers should think about what is known about good readers and how they interact with text. Teachers should start by activating schemas, which is tapping into students' prior knowledge, and then following up making connections, visualizing, asking questions, and inferring. Reading comprehension instruction should combine a variety of techniques and research-based strategies that are effective. According to Mahdavi and Tensfeldt (2013), reading comprehension instruction should include explanation, modeling, guided practice with teacher scaffolding, and independent application so that students learn how to use those strategies. Strategies that might work for some students, might not work for others. Therefore, teachers should expose their students to a variety of strategies that meet each student's individual needs. Teachers also have to teach students when and how to use strategies. If a teacher doesn't show their students when and how to use a strategy, then students will not be able to apply it independently. According to the authors, providing instruction of when and how to use comprehension strategies increases students' ability to comprehend and ultimately understand what they read.

Reading comprehension is not always a skill that is focused on in the primary grades, but that does not mean it is not important. Many times primary grade teachers will work on foundational skills such as decoding and fluency, but with the new Common Core State Standards, the demand for reading comprehension skills has increased. Students are required to comprehend what they read in order for them to meet the standards. If skills and strategies are developed early on, they will become more automatic and independent. The primary years lay

the foundation for success in reading in the future. Teachers should expose students to effective reading comprehension strategies beginning in the primary grades (Kragler et al., 2015).

Readers Who Struggle with Comprehension

Due to its complexity, many students struggle with reading comprehension. Often students have trouble balancing decoding with understanding. This is especially true in primary grades. In kindergarten, students are just learning how to read. It is hard for them to figure out the words and understand the text at the same time. According to Narkon and Wells (2013), “Reading comprehension is a complex interaction between the reader’s (a) vocabulary knowledge, (b) interaction with the text, and (c) application of reading comprehension strategies” (p. 231). Students must possess the ability to multitask by reading and understanding simultaneously.

Students who struggle with reading comprehension are usually struggling in other areas of literacy such as fluency, decoding, or accuracy. Another reason that students could struggle with reading comprehension could relate back to their brain function. Grünke et al. (2013) mention that students struggling with reading comprehension lack the ability to make inferences, draw conclusions, recall and summarize information, and actively monitor comprehension due to problems with working memory or lacking background knowledge. Narkon and Wells (2013) also mention that students who struggle with comprehension may have deficits in working memory, transfer of knowledge, and information processing. If they cannot remember the story after they read it, then they cannot retell what happened. If they cannot transfer their knowledge, then they will not be able to make inferences. If they cannot process information, then they will not be able to draw conclusions. Students who have deficits in these areas will need explicit instruction and a multitude of targeted strategies to overcome them. As mentioned earlier,

proficient readers use several strategies as they interact with their text. Struggling readers, in contrast, are unable to combine strategies independently and many times unaware of these strategies. According to the authors, struggling readers have trouble applying strategies strategically and using metacognitive strategies while reading.

With the current emphasis on reading comprehension in accordance with the Common Core State Standards, as well as the need to help students get on the right path for success, it is important that teachers find ways to help their struggling readers become more proficient. One way that teachers can help these students is by teaching them effective strategies. Every student is different and unique; therefore, instruction and intervention must be targeted to individual needs and deficits. Teachers must take this into account when choosing strategies for these students.

Strategies to Assist Students in Reading Comprehension

In order to help students in the complex area of reading comprehension, teachers need to expose students to effective strategies. According to Kragler et al. (2015), primary students view reading as a problem solving task where they use strategies to help themselves as they read. Many teachers focus on the foundational skills, but reading comprehension strategies also need to be a part of the literary instruction in the primary grades. The authors mention that because metacognition develops early on, it is important that young readers become aware of their own thinking and thought processes while they are reading. The authors also mentioned that as children progress from primary grades to intermediate grades, they will encounter more difficult texts that will require them to have developed comprehension skills and strategies. If teachers develop strategies early on, students will be able to self-monitor and self-regulate as they are reading more complex text. A study conducted by Kragler et al. (2015) concluded that primary

students were capable of using a variety of comprehension strategies, as well as showing signs of metacognitive awareness. Therefore, teachers should include those strategies in their instruction.

