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ABSTRACT

A study investigated whether there would be any significant difference in test scores between students instructed in the use of graphic organizers during their creative writings and those students not instructed in their use. Graphic organizers can help writers keep to the topic by having their ideas in front of them as they are writing. They also help the writer to keep things in the correct sequential order. Graphic organizers are credited to be tools that can guide students through the four stages of the writing process: prewriting, drafting, revising, and publishing and sharing. Two third-grade classes from different schools in the same New Jersey school district were involved in the 13-week study, and were given many creative writing assignments. The pretest and the posttest were each graded using both holistic scoring and the Fry Readability formula. Results indicated that the students using the graphic organizers showed an improvement in their creative writing. Contains five tables of data and 33 references. Appendixes contain test scores. (Author/SR)

The Effects of Graphic Organizers on the Creative Writing of Third Grade Students

by

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Abstract

This study was undertaken to determine if there would be any significant difference in test scores between students instructed in the use of graphic organizers during their creative writings and those students not instructed in their use. Two third grade classes were used for this study which was conducted for thirteen weeks. Many creative writing assignments were given during this time. The pre-test and the post-test were each graded using both holistic scoring and the Frye Readability formula.

The test results indicated that the students using the graphic organizers showed an improvement in their creative writing.

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Reading and writing are both considered to be composing processes. Each of them have similar stages that are based on prior knowledge, attitudes, and experiences. The reader gets meaning from the text and the writer creates meaningful text. Both reading and writing require the use of similar thinking skills, such as analyzing, selecting and organizing, inferencing, evaluating, problem solving, and making comparisons (Burns, Roe, Ross, 1992).

These two processes, reading and writing, are both considered a skill which is defined by Frederick McDonald (Downing, 1982) as an act that "demands complex sets of responses - some of them cognitive, some attitudinal, and some manipulative." They are both developmental processes, and the relations between them change as the children advance in school (Flood and Lapp, 1987; Shanahan, 1988).

The writing process is one which involves four major stages: prewriting, drafting, revising, and publishing and sharing. These stages can be noticed throughout the grades at different levels of difficulty.

The first stage, and one of the most important, is the prewriting stage of the process. This is where the author decides on the topic which then leads them to the possible sequence of events and/or related ideas on the topic. This

"thinking" stage helps the author bring to the desktop the details that support the topic. It also makes the author evaluate the chain of events that will occur within the writing.

Graphic organizers can help the writer keep to the topic by having their ideas in front of them as they are writing. It also helps the writer to keep things in the correct sequential order. Once students learn how to use these organizers and see their value, they will hopefully carry this basic idea over for any writing they might have in the future.

In an effort to produce more competent readers and writers, many educators are looking toward graphic organizers for help. According to recent standardized test results, reading comprehension and writing skills among students entering college have been constantly decreasing. Graphic organizers help the student to organize information graphically. They have also been called Structural Overviews. These organizers can help show the student relationships which can help them better understand that any relationship to their previous knowledge (Earle and Brown, 1973).

Recently, researchers have linked the reading and writing processes together. This is now known as the reading and writing connection.

The many links between the reader and writer is best shown in a chart found in the book, Teaching Reading in Today's

Elementary Schools, written by Burns, Roe, and Ross.

Reader	Writer
Brings, uses prior knowledge about topic	Brings, uses prior knowledge about topic
Reconstructs another's meaning	Constructs own meaning
Predicts what comes next	Predicts what should come next
Has expectations for text based on experiences	Has expectations for how text might develop
Modifies comprehension of text as reading continues	Develops and changes meaning while writing
Engages in "draft reading" skimming, making sense	Engages in "draft writing" getting ideas, writing notes
Rereads to clarify	Rewrites to clarify
Uses writer's cues to help make sense of reading	Uses writing conventions to assist reader

Responds by talking,doing, Gets response from readers and/or writing

(Burns, Roe, Ross 1992)

Using graphic organizers have helped children in both reading comprehension and writing because the procedure increases processing (Avery,1994). Both of these processes have certain steps that must be followed in order to have a successful outcome. Graphic organizers help the children put things in a sequential order. These organizers provide structure, organization, format and a place for the student to relate information to their personal experiences (Lehman, 1992).

During the writing process the author must be able to state the topic and then support this topic with details. These supporting ideas must also be in sequential order. Graphic organizers help the student visualize these relationships (Flood and Lapp, 1988). Graphic organizers are credited to be tools that can guide students through the four stages of the writing process.

Hypothesis

To determine whether these assertions by known experts are valid and to provide research evidence on the use of graphic organizers, the following study was undertaken. It was hypothesized that there would be a significant difference between

the mean of the samples in favor of the experimental sample.

