Impact of Note Taking and Graphic Organizers on Learning

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Introduction

The purpose of this literature review was to explore note taking methods and graphic organizers along with their effect on student understanding. My intention was to implement pieces of my findings into my classroom to identify whether or not the methods and strategies would increase my students' understanding in science and social studies. This study was important as it allowed me to provide my students with practical ways to deepen understanding and, more importantly, instill lifelong learning skills. During instruction, there is often a variety of questions being asked by the teacher and answered by the students; however, "[o]ne difficulty with this approach is that the answers to the questions can be lost if the instructor does not use a whiteboard to write them down or students do not take notes" (Ponce, López, Loyola, & Mayer 2018). Note taking strategies and graphic organizers helped my students be able to organize information and provided them with opportunities to go back and look at the information. Science and social studies grades were the focus of a lot of my parent-teacher conferences in the fall. When considering this topic as my focus, I wanted to ensure that I was not only wanting to teach these strategies so that students would get a higher grade, but instead, I wanted my capstone to assist my students far past fourth grade. Teaching note taking strategies and effective ways to use graphic organizers deepened understanding and not only helped my students be successful this year, but provided them with tools to be successful in the future as well. This paper is organized into two topics, note taking and graphic organizers, along with strategies of each. Although graphic organizers can be a form of note taking and vice versa, I decided to split them up in order to review certain strategies.

Topics of Research

"Note-taking is a difficult skill, but it is an important skill, especially considering the pervasiveness of lecture throughout middle-school, high school, and college classes" (Quintus, Borr, Duffield, Napoleon, & Welch, 2012). Fourth grade is a perfect time to begin teaching note taking skills and strategies as fourth graders are "entering the stage of reading to learn" (Chang & Ku, 2015). My fourth graders were reading in order to gain information and be able to recall or apply it later. A study involving 349 fourth graders in Taiwan returned results that showed that teaching basic note taking skills not only increased note taking ability, but also improved reading comprehension (Chang et al., 2015). Increased reading comprehension may have assisted my students in gaining deeper understanding in multiple subject areas. In social studies, my students spent a vast majority of time reading from the textbook. By modeling and providing opportunities for practice of highlighting the main idea, reducing the quantity of information, identifying keywords, utilizing visual representations, and increasing awareness of text structure, my students were given the chance to increase their understanding of informational texts they read (Chang et al., 2015).

My students not only needed to know the elements of effective notes, but they also needed to be able to organize their notes. Even if fourth graders do take notes, the notes are typically focused on the quantity rather than the quality of the information (Accardi, Chesbro, & Donovan, 2018). Note taking requires a wide variety of skills. My students needed to be able to listen to the speaker, remember what was said, record the information in a way that can be remembered, decipher the most important pieces of information, and more (Quintus et al., 2012; Glass, 2016; & Svinicki, 2017). Due to the number of physical and cognitive tasks students are

required to take on during a single note taking session, it was beneficial to provide my students with specific methods and ways of organizing notes (Quintus et al., 2012). One well-known organizational method of note taking is the Cornell method. The Cornell method involves two columns for note taking and student questions, and one section for a summary (Quintus et al., 2012). In one study that compared groups that had been given the opportunity to practice the Cornell method and groups that had not, it was found that there was no significant difference in student performance. The negative effect of having one group of students required to take notes using the Cornell method is that some students might have preferred another method instead (Quintus et al., 2012). Each of my students learned differently, and in turn, each student benefited from different forms of note taking. Although the Cornell method might have been beneficial for some, other students might have preferred different methods, which is why it was vital to equip students with multiple methods of recording notes.

The outlining method may have posed to be more beneficial for some of my students. The outlining of informational text "allows students to analyze and evaluate information, and then creatively organize it in a hierarchically structured framework that serves as a launch pad (*schema*) for more in-depth classroom content learning" (Accardi et al., 2018). As students read, they were expected to organize their notes into common themes based on the level of importance. Students possessed great freedom in how they organized their notes in the outlining method (Accardi et al., 2018). Students could underline, bold, highlight, or capitalize items in their outline to portray different aspects of their notes (Accardi et al., 2018). The possibility for individualization within this method provided my students with the opportunity to make their notes their own and record the information in a way that made sense to them. A possible benefit

of teaching the outlining method to my students was that it is a method that is easily transferred to electronic note taking as well. Providing opportunities for my students to record notes as well as personalize them also encouraged generative learning. Generative learning is when students are active in their learning and are able to generate knowledge rather than just being given information (Chang et al., 2015; Quintus et al., 2012). Any time students are given the opportunity to generate their own knowledge and make connections, they have a greater chance of reaching a high level of thinking and and developing deeper understanding.

Although generative thinking is extremely beneficial, some of my students struggled with developing their own notes. During an interview with a fellow fourth grade teacher who had been teaching for 10 years, she stated that she believed the most common struggle for students when it comes to note taking was keeping up (D. Powell, personal communication, January 4, 2019). A negative outcome of having my own students take notes was that some of them were unable to read their writing. This could have been an effect of hurrying in order to keep up. A solution to reduce hurrying and to increase the recording of vital information was guided note taking. My colleague explained that she utilized guided notes because it was easier for the students to keep up, she was able to control the information they wrote down, and her students were given opportunities to record key words (D. Powell, personal communication, January 4, 2019). Guided notes are handouts created by the teacher that have blank spaces where students are supposed to fill in information (Haydon, Mancil, Kroeger, McLeskey, & Lin, 2011). A benefit of guided notes was that my students had the opportunity to listen closer to instruction as well as participate more in class as they were not expected to place as much cognitive stress on their notes (Haydon et al., 2011). Throughout 13 studies, it was revealed that guided notes

encouraged more accurate note taking as well as improved retention (Haydon et al., 2011). A potential downfall of guided notes included that some of my students could have become complacent and simply waited for the answer to be given in class discussions. Having my students complete guided notes meant that I needed to ensure the participation of each of my students as well as use observations to determine the readiness of the students to fill in the notes. A benefit of having my students utilize guided notes could have been that they had the freedom to be more focused on understanding the content and asking questions rather than recording all of the information (Haydon et al., 2011).

Similar to note taking skills and strategies, graphic organizers provided my students with a way to record and organize information. A common mistake when it comes to graphic organizers is that teachers do not provide reason or context for the organizer being used. Students might know how to complete graphic organizers, but they have trouble choosing the one that will be the most beneficial based on the information (Cummins, Kimbell-Lopez, & Manning, 2015). In order for my students to be successful utilizing graphic organizers, they needed to first understand how and when to use them.

A graphic organizing method that has been around since the 1970s is concept mapping. Concept mapping can provide multiple experiences. Often, concept maps are used to brainstorm, make connections between concepts, and integrate new and old knowledge (Akcay, 2017). A benefit of concept mapping could have been that students were able to see the connections between what they were learning. Occasionally, my students did not understand what a concept we were learning had to do with anything. Through encouraging my students to use concept maps, they may have been better able to see the connections between concepts and skills we

were using in the classroom. As my students would have become more comfortable with concept mapping, a physical representation of a concept map, called a human mind map, could have been incorporated. The human mind map is a physical representation of the visual concept map (Glass, 2016). My students would have first needed to brainstorm a list of topics and terms. Each student would have had a card that had one topic or term written on it. Then, the core topic would have been in the middle of the room. Students would have conversed with each other and used string to connect themselves to the core topic as well as to other students based on their topics. After each student had a connection, the web would have been discussed as a class (Glass, 2016). A photo could have been taken of the web and my students could have recorded the concept web on a piece of paper to refer back to. The active participation of creating a human concept web encourages high engagement and deep thinking.

Interactive graphic organizers may have also been helpful in engaging my students. Graphic organizers can be placed into a PowerPoint and completed throughout instruction (Ponce et al., 2018). 152 fourth graders were involved in a study that tested the impact of interactive graphic organizers on student learning. The students who worked with the interactive graphic organizers were able to learn about the specific organizer and how to complete it. The students were also able to work with the teacher and then individually on completing a graphic organizer (Ponce et al., 2018). It was found that generative processing was encouraged significantly more by the teacher in the graphic organizer group (Ponce et al., 2018). The study found that students who participated in the graphic organizer group scored higher on memory and comprehension tests; however, the tests were given immediately after the lesson which does not show long term results (Ponce et al., 2018). The benefit of interactive organizers could have

been that my students would have had higher engagement and experienced deeper questioning. They would have also been expected to make connections and portray understanding when completing the organizer. A limitation of this method may have been that my students felt they did not need to follow along because the organizer was on the screen. A remedy for this downfall would have been to have my students complete the organizer individually as the class completed it.

One organizer that could easily be used interactively and on paper would be the KWL chart. A KWL chart is where students record what they know, what they want to know, and what they learned about a certain topic. Susan Szabo, a middle school teacher, recognized that the traditional KWL chart does not allow for reflection, questioning during reading, vocabulary growth, or experiential links (Szabo, 2006). Based on the needs of her students, Szabo created the KWHHL chart. She adjusted the "K" column to include positive and negative ideas of the knowledge the students already possessed. The alteration to the "W" column allowed students to create questions before and during reading. The "H" column was dedicated to hard words (Szabo, 2006). This column could have been especially helpful to my students because they would have been encouraged to address the words they did not know instead of skipping over them and never coming back (Szabo, 2006). The second "H" column was for "heart" words which are the words in a text that evoked emotion in the reader. The "L" column remained the same; however, students were expected to record whether or not their prior knowledge stayed the same, was added to, or was changed (Szabo, 2006). After the implementation of the KWHHL chart, Szabo (2006) not only saw improvement of test scores, but she also saw improvement of oral and written language as students had learned to connect their emotions to text as well as

gained higher vocabulary. Szabo (2006) also concluded that students were more comfortable making adjustments to the strategy in order to make it most effective for them as individual learners.

Conclusion

Note taking and graphic organizers have the ability to complement one another and provide tools for students to record and organize information. The purpose of my research was to identify note taking strategies and graphic organizers to implement in my classroom that would improve student understanding in science and social studies. The ability to take notes and organize information was beneficial for my students as they continued on in their education. My students were able to gain a deeper understanding of content when they were expected to record and organize their thinking. The benefits of teaching note taking strategies, the Cornell method, and outlining was that my students were involved in generative thinking which has been shown to produce deeper understanding. The downfall of these methods could have been that some of my students struggled with the amount of cognitive work needed to successfully complete the strategies. In order to ease my students into note taking, guided notes were a great place to start as it allowed students to be more focused on the learning than recording. Graphic organizers also improved my students' note taking skills as they were encouraged to record important information. The concept maps, interactive graphic organizer, and KWHHL chart could have presented my students with opportunities to activate prior knowledge and make connections between concepts. Some graphic organizers and note taking methods may have been more beneficial for certain students than others, but by presenting my students with multiple options and the rationale behind choosing the methods, my students were prepared to determine which

method was best for them in regards to the situation. The possible limitation of implementing note taking skills and graphic organizers was that they both require a vast amount of practice before students become comfortable with utilizing them. The benefit was that students would have learning tools that they could carry with them into fifth grade and beyond.

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