One study concedes that “although there are many factors that contribute to a student’s success in learning to read with understanding, including genetics, home literacy environment, health, poverty, stress, preschool experiences, parenting, and peers, how we teach students to read for understanding and what we teach them impacts their learning” (Connor, Phillips, Kaschak, Apel, Kim, Otaiba, Crowe, Thomas-Tate, Johnson, & Lonigan, 2014, p. 380). It is crucial that teachers are spending their time on strategies that are effective and are based around what the student needs. There are many interventions and strategies that have been researched and studied. The authors list possible researched-based interventions that teachers could try in their classrooms: comprehension monitoring and providing awareness of story structure (COMPASS), teaching expository text structure, enacted reading comprehension, content area literacy instruction (CALI), and morphological awareness training (MAT). It cannot be emphasized enough that teachers should choose research-based methods that have been proven to provide success. Utilizing the best strategies and considering student’s individual needs will increase the chances for a successful outcome.

Teachers must provide students with opportunities with different types of text. Fiction stories may require different strategies than nonfiction. In a fiction story, students need to be able to comprehend the characters, setting, plot, sequence of events, and problems and solutions. They need to be able to analyze character traits and understand different points of view. Nonfiction texts, on the other hand, require a different set of skills. In nonfiction texts, students need to understand how to use and gather information, how to use text features, how to identify the main idea and details, and how to understand the cause and effect relationships. Many

primary grade teachers focus heavily on fiction texts in the classroom. According to Kuhn, Rausch, McCarty, Montgomery, and Rule (2017), less than nine percent of all books read to primary students were nonfiction. The authors concluded that students were better able to apply comprehension strategies and define vocabulary after receiving nonfiction-based instruction. They also noted that students were more motivated to read nonfiction texts.

Teachers should provide students ample opportunities to be exposed to fiction as well as nonfiction texts. Not only do these experiences provide the before mentioned benefits, nonfiction selections are common on required assessments. When teachers are selecting a text, they should keep in mind what type of text they are using so that they can choose an appropriate strategy. One strategy that can be used with both fiction and nonfiction texts is the use of graphic organizers.

Using Graphic Organizers to Improve Reading Comprehension

A graphic organizer is “a spatial arrangement of words or word groups that represent the conceptual structure of a text passage” (Ponce et al., 2013, p. 820). Graphic organizers are tools that students can use to visually represent information gathered from nonfiction or fiction text. The authors mentioned that using graphic organizers during reading can utilize three cognitive processing skills: selecting, organizing, and integrating. In addition, graphic organizers can be used before, during, and after reading. Graphic organizers can be used during to gather information and organize it in a meaningful way (Roehling, Herbert, Nelson, & Boharty, 2017). According to the authors, students’ inability to select and organize information gathered from the text can keep them from understanding it. When using graphic organizers during reading, students have a way to organize their learning, so that they can process and understand what they read. It is also helpful as a tool to review material after reading and to check comprehension.

Students can sometimes be overwhelmed by too much text; graphic organizers can help them easily navigate what they have read.

Graphic organizers are helpful tools in the primary grades, since primary students need a visual format to help organize their thinking. West and Roberts (2016) use open-ended graphic organizers to record student thinking, which can be adapted to a variety of learning experiences. As with every strategy and tool, teachers must instruct students when and how to use a graphic organizer in order for it to be effective. The authors mentioned that their students participated in a mini-lesson where the teacher modeled how to use an open-ended graphic organizer. Then students participated in guided practice with teacher scaffolding. After the necessary modeling and support, kindergarten students were ready to use the tool independently. This tool allowed them to record their thinking and review what they had learned in a visual, organized format.

Graphic organizers can include story maps (character, setting, plot), problem and solution, compare and contrast, cause and effect, sequence of events, main idea and details, character traits, and so many more. Graphic organizers can be completed online or with paper and pencil. Ponce et al. (2013) conducted a study on the effectiveness of the computer-based spatial learning strategy approach. In this study, participants were either instructed using the computer-based spatial learning approach (experimental group) or traditional instruction approach (control group). The experimental group were instructed on how to construct and record their learning in the graphic organizers on the computer following their reading of selected texts. Researchers concluded that students who were instructed using the spatial strategy approach improved their reading and writing scores more than the students who were given traditional instruction yielding an effect size of $d = 0.30$.

Conclusion

Reading comprehension is an essential skill to becoming a literate adult. The Common Core State Standards have required today's students to become more proficient, even in the primary grades, with reading comprehension. Teachers have to expose students to fiction and nonfiction texts so that students can know and be familiar with different text structures. For struggling readers, teachers must use effective, research-based strategies to help guide them to becoming proficient readers. Teachers must take into account individual students' needs and deficits in order to expose them to targeted strategies that will ultimately make a difference in their understanding of what they read. Graphic organizers are a strategy or tool that can help readers understand the text. A simple strategy, yet so effective in improving students' reading comprehension, graphic organizers are a powerful addition to a teacher's toolbox.

CHAPTER III

METHODS

Design

The purpose of this study was to investigate how the use of graphic organizers impacted kindergarteners' ability to comprehend on-level text. This research employed a quasi-experimental design using a pre- and post-test. Reading comprehension was measured using the Fountas and Pinnell Benchmark assessment for the pre- and post-test. The type of instruction was implemented through two classes of kindergarten students. One group received small group instruction from the classroom teacher using graphic organizers. The other group received small group instruction from the classroom teacher without using graphic organizers. The study lasted nine weeks.

Participants

The study involved two classrooms of kindergarten students at an elementary school in Anne Arundel county in Maryland. There were 21 students in the experimental group ages five to six years old. The group consisted of eleven girls and ten boys. Five students were Asian, one White, ten African American, two Multi-Racial, and three Hispanic. Eight of the 21 students were identified as qualifying for FARMS (Free and Reduced Meals Students), and thirteen were not. There are also eight students who qualify and receive ESOL (English as a Second Language) services. The non-treatment group was similar with all 19 students being 5 and 6 years old. This class had ten girls and nine boys. In this class, three students were White, three were Asian, 11 were African American, and two were Multi-Racial. There are two students who qualify and receive ESOL service. There are also three students who receive special education services. Both

classes are taught by veteran kindergarten teachers. Small group reading instruction is established in both classrooms. Small group reading is taught every day for an hour.

The study school is comprised of grades Pre-Kindergarten through grade 5. There are a total of approximately 800 students. There are a total of six kindergarten classes. The school is an International Baccalaureate (IB) School. The school teaches the county curriculum infusing the IB units of study. The school uses inquiry based learning strategies and infuses the IB learner profile.

Instrument

The pre- and post-test scores were determined using the Fountas and Pinnell Benchmark Assessment. This assessment is given to students one-on-one to determine their independent (text that they can read on their own), instructional (text that they can read with some support), and frustrational (text that is too hard) levels. This is the leveling system that Anne Arundel County Public Schools uses to assess what level a student is instructionally reading on. It also tests their accuracy, fluency, and comprehension. The accuracy is reported using a percentage of words read correctly. The fluency is reported using a number (0-3) to represent their current level. The comprehension is reported using a number 0-7. The comprehension questions are rated on a scale of 0-7 with the following bands: 0-3 unsatisfactory, 4 limited, 5 satisfactory, and 6-7 excellent. The first part of the assessment tests a student's accuracy and fluency. While the student is reading, the teacher notes any errors made. After the student reads, the teacher asks the student a series of questions about the text. The teacher notes what the student says and grades the comprehension based on the student's replies. Students need a combination of high accuracy and good comprehension to move to the next level. For example, if a student has below 90% accuracy, he or she cannot move to the next level. If a student scores between 90-

94% accuracy and scores a 4 on comprehension, then he or she would test frustrational for that level. If a student scores between 90-94% accuracy and scores a 5 or more on comprehension, he or she would be instructional for that level. If they would have 95-100% accuracy and test at a 4 on comprehension they would be instructional for that level. If a student would have 95-100% accuracy and test at a 3 or below on comprehension, then he or she would be frustrational for that level.

Procedure

The two kindergarten classes were selected based on convenience, demographics, and background. The two classes were taught by veteran kindergarten teachers. Both classes were given the Fountas and Pinnell Benchmark Assessment by their classroom teacher as the pre-test. This baseline data was used to form guided reading groups in both classrooms. Upon determining the reading level of students, the teacher began instruction. The experimental group received instruction during guided reading using the graphic organizers and the non-treatment group received instruction during guided reading without using graphic organizers. Both classrooms had four reading groups. Each group consisted of 5-7 students. The teacher met with each group for approximately 20 minutes.

On the first day of the week, the teacher would introduce the new book to the group. Books were selected based on the group's instructional reading level determined by the Fountas and Pinnell Benchmark Assessment data. The teacher would tell the students about the books and go over sight words that would appear in the text. The students would preview the text and make predictions about what the book will be about. The teacher of the experimental group would then introduce the graphic organizer that they would use for the week. Teachers alternate weeks between fiction and nonfiction texts. The graphic organizer used would depend on the

type of text. On the second day of the week, the teacher would review any word patterns and sight words found in the book. The students would read the book for the first time. After reading the teacher in the experimental group would model filling in the graphic organizer. The third day of the week, the students would re-read the book. This time they would be focusing on fluency. After reading, both teachers would ask students oral comprehension questions. The teacher of the experimental group would then review the graphic organizer that was modeled on the previous day. On the fourth day of the week, the students would write about the text. The non-treatment group would respond to a comprehension question in their writing journals about the text. The experimental group would respond to a comprehension question using the graphic organizer template from the week. The text would be a familiar text since they have been reading it in group throughout the week. On the fifth day of the week, the experimental group would be given a small sample of a text 5-8 sentences. The teacher would ask the students to fill out the graphic organizer independently based on the unfamiliar text. The non-treatment group would use a similar sample of text, but would respond to questions without the graphic organizer template. Each week throughout the study followed this instructional pattern. Examples of the graphic organizers can be found as Appendix A.

CHAPTER IV

RESULTS

The purpose of this study was to investigate how the use of graphic organizers impacted kindergarteners' ability to comprehend on-level text.

The winter and spring Fountas and Pinnell instructional level scores were analyzed for two kindergarten classes, one class that received a graphic organizer intervention and one class that did not, using a t test for independent subjects. The results are presented in Table 1 below.

Table 1.

Pre and Post-test Reading Scores for Kindergarteners with and without Graphic Organizers

Test	Graphic Organizer	Mean	Number of Students	Standard Deviation	t	Significance
Pre	Yes	4.0	21	2.13	1.74	0.25
	No	3.2	19	2.14		
Post	Yes	5.7	21	2.76	0.80	0.43
	No	4.9	19	3.32		

The null hypothesis that the application of graphic organizers during reading instruction does not impact kindergarten students' comprehension skills is accepted.

CHAPTER V

DISCUSSION

The purpose of this study was to investigate how the use of graphic organizers impacted kindergarteners' ability to comprehend on-level text.

Results

The null hypothesis that the application of graphic organizers during reading instruction does not impact kindergarten students' comprehension skills is accepted. The students in the treatment group had a mean score of 4.0 on the Fountas and Pinnell pretest, while the student in the control group had a mean score of 3.2 on the pre-test. The students who received the graphic organizer intervention had a higher mean score than the students in the control group. The students in the treatment group had a mean score of 5.7, while the students in the control group had a mean score of 4.9. A t test was used to analyze the results. The result was not statistically significant ($t = 1.74, 0.80$).

Implications

The results of this study show that graphic organizers are a useful tool, but using them as the only intervention for comprehension improvement does not yield a significant difference. Graphic organizers are one of many tools that a teacher can utilize during literacy instruction. Even though this study did not show a significant difference in comprehension, students still improved their scores in the treatment group. There were also some incidental benefits.

Students like using graphic organizers because they help to organize their ideas for writing. Students can use them to develop a narrative piece or collect research for an informational piece. It helps to guide them and gives them a visual. Graphic organizers are also engaging. Students enjoy using them over using plain lined paper. The teacher can create graphic

organizers with visuals to help developing readers and English Language Learners. Students are more motivated to use them because they are less overwhelming than a large piece of lined paper. The paper is broken into sections and they can work on one section at a time. During this study, students asked every day during guided reading if we were going to be using the organizers. Students also begged to have them out during writing time so that they could look at their notes and go back to their visual.

Threats to Validity

There are several reasons, other than the use of graphic organizers, that this study yielded the results that it did.

Graphic organizers are not developmentally appropriate for kindergarten. Many graphic organizers require writing to fill out, and kindergarten students are just beginning to develop those skills. Using graphic organizers with an intermediate grade could have resulted in different numbers.

Two different classes were used for the study. The control group had a special education teacher in the room for most of the literacy block so that could have influenced their results. The students in that room went to guided reading with the classroom teacher and then rotated to a session with the special education teacher.

The Fountas and Pinnell Benchmark Assessment is used throughout the county but does not demonstrate solid measure of comprehension. Comprehension is just one piece of the assessment. A different assessment to measure scores could have yielded different results. While the Fountas and Pinnell is an appropriate instructional tool, it does not provide an equal interval scale that is important in data analysis.

Links to Previous Literature Studies

West and Roberts (2016) use open-ended graphic organizers to record student thinking. These open-ended organizers can be adapted to a variety of learning experiences. The authors mentioned that their students participated in a mini-lesson where the teacher modeled how to use an open-ended graphic organizer, then students participated in guided practice with teacher scaffolding. After the necessary modeling and support, kindergarten students were ready to use this tool independently. This tool allowed them to record their thinking and review what they had learned in a visual, organized format. This study followed a similar modeling format. The teacher modeled and scaffolded support when introducing each organizer. It took the students several sessions to learn how to use the organizer independently.

Ponce et al. (2013) conducted a study on the effectiveness of computer-based spatial learning strategy approach. In this study, participants were either instructed using the computer-based spatial learning approach (experimental group) or traditional instruction approach (control group). The experimental group using the computer-based approach used graphic organizers to represent their learning. They were instructed on how to construct and record their learning in the graphic organizers on the computer following their reading of selected texts. Researchers concluded that students who were instructed using the spatial strategy approach improved their reading and writing scores more than the students who were given traditional instruction, yielding an effect size of $d = 0.30$. The study discussed in this paper also found that the graphic organizers improved overall reading scores. The experimental group comprehension mean increased from 4.0 to 5.7. It also improved their writing even though writing ability was not the targeted skill. The difference in the two studies is that one used a computer based program and one used a paper and pencil version. The participants were also different ages.

Implications for Future Research

If this study was completed again, the teacher should use a different assessment tool. Fountas and Pinnell is easy to use because the county employs it regularly, but it is not a great tool to measure comprehension. Additionally, the teacher should choose a grade that is older than kindergarten. Kindergarten students are just learning how to read and write, so graphic organizers that require a good amount of writing are not developmentally appropriate as a tool to improve comprehension. There are a number of other strategies that a teacher could utilize in early childhood grades instead of graphic organizers. Another suggestion would be to compare the treatment group to a control group without extra interventions. The control group in this study was receiving intervention from a special education teacher in addition to the classroom teacher. It would be interesting to see the comparison of two classes where the control group did not receive an intervention of some kind.

Conclusion

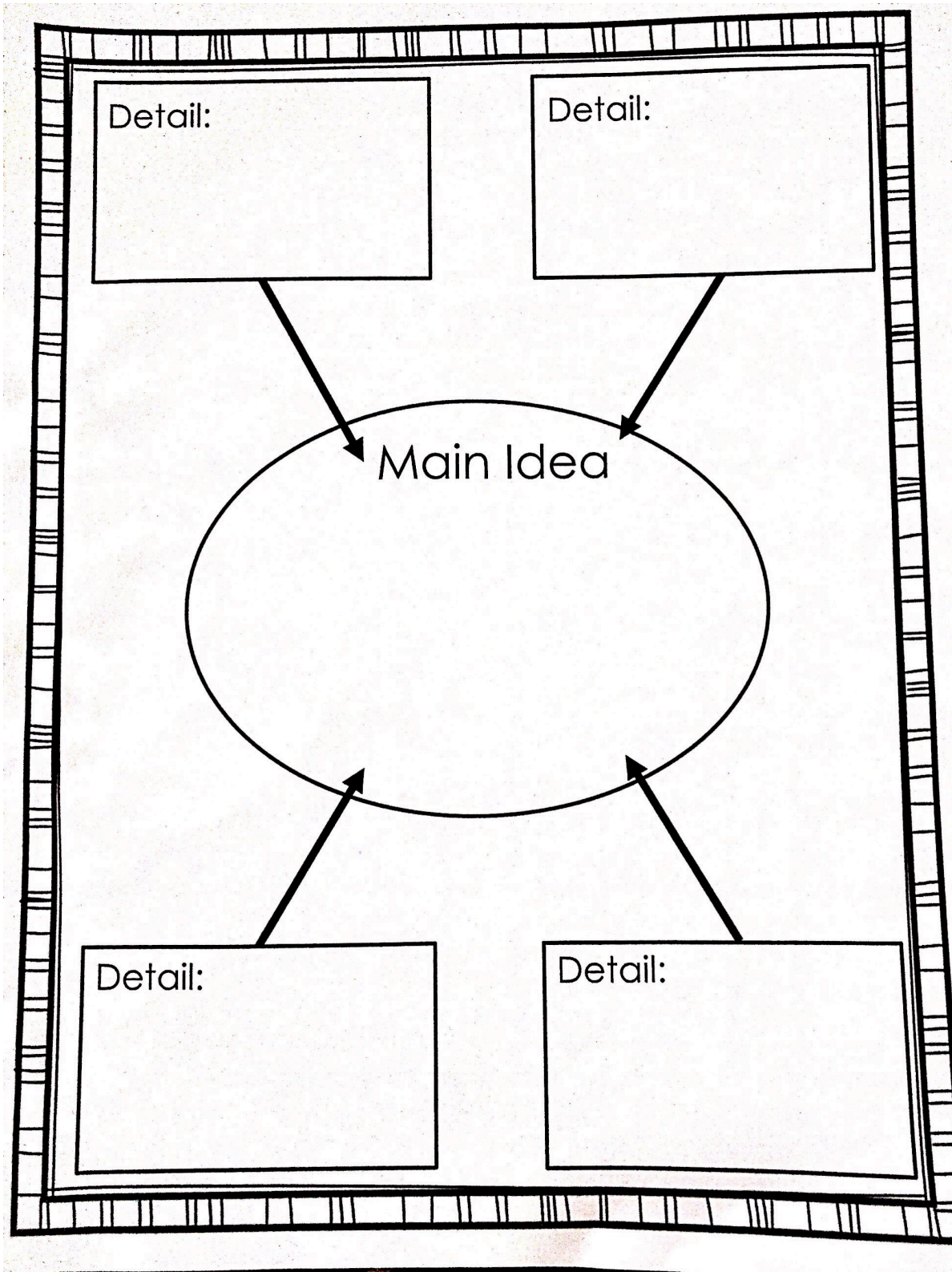
The purpose of this study was to investigate how the use of graphic organizers impacted kindergarteners' ability to comprehend on-level text. In this study, the treatment group improved their overall reading scores on the Fountas and Pinnell Benchmark Assessment. However, the control group also improved their overall reading scores. The null hypothesis that the application of graphic organizers during reading instruction does not impact kindergarten students' comprehension skills is accepted. Based on observations of the class and the results of the study, graphic organizers may be better served as an intervention in intermediate grades.

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APPENDIX A



Name:

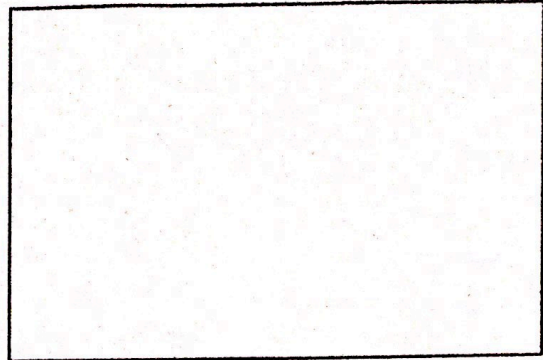
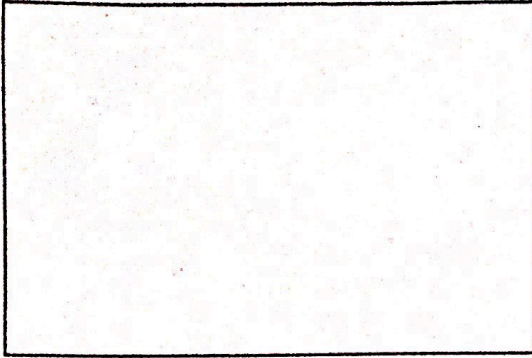
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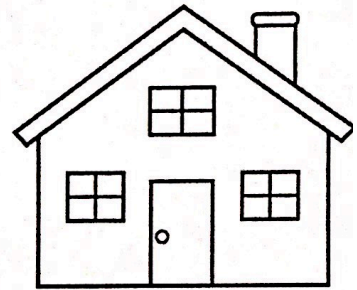
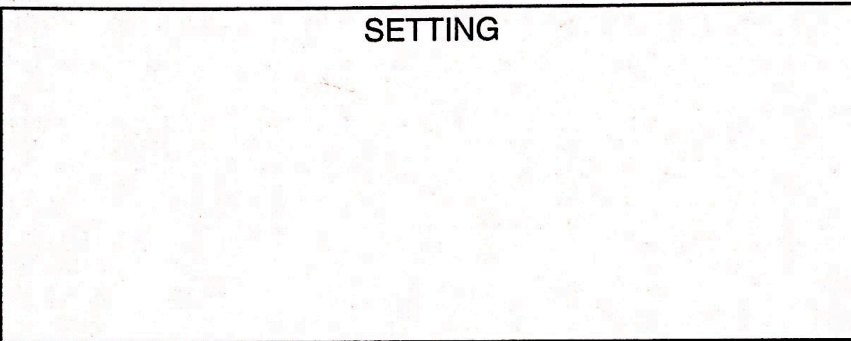
Then,

Last,

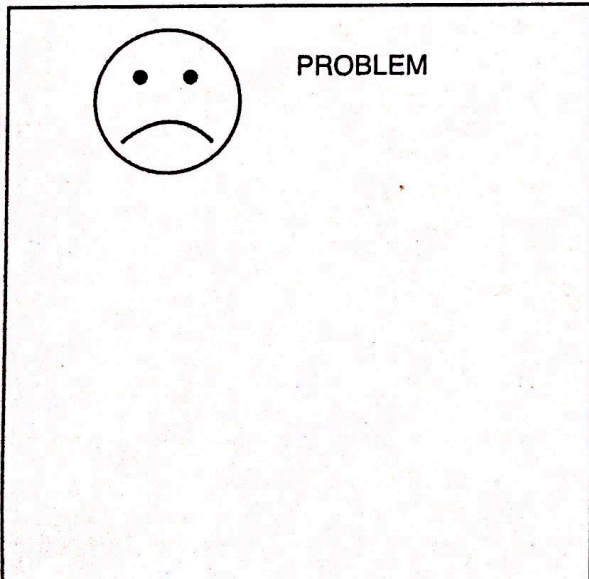
CHARACTERS



SETTING



PROBLEM



SOLUTION

