Shared Inquiry
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Topic:

"The Use of Graphic Organizers in Middle School Reading"

This topic is an extremely relevant one for Vine Middle Magnet School since our TCAP test scores are consistently the lowest of all middle schools in Knox County. Our reading scores are among the worst in the school, not to mention the fact that we have a large number of sixth graders who read significantly below grade level. We teach lower-level students and want to see how the use of graphic organizers impact, positively or negatively, TCAP scores. Reading is the basis for all other academic areas, so if we can positively impact the reading scores, then maybe we can impact other areas as well. The following table shows the 2001 TCAP scaled reading scores. The scores are out of a possible scaled score of 100.

Table 1 – Participant's 2001 TCAP Scores

Student	2001 5th Grade Reading TCAP Scores
Student A	33
Student B	5
Student C	7
Student D	4
Student E	10
Student F	10
Student G	14
Student H	10
Student I	9
Student J	7
Student K	8
Student L	1
Student M	1
Student N	3
Student O	6
Student P	2

Our administrator is supportive of our efforts. Vine Middle Magnet School is in the process of obtaining SACS accreditation, and one of the identified areas that the school family is going to concentrate on improving is our reading TCAP scores. All three of our administrators are supportive of any endeavor to help raise our test scores.

Rationale:

The need for this inquiry is the fact that one-third of the sixth graders at Vine Middle Magnet School this year read at a 4th grade level or below. There is a need for effective teaching strategies for such low-level middle school readers. Research has shown that graphic organizers can be an effective strategy.

We became interested in this topic after using a new reading program this year. In the teacher's edition of the "Caught Reading" textbook, there were examples of

graphic organizers to use with the text. I have used graphic organizers in the past, but not with this level of readers.

If the graphic organizers positively affect student comprehension, then it will positively impact TCAP scores. If the students do not understand the questions on the test, how are they going to know the answer? If we are able to prove the effectiveness of graphic organizers, then maybe we can get other faculty members to "buy into" the concept.

This inquiry will be tested in two separate classrooms - in Mrs. Howard's sixth grade resource class and Mrs. Robertson's sixth grade reading class (consisting of readers on a second grade level). We will use 2001 T-CAP reading scores, in combination with the Caught Reading Placement Test, to note a baseline comprehension level of each student. We will then introduce graphic organizers (character map, story map, time line, etc.) to the students. After using the graphic organizers for a couple of weeks, we will then assess student comprehension level through teacher observation and student interviews. We will also take work samples from students to determine the graphic organizers' effectiveness.

Questions for Inquiry:

What are some effective strategies to help students comprehend vocabulary words provided in the introduction to a new lesson?

How effective are graphic organizers in helping our students recognize words in isolation, both decodable and sight words?

What are some effective strategies to help students comprehend information from a reading selection?

How effective are graphic organizers in helping our students recall information from a reading selection?

This inquiry is designed to investigate the effectiveness of the use of graphic organizers with the "Caught Reading" program. The students included in this inquiry are reading on a second grade level. There are a total of 16 students, eight in Special Education and eight in regular education.

Studies have shown that each individual tends to prefer learning through a particular sense, such as sight or sound. Using graphic organizers such as story maps, character clusters, word webs, and charts allows students to visualize the information.

Using smell, taste, touch, kinesthetic association, and sound or mental pictures is known as an imagery mode. The imagery mode of representation is referred to as a "nonlinguistic representation". Studies have consistently shown that the primary way teachers present new knowledge to students is linguistic. This means that students are commonly left to their own devices to generate nonlinguistic representations. When teachers help students practice the use of imagery, the effects on achievement are strong.

Research Support:

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Methods and Procedures:

Participants:

The first group of participants is comprised of 5 sixth grade students with identified learning disabilities attending an urban middle school. All five participants are African American males who receive reading instruction in a resource classroom for one block of the school day. The second group of participants is comprised of 12 sixth grade students who have scored on a second grade level on a reading placement test. Four of the participants are African American females, seven are African American males, and one is a Caucasian female. These students receive reading instruction for one block a day in a classroom with two certified teachers and one intern.

All of these students receive reading instruction using the Caught Reading series. The Caught Reading placement test was administered to these students and it was determined that all of the students are at the second grade reading level. The placement test consists of two parts. Part A is designed to indicate how well a student reads and recognizes words in isolation, both decodable and sight words. Part B tests listening and

reading comprehension on both recall and inferential levels. The activities in the Caught Reading program can be used to address the different learning styles of students.

Data Collection Techniques:

The focus of this inquiry is the use of graphic organizers in a reading classroom. Story maps and character webs are the two graphic organizers that will be used to help students visualize information. Students use mapping/webbing to indicate the relationship between ideas in the text by using circles and lines to show relationships between various concepts, with the main theme or concept in the center. The lines indicate that one item is related to another item, an example of another item, or is linked to another item.

Procedure:

Students will continue to use the Work Text and Practice and Assessment books that are a part of the reading series. The Work Text consists of 14 lessons, taking students from those words learned in previous levels through a 241 word list by the end of lesson 14. Memory Chips are located at the back of the Work Text and can be removed to be used in small groups or by individuals for practice. The Practice and Assessment book provides students with opportunities to extend, practice, and review the content of each lesson.

During whole group instruction, a selection out of the Work Text will be read aloud with each student having a chance to read. The students will then use the Work Text to complete the comprehension exercises that accompany the selection, to demonstrate their understanding of the concepts. Once students have a grasp on the main themes/ideas of the story, we will begin the use of graphic organizers. We will begin the use of graphic organizers by introducing the students to the graphic organizer during group instruction, and we will model effective strategies for formulating a graphic organizer. The graphic organizers will be used to enhance the student's familiarity with the reading assignment. Once we introduce a particular graphic organizer, the students will then practice making one during a guided practice. The Caught Reading Practice and Assessment book will be used to connect all of the learning together. The activities in the Practice and Assessment book will be graded and will be used to determine the students' understanding of the material.

The students will then make their own graphic organizer in order to take ownership of their learning. These graphic organizers will be stored in a central location in the classroom where students can freely look at them. After a week, we will then ask the students to recall information from the stories that were included in the organizers.

We will take data from the Work Text, Practice and Assessment books, and periodic sight word testing for approximately three weeks and will make teacher observations of student comprehension level, engagement, and behaviors in order to determine their effectiveness. This technique is used so that we can assess if the students were engaged in the activity and how much information students are able to recall. Student input will also be taken to evaluate how the students felt about the use of organizers. Students will be asked about the usefulness of the graphic organizers. They will be asked what they thought made them helpful or what could have made them more helpful. This data will provide us with qualitative data for our inquiry.

We will also collect data from the Practice and Assessment books. This data is being collected because it offers the opportunity for students to engage in independent

practice that we can grade to evaluate the effectiveness of the organizers. The activities in the Practice and Assessment book provide us with an idea of how the students are connecting the data to previous learning. These activities require the students to recall information from a variety of sources including the Work Text, Memory Chips, and the graphic organizers. This data will provide us with quantitative data for our inquiry.

Instructional Technique:

Day 1 – Teacher provided a rationale for story map instruction and discussed new vocabulary. Next, the teacher discussed visualization of the vocabulary words and the students then drew pictures of what they visualized the words to mean. Finally, the students did a word attack activity in their workbook to practice their knowledge of the vocabulary.

Day 2 – Students read the selection orally and then the teacher modeled how to identify the problem, the main character, and the main character's attempt to resolve the problem in the story. The teacher then recorded the problem faced by the main character on a story map displayed on the overhead projector. Through discussion students are guided to find the problem and the resolution and to place this information on their own story map.

Day 3 – The teacher reviewed the information from the previous day of instruction. Next, the students were given independent practice in which they completed an activity to demonstrate their comprehension. When the students are finished, the teacher then reviewed the results to check for student understanding. Finally, students were given an assessment test to determine if the instruction with the graphic organizer helped to improve scores.

Day 4 – Teacher discussed the story map with the students in order to get their feedback. The process then was repeated with a new story.

Data:

The first collection of data comes from a sight word test that is a part of the Caught Reading program that consists of 238 words in isolation. Students were tested in January, prior to the implementation of graphic organizers, and again in March, after the implementation of graphic organizers. Students were given a list of the words and asked to read them aloud. The first two columns show the number of words that the student's were unable to read correctly on the two testing dates. The net change column shows the improvement each student demonstrated over the course of the use of graphic organizers.

Table 2 – Participant's Sight Reading Test Results

Student	Sight Word Test 1/15/02 (Before G.O)	Sight Word Test 3/14/02 (After G.O.)	Net Change
Student A	-11	-7	+4
Student B	-37	-36	+1
Student C	-68	-45	+23
Student D	-63	-32	+31
Student E	-43	-16	+27
Student F	-65	-37	+28
Student G	-49	-24	+25
Student H	-131	-108	+23
Student I	-146	-118	+28
Student J	-43	-19	+24

Student K	-22	-13	+9
Student L	-115	-78	+37
Student M	-56	-21	+35
Student N	-61	-27	+34
Student O	-21	-7	+14
Student P	-17	-4	+13

During the use of graphic organizers, students remained on-task and actively engaged in the learning process. When interviewed, several students stated that they enjoyed using the graphic organizers because "they are fun". Many students also said that they liked being able to make their graphic organizer look any way they wanted. The amount of discipline problems during reading class also decreased during this time. The students' attitudes toward the graphic organizers were positive.

The next collection of data comes from the Caught Reading placement test. Students were given a test in which they are to read a selection and answer comprehension questions that involve reading for details and using context clues. Again, this test was given prior to the implementation and again after implementation of graphic organizers. The results are as follows:

Table 3 – Participant's Performance on Placement Test

Student	Placement Test Before G.O. (score out of 100)	Placement Test After G.O. (score out of 100)	Net Change
Student A	76	81	+5
Student B	21	32	+11
Student C	17	28	+11
Student D	33	48	+15
Student E	48	67	+19
Student F	15	21	+6
Student G	38	50	+12
Student H	9	16	+7
Student I	36	50	+14
Student J	23	45	+22
Student K	51	64	+13
Student L	81	81	+0
Student M	94	100	+6
Student N	94	100	+6
Student O	88	94	+6
Student P	81	94	+13

The final collection of data comes from the average scores on comprehension quizzes before the implementation of graphic organizers and after. After the reading of a selection, students are given a ten question quiz on relevant information found in the story. The results given are the average scores of the 5 quizzes preceding the implementation of graphic organizers and the average scores of the 5 quizzes given during the implementation of graphic organizers. The improvement in the quiz scores is shown in the Net Change column.

Table 4 – Participant's Average Comprehension Quiz Scores

Student	Average Quiz Scores Before G.O (out of 100)	Average Quiz Scores After G.O. (out of 100)	Net Change
Student A	75	100	+25
Student B	60	80	+20
Student C	35	85	+50
Student D	55	85	+30
Student E	45	85	+40
Student F	20	75	+55
Student G	55	90	+35
Student H	20	65	+45
Student I	65	85	+20
Student J	30	65	+35
Student K	40	75	+35
Student L	80	95	+15
Student M	90	100	+10
Student N	85	100	+15
Student O	80	95	+15
Student P	80	90	+10

Results:

Through the use of the Frayer model of teaching vocabulary, students were able to increase their knowledge and use of various vocabulary words. Research states that word meaning instruction that helps learners fit new words into an already existing conceptual network is substantially more effective than having students look up words in a dictionary or read words interesting and relevant context (Rosenbaum, 2001). With the use of the Frayer model, students are able to make connections to prior experiences in addition to making new connections. Students stated that when given a vocabulary test, they were able to remember the words and their meanings easier when given instruction on the definitions using the Frayer model. The results in our classes show that all students improved in the area of vocabulary retention, although some improved on a greater scale than others.

Another area of improvement is in sight word recognition. Through the use of graphic organizers, students are able to connect ideas already learned to new ideas and in the process, the use of context clues to decode new words is enhanced. Using context clues to decode new words is a skill that many of these students lack due to their low reading level. Recent research states that when students record another form of the new word on a graphic organizer, this not only helps the student tap into background knowledge, but it will also help the student decode new words with similar roots or affixes (Rosenbaum, 2001). The key to raising reading scores is helping our students learn to read the passages and the questions. If the students cannot decode the words properly, they will not be able to accurately answer the questions. The level of frustration in our students decreased during the time we used graphic organizers. The students felt more confident in their abilities, and they wanted to read aloud more.

When students are able to take the information from a reading selection and make a concept map, they are taking ownership of that information. The students in our classes enjoyed the creativity involved in making the maps and wanted full control over

what information to put on their maps. When quizzed over a selection where graphic organizers were used as part of the instruction, quiz grades were markedly higher than the quizzes given on selections read without the use of a graphic organizer. Research states that students who use semantic mapping and semantic feature analysis demonstrated greater content comprehension and vocabulary learning than did students receiving traditional definition instruction with little or no interaction with the text (Guastello, Beasley, and Sinatra, 2000).

Graphic organizers also helped the students recall information from a story read several days earlier. After approximately a week, students were asked to recreate another graphic organizer from memory without looking back at the story. Students were also given a short ten question quiz about the story. Students were able to recall at least 85% of the information from the story one week later when they had produced a graphic organizer for that story. In a concrete way, utilizing graphic organizers is an inexpensive literary dynamic that taps into prior knowledge, cultivates active participation, and fosters an understanding of conceptual relationships, leading to a facilitation of comprehension (Kirylo and Millet, 2000). Apparently, the use of graphic organizers in reading instruction provided students with a framework to organize and retain important story elements and, in turn, improved their comprehension.

Implications and Recommendations:

The ability to read is the foundation which all subsequent knowledge is dependant upon. If a student cannot read, the chances are high he will not be successful in school. When a student has the ability to read well, the doors of opportunity are opened for him. We have so many students in which that door to success is still closed, and we as teachers want desperately to help them open that elusive door. We feel that the use of graphic organizers has been successful and we will continue to utilize them for the remainder of the school year.

This inquiry went as well as we had planned, and the results were above our expectations, but I would like to have had more time to collect the data. The students really cued into the concept of graphic organizers, and we would have liked to have seen the results after an even longer period of time.

The results of this study offer a promising strategy for poor readers to improve their reading comprehension level. It seems appropriate to recommend the use of graphic organizers as an instructional strategy to use with low achievers who need to strengthen their memory processing skills.

With the group of participants being small, we will be able to follow their progress as they move on to 7^{th} grade. We plan to keep up with their progress as an addition to this inquiry. Our job isn't over; it is just beginning. The implication for our future practice is that we now see the validity in the use of graphic organizers and will begin to use them for other curricular areas, not just in reading.