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This Is Your Life Cycle: Analyzing the Impact of Graphic Organizers, Collaborative Learning, and Non-linguistic Representations on Student Learning

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This Is Your Life Cycle: A Third-Grade Reading Unit

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Senior Honors Project/Thesis

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Abstract

This capstone investigated the implementation of cooperative learning through turn-and-talks and the use of graphic organizers in a third-grade reading unit. The unit's topic centered around a story titled "This Is Your Life Cycle" which talks about the life cycle of a dragonfly. Throughout the unit, the students completed a pre-test, multiple summaries using a graphic organizer, multiple formative assessments, and a post-test. Upon completion of the unit, I analyzed the data to determine the effects the strategies used had on students' learning. Student data and performance demonstrated a possible link between an increase in student learning and the use of cooperative learning such as turn-and-talks as well as the use of graphic organizers to write summaries.

Background

Through collaboration with my collaborating teacher, I planned, taught, and assessed data from a third-grade reading unit. The study was conducted during my clinical practice placement, in which I was placed in a third-grade classroom at an urban elementary school in the Omaha Public Schools District. Currently, this school serves approximately 500 students ranging from the grades of kindergarten through sixth grade. Each grade level consists of three different classrooms. Grades three through six are departmentalized which means that each teacher in that grade is assigned a subject to teach and students rotate throughout the day to all of the teachers' classrooms.

Introduction

The overarching goal of this unit was to build student's skills in various reading concepts and skills as well as begin to write more complex summaries with the help of graphic organizers. Our goal for the unit was to see students improve in their application of these concepts and skills

as well as begin to understand and formulate summaries about stories they have read. The unit was guided by the implementation of various collaborative learning practices and the incorporation of graphic organizers into students' writing.

At the beginning of the unit, the students took a pre-test that had all of the various concepts and skills that would be covered throughout the unit. This allowed for proper time to be allotted to the different ideas that were going to be discussed in the unit. The end of the unit consisted of the students taking two summative assessments. One of the summative assessments was a multiple-choice test that tested students on the various concepts that were discussed throughout the unit. These concepts consisted of the author's purpose, summarizing, text features, genre study, and prefix questions. The other summative assessment was a written summary, about the story of the unit, that was conducted with a partner with the assistance of a graphic organizer.

Throughout this unit, a variety of instructional and assessment strategies were performed with the students. Three of the instructional strategies that were incorporated during this unit included graphic organizers, collaborative learning, and nonlinguistic representations. Some assessment strategies that were incorporated during this unit included rubrics, think-pair-share, and graphic organizers.

In terms of using graphic organizers as an instructional strategy, a study by Tavşanlı et al. (2018) discussed the benefits of graphic organizers with third-grade students when working on problem-solving skills in math. The study mentioned that graphic organizers are a way to show relationships between concepts and present information in a meaningful way. Teachers in this study reported that graphic organizers helped make the problem-solving more systematic for the

students. This study found that if graphic organizers are incorporated effectively into a classroom they can be an effective instructional strategy for students learning.

With regards to cooperative learning, a study by Anidi et al. (2022) looked at the effects of cooperative learning on reading achievement in primary-aged students. This article primarily focused on the use of reciprocal teaching, when students switch between who is the teacher and who is the student, and its effects on reading achievement. The study found that there was a significant improvement in reading achievement for students who used cooperative learning compared to other forms of instruction. This study showed that cooperative learning can be an effective instructional strategy to implement with students.

A study on nonlinguistic representation by McKenzie (2014) focused on the use of visuals in learning academic vocabulary. Learning to read and vocabulary development is one of the primary goals for younger students. The use of a variety of visuals such as graphic organizers is an effective way to introduce and help students connect to new vocabulary. Overall, the study showed that nonlinguistic representations can be an effective instructional strategy for teaching students new vocabulary. In terms of my unit, students improved from the pre-test to the post-test in terms of understanding and applying the vocabulary for the unit.

In terms of assessment strategies, the first strategy that I researched and then implemented was a rubric. A study by Chowdbury (2019) focused on the impact of rubrics on judging skills on performance-based assessments. Rubrics allow students to gain a better understanding of what is considered good work and what is considered below average. It also helps teachers to provide constructive feedback promptly. They also help teachers with consistent and fair grading while being transparent during the process. This study showed that rubrics can be an effective assessment strategy to implement in a classroom setting.

A study on the think-pair-share strategy by Wuryandani (2021) focused on the effect the strategy had on learning outcomes. Think-Pair-Share allows students to discuss the content with others and allows them to help each other learn the content. This strategy also gives the teacher the opportunity to get a glance at how the students are engaging with the topic to adjust instruction as needed. In this study, the maximum, minimum, and average scores all increased for students who were exposed to the strategy. This study showed that Think-Pair-Share can be an effective assessment strategy.

Furthermore, Sayer (2021) looked at the use of graphic organizers in terms of an assessment strategy. This study specifically looked at the KWL graphic organizer and its effects on student learning. Upon completion of the study, reading comprehension scores showed favor towards the students who were exposed to the graphic organizer as opposed to not. This study shows that graphic organizers are an effective assessment strategy to implement with students.

In summary, these studies suggest that collaborative learning, graphic organizers, and nonlinguistic representations are quality instructional and assessment strategies. There are implications for my research based on the importance of using researched instructional and assessment strategies with students.

Participants

This unit's project was taught in a third-grade reading classroom that consisted of twenty-four students. Of the twenty-four students, thirteen of them were boys while eleven of them were girls. On top of that, three of the students in the class receive special education services through either an IEP or 504 plan. Half of the class is pulled once per week for the Gifted and Talented Education (GATE) program which is for high-achieving learners in the Omaha Public School District and is taught by a GATE coordinator at each school.

Method and Materials

The design of this unit followed the third-grade Nebraska State Standards for English Language Arts. At the beginning of the unit, I administered a pre-test to evaluate the students on different reading skills that would show up throughout the unit. These skills include basic vocabulary, identifying text features, parts of a summary, the author's purpose, genre study, and identifying prefixes. The end of the unit consisted of administering a post-test, and having the students write a summary of the story using the graphic organizer and skills we learned throughout the unit. The pre and post-tests did not match as the post-test was geared towards the story of the week while the pre-test was geared towards assessing the skills that were upcoming in the unit.

Throughout the unit, I utilized the following instructional and assessment strategies: cooperative learning, turn-and-talks, graphic organizers, exit tickets, nonlinguistic representations, and rubrics. Cooperative learning and graphic organizers had the greatest impact on student learning.

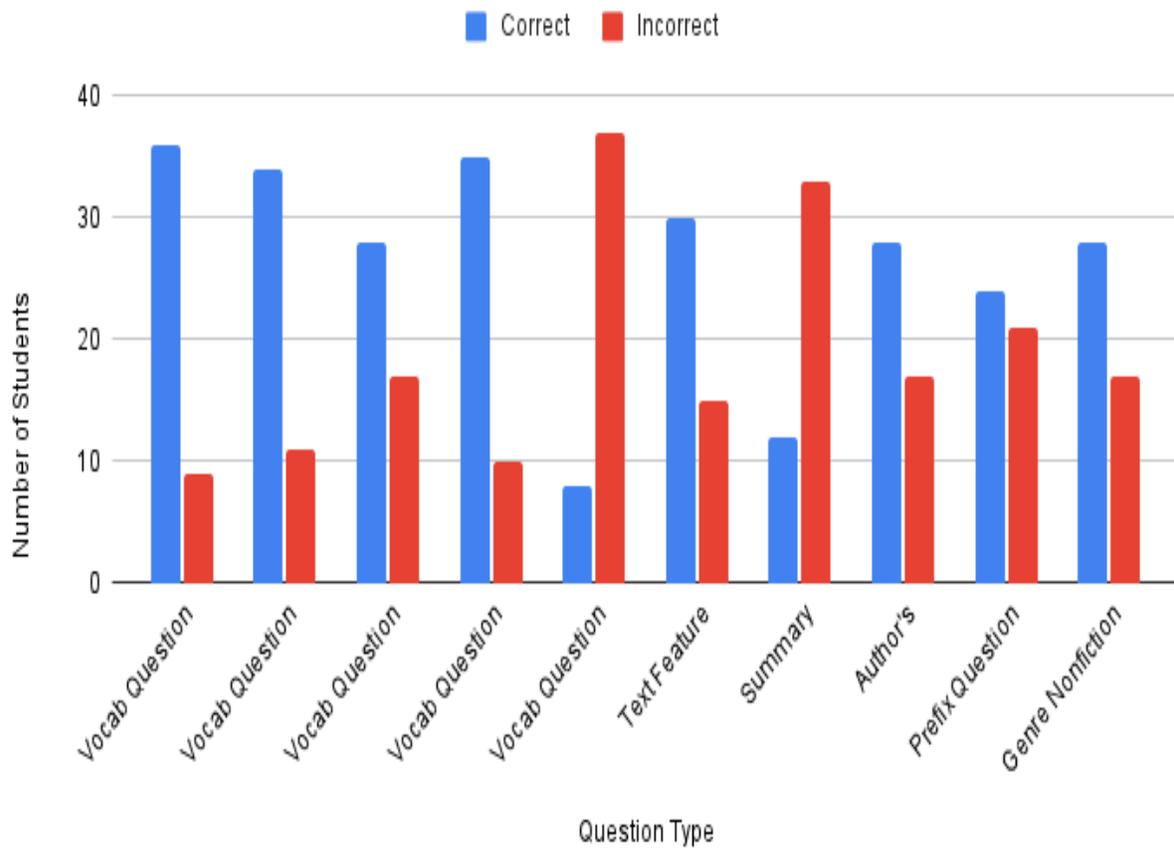
Results/Data Analysis

Figure 1 represents the student's scores on the unit pre-test. The school is departmentalized which made it so I taught one class of reading and my mentor teacher had another. For the pre-test, both of the sections took the pre-test which resulted in just over 40 students taking the pre-test. Figure 2 represents the student's post-test scores for the unit. In terms of data collection, the graph only represents the post-test scores for the section that I taught the unit too. Figure 3 represents the student's scores for the graphic organizer's written summary, of the unit's story, that they did with a partner. As with the post-test, the graph only represents the data for the section of reading that I taught.

Figure 1

Overall Pre-test Scores

Show What You Know Pretest

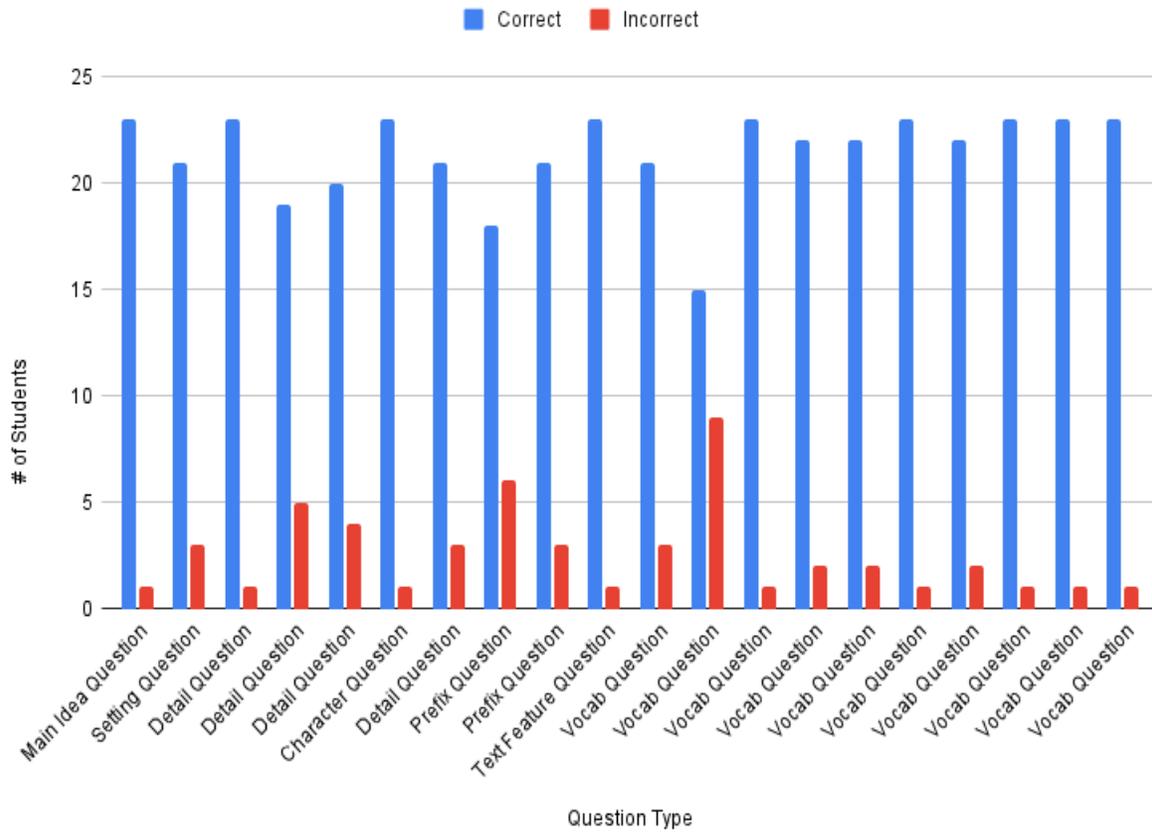


Note. Figure 1 represents pre-test scores for both reading classes.

Figure 2

Overall Post-Test Scores

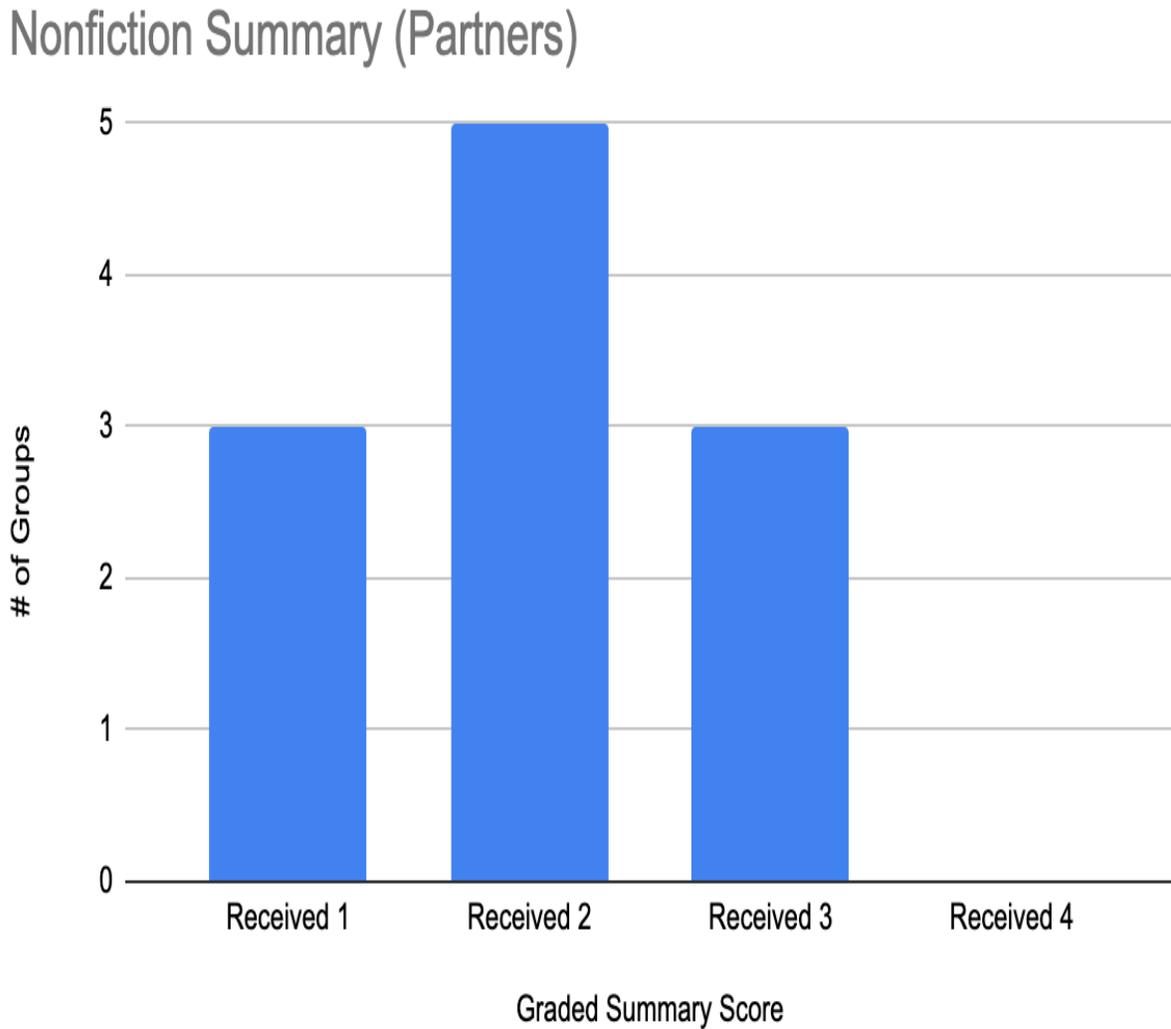
Module 6 Week 1 Post-Test



Note. Figure 2 represents the post-test data for the section of reading taught by myself.

Figure 3

Scores for the Written Summary



Note. Figure 3 represents the scores for the written summaries of the unit story. These summaries were completed in groups of 2 and only my reading section is represented in the data.

Discussion and Conclusions

According to the data that was collected, it was evident that students improved in the content areas addressed throughout this unit. My data suggests that the use of collaborative learning as well as graphic organizers had a positive effect on the student outcomes when it came to the summative assessments. However, this relationship needs to be further investigated because the pre and post-test were not the same test. While the partner summaries at the end displayed data that had quite a few groups progressing towards grade level it should be noted that summarizing is still a skill that third graders are working to acquire. The improvement came in their knowledge of what a summary is and their ability to follow a graphic organizer to get everything in its proper positioning. In terms of the pre and post-test, students showed improvement with the concepts that were covered throughout the unit. While the tests were not the same test they covered the same concepts and allowed students to demonstrate a positive trend in learning those skills with the help of collaborative learning and graphic organizers.

The data paints a clear picture that the students progressed positively with the Nebraska State Standards that were covered (Appendix A) from the instruction they received and could be linked to the instructional and assessment strategies used. This demonstrates that collaborative learning and graphic organizers, when implemented effectively, can have positive impacts on student learning and progression when it comes to learning the skills and content.

It should be noted that while the students progressed positively when it came to taking the post-test compared to the pre-test these tests were not the same test. This makes it difficult to conclude that the instructional strategies were the reason for the improvement in the student's performance. It is difficult to compare this unit to other studies for that very reason.

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Appendix A: Nebraska State Standards

- LA.3.RI.1 Identify the central idea and explain how key details support that idea.
- LA.3.RI.3 Determine and explain the author’s purpose in an informational text.
- LA.3.RI.4 Explain how text features (titles, headings, table of contents, glossaries, captions, graphs, maps, and/or other visuals) contribute to meaning.
- LA.3.V.1.a Use sentence-level context clues to determine the meaning of a word or phrase.
- LA.3.V.1.b Use affixes to determine the meaning of unknown words (e.g., comfortable, uncomfortable).
- LA.3.W.2.a Use prewriting activities and resources to plan, organize, and draft writing.

Appendix C: Written Summary Student Samples

Nonfiction Summary

Name: _____ Date: _____

Topic (1-2 words): dragonfly

Main Idea (1 sentence of what the passage is about):
this is your life cycle of dragonfly

Key Detail #1 the dragonfly bit the tadpole	Key Detail #2 they molt a lot	Key Detail #3 the frog tried to eat them
--	--	--

Put it altogether! Write the summary of the passage.

this is your life cycle of a dragonfly
the dragonfly bit the tadpole
they molt a lot. the frog tried to
eat them.

Nonfiction Summary

Name: _____

Date: _____

Topic (1-2 words):

Life cycle

Main Idea (1 sentence of what the passage is about):

about a life cycle of a dragonfly

Key Detail #1

How she survives with harsh animals

Key Detail #2

talks about mystery guests

Key Detail #3

she tries to eat them

Put it altogether! Write the summary of the passage.

about a life cycle of a dragonfly, and how she survives with harsh animals talks about her life cycle and when she was a baby. Then turns into a adult dragonfly and tries to eat the other bugs.