Procedures

The students enrolled in this study were from two separate classes in different elementary schools located within the same central New Jersey school district. Each building is located within a middle class community. The two classes were taught on alternate days of the week by the same teacher. Each class was taught using various procedures, one with graphic organizers and the other without.

Only the students in the experimental sample were taught the technique of using a graphic organizer to complete creative writing assignments. This sample was also instructed to use a graphic organizer following the reading of another students creative writing. These organizers gave the students the opportunity to visually see the relationships among main ideas and details in their writings. The graphic organizers also helped the students keep their writings in a sequential order.

The experimental and control sample were given the identical topics for their writings and both used the computer program, Storybook Weaver by MECC, as the media to write these stories.

The experimental sample was first shown a model of the graphic organizer to be used. We then as a class discussed the meanings of each of the headings and what the advantage was of using an organizer such as this. We also talked about

the other uses of such an organizer.

As a class we then decided upon a topic for our collective creative writing, and proceeded to complete our organizer in a democratic manner. A story was then written so everyone could become aware of the advantage of such an exercise. For homework, the children were asked to decide on their title. During the next class period, the children were each asked to complete their personal organizer, so that the next class period the children could use the organizer as a guide to complete their own creative writing. For the next 12 weeks, the children will be asked to use various graphic organizers prior to a creative writing assignment and to complete many creative writing assignments.

Evaluating the writings of each of the two classes occurred twice during the study. The first evaluation was done prior to the experimental sample's exposure to the graphic organizers. The topic for the pre-test was," Think of your favorite place. What makes it special to you?" The topic for the post-test was, "Think of your best friend. What are some of the things that make your best friend special to you?"

Each of the samples was evaluated in two different ways. One involved the holistic approach using the four basic categories of content and organization, usage, sentence construction, and mechanics. Under each of these major headings

was an average of four sub-topics which were rated from 1 to 10, with 1 representing inadequate and 10 representing strong. The second instrument for evaluation was the Fry Readability Formula. This helped the evaluator to get a grasp of the child's grade level of his/her writing abilities. Mean scores between the samples were evaluated using t tests.

Results

Table 1 illustrates the mean, standard deviations,

Table 1

Mean, Standard Deviation, and t of the Experimental and the Control Sample's Pre-test Results of the Holistic Scoring

Sample	Mean	SD	t
Experimental	2.89	1.29	-3.23
Control	4.38	1.56	

sig $<$ .05

and t of the results of the holistic scoring of the pre-tests taken by the students in both samples. The mean scores indicate that the control sample scored higher than the experimental

sample at the beginning of the study. There is a 1.5 point difference between the mean scores. This difference suggests that the control sample began the study at a significantly higher level.

Table 2 illustrates the mean, standard deviations, and

Table 2

Mean, Standard Deviation, and t of the Experimental and the Control Sample's Post-test Results of the Holistic Scoring

Sample	Mean	SD	t
Experimental	4.22	1.26	-1.12
Control	4.76	1.67	

NS

and t of the samples' post-test. The mean scores in Table 2 when compared to Table 1 indicate that the experimental sample showed a greater improvement than did the control sample. Both samples are now much closer together. This is further indicated in Table 3.

Table 3 reflects the mean gains between each sample's

Table 3

Mean, Standard Deviation, and t of the Experimental and the Control Sample's Mean Gain Results of the Holistic Scoring

Sample	Mean	SD	t
Experimental	1.33	1.28	1.89
Control	0.38	1.77	

NS

pre and post-test results. Here the mean gain for the experimental sample is 1.33 points while the mean gain of the control sample is 0.38 points. This indicates that the experimental sample improved more than the control sample. This table of differences was generated to further explain the growth of both samples. As indicated, the experimental sample, which began the study lower than the control sample, improved to almost the same level as the control sample at the onset of the study.

Table 4 illustrates the means, standard deviations, and

Table 4

Mean, Standard Deviation, and t of the Experimental and the Control Sample's Pre-test Results of the Readability Scoring

Sample	Mean	SD	t
Experimental	4.11	2.19	1.61
Control	3.10	1.76	

NS

t of the readability scoring of the pre-test of both the experimental and control samples. The readability scores of the experimental samples were higher than those of the Control sample. This is probably due to the experimental samples immature writing with run on sentences.

The Fry Readability is calculated by the examiner counting the number of words, number of multi-syllabic words, and number of sentences in a sample of one hundred words. A hundred word sample that contained one run on sentence would have a higher readability score than would the same sample using the exact same words and the correct punctuation would have. This readability test does not seem to represent the writings of the young writers on an accurate scale. Inappropriate high scores are too often received.

Table 5 illustrates the means, Standard Deviations and

Table 5

Mean, Standard Deviation, and t of the Experimental and the Control's Post-test Results of the Readability Scoring

Sample	Mean	SD	t
Experimental	2.44	1.34	0.04
Control	2.43	1.40	

NS

t of the readability scoring of the post-tests of the experimental and control samples. The mean readability scores of both samples have become almost identical. This indicates a growth in the maturity of the experimental samples' writing.

Conclusions

The results of this study tend to support the hypothesis that using graphic organizers can improve the creative writing ability of third grade students. When examining Table 3 it is noted that the mean scores of the holistic scoring of the experimental sample increased more than the mean scores of the control sample. While there was not a tremendous improvement, it is large enough to indicate the value of using graphic organizers.

Due to the short term of the study, the results did not indicate a very large growth, however it did illustrate significant growth between the mean scores of the separated samples to warrant the use of graphic organizers in the third grade classroom.

Graphic Organizers and Creative Writing:

Related Literature

In an effort to produce more competent readers and writers, many educators are looking toward graphic organizers for help. According to recent standardized test results, reading comprehension and writing skills among students entering college have been constantly decreasing. Graphic organizers help the student to organize information graphically. They have also been called structural overviews. organizers, concept maps, text structure maps and semantic mapping and clustering. All of these things can help show the student relationships which can lead them to a better understanding of their new and prior knowledge (Earle and Brown 1973).

Semantic mapping - also known as webbing, networking, clustering, idea mapping and concept branching - is a strategy that shows students how ideas and information on a specific topic are related and organized. (Sinatra and Pizzo 1992)

Concept maps are written charts or webs of information representing students' understanding of a concept or concepts. (Fleener and Marek 1992) Grossen and Carnine (1992) believe that the ways that information can be organized into more important ideas and less important ideas are called text structure patterns. Text structure maps help the reader or writer visually illustrate the relationship between ideas.

The following are four examples of text structure patterns according to Grossen and Carnine. (1992)

1. Descriptive or Thematic Map - describing systems or for illustrating the relationship between ideas in persuasive essays in which evidence is used to support each point.
2. Sequential Episodic Map - describing the events that lead up to a major development in sequential order.
3. Comparative and Contrastive Map - clear concept formation. Can have two columns with the different ideas paralleling each other.
4. Problem/Solution Map - A problem usually has a cause. Text dealing with a problem may elaborate and describe the cause, then propose a solution that is developed from a clearer understanding of the cause.

"Graphic organizers help students understand that knowledge is made of concepts and concept relationships, much like words are made of letters and matter is made of atoms." (Novak 1991)

As reported in an article written by Cronin, Barkley and Sinatra (1992), the Moss Point School District in Mississippi, worked up a comprehensive plan to help students with writing, text organization, reading comprehension and thinking. Semantic maps and graphic organizers were used as a faciliter to increase reading and writing scores on Mississippi's state wide test. The first job of the school district was to train teachers and help them to begin the classroom applications. Then the students were guided to use higher level thinking skills and apply these skills to the four basic areas mentioned above. Various types of maps were used as indicated by the type of reading or writing assignment.

Assessment and documentation of this program and student's progress was done by the use of a checklist. This checklist focused on five major areas which were; understanding of the

task, semantic structure, sentence structure, vocabulary, and language and mechanics. Following the completion of a writing assignment, both the teacher and student used the checklist to evaluate the writing sample.

Adopting one checklist for the school to use was found to have many advantages for both the teachers and students. The students understood what was expected of them in all of their classes. The teachers in different subject areas could help each other and share important information about a student.

The English teacher was responsible for maintaining a portfolio of at least four writing samples per student so school and individual students weaknesses could be addressed.

The end result of this work and evaluation of data over a four year period of time, indicated constant improvement in both the high school and junior high school test scores. More of the students began to pass the Mississippi state test in the above average range and less scored in the below average range.

Weisberg and Balajthy in 1987 conducted a study on the effect of graphic organizers on the summarization skills of disabled readers. They undertook this study to help answer many questions. They wanted to know if the use of graphic organizers as a learning strategy could improve disabled readers ability to assign levels of importance to expository text, and if improving such abilities also improves the students writing

abilities, and would such newly acquired skills show positive improvements on multiple choice tests.

Twenty-five students from two classes in an ungraded clinical school for the reading/learning disabled were used in this study. These children were of junior high school age and had been classified as reading disabled because of reading achievement scores that were at least two grade levels below expectancy. The students' mean age was 13 years, their mean IQ was 99 and their mean reading subtest score on the Stanford Achievement Test was equivalent to the 5.6 grade level.

The students received one hour of training for five days. The were asked to identify the main idea of the passage and other important sentences by underlining them with various colors of pens. Following this, the students created a graphic organizer showing the main ideas, in large boxes or circles, and the supporting details in smaller boxes or circles. The following step was to write a summary of the passage using what they had inserted into the boxes on their graphic organizer. Students were shown this procedure the first day and practiced it for the remainder of the sessions.

A pre and post test was given to all the participants. Four selections adopted from the fourth grade social studies book with a mean readability of the sixth grade were used for both tests. Half of the children used two of the selections for the pre - test while the other half of the students used them for the post - test and vice versa. This way all of the

students were evaluated on the same four selections. For the first assignment based on underlining according to the levels of importance in the passage, the scores increased an average of about 15 percentage points. When evaluated on the inclusion of important information, the average score again increased an average of 15 percentage points. The evaluation of the pre and post passages of the multiple choice test, however, showed no significant improvement in the students' scores.

The researchers did notice an improvement in the students' abilities to use their own words when writing summaries and in their ability to identify main idea statements. These were very important findings in this study.

Grossen and Carnine (1992) state that using the appropriate map for the given situation can help to identify the main points of a story and relationships between them. Concept maps, diagrams that indicate the relationships between concepts, reflect the conceptual organization of information (Vargas and Alvarez 1992). In each map display, the largest box, circle, or rectangle contains the most important idea, while the smaller figures contain subordinate information. (Sinatra and Pizzo 1992). Washington (1988) also indicates that it is easier for the children to understand that each stand is a paragraph if a different color is used for each stand.

Another study conducted by Weisbery and Balajthy in 1985 deals with the training and familiarity of graphic organizers and the effect this might have on poor readers. In this study,

32 high school students in a remedial reading class were divided into two groups. Each group had about the same number of girls and boys with the mean IQ being 92.5 (based on the Academic Aptitude Test). The students' mean age was about 16 years old in both groups and the mean score on the Stanford Diagstic Reading Test was 46.

The experimental group received 6 training sessions for forty minutes each during a three-week period. Instruction centered around social studies expository passages, each having a comparison-contrast internal organization. The use of graphic organizers was modeled for the students. They were also taught how to recognize specific organizational patterns and how this could be helpful for them. The students were also encouraged to use key phrases instead of complete sentences. Daily feedback along with grades were given on all their work. The experimental group was trained to follow this basic procedure:

1. Read the passage to identify and categories of comparisons
2. Underline signal words to identify comparisons and contrasts.
3. Construct a graphic organizer according to the comparison/contrast model.
4. Write a summary of the passage without the original passage, only their graphic organizer.
5. Study the graphic organizer and summary to prepare for a comprehension test.

The post test was given one month following the instruction given to the experimental group. The control group received one half hour of introduction on the comparison/contrast graphic organizer and summaries, so that they could complete the task. Two social studies comparison/contrast passages taken from the current events reading found in the students' classroom were used for the task. This type of material was used to determine if the students' could transfer their ability to use graphic organizers to real-world content area textual material.

There was a significant difference in the transfer tasks of the experimental group and the control group. The experimental group scored higher on all three tasks; 24 percentage points on the graphic organizer task, 29 percentage points higher on the summarizing task, and 10 points higher on the comprehension test.

This indicates that there is a transfer of training to real-world reading tasks. The delay of one month did not seem to have an adverse effect on the subjects indicating that there was long term comprehension.

Another study done in May of 1993 by Nancy Pruitt explored the question of using graphic organizers in content area subjects. Pruitt's study involved two heterogeneously grouped fourth grade classes in a middle class suburban community. The classes were located in two different elementary schools and were taught by two different teachers.

Pruitt chose the social studies textbook, New Jersey

Yesterday and Today, as the vehicle for her study. Each class had three forty-five minute sessions per week.

The pre-test for Chapter 1 was first given to both fourth grade classes. This test, as like all others that were administered, were made by the book company and consisted of twenty multiple choice questions and five questions requiring answers in complete sentences.

The control group followed the teacher's manual. For each chapter in the study, the children read the chapter, discussed it in class, answered all questions at the end of each section, and completed specific workbook pages and blackline masters selected by the teacher for additional reinforcement.

The experimental group in this study was first given the pre-test and then was introduced to the use of graphic organizers. The first organizer that was completed, was done together with everyone filling their own out at their desks while the teacher completed one on the overhead. Following the completion of this organizer, the class discussed the material and the value of the organizer. For each of the remaining sections of the chapter that was read, a graphic organizer was completed.

The next session began with a short review of the last class and then the new graphic organizer was discussed. The students proceeded to read the new section and to complete the organizer. During the review of the chapter, the children used their own organizer.

The remaining chapters that were included in this study were completed in the same manner. No workbook or blackline masters were used as a review for the experimental group, only the organizers.

The results of this study indicate that there was a significant improvement of the experimental group in the reading and understanding of their social studies. These results, therefore imply that there is an advantage to including graphic organizers into the fourth grade curriculum.

Sakta (1992) believes that before expecting the children to use the graphic organizer, the teacher must first help the students understand the main idea and the supporting details of topic. Research indicates that for best results, the teacher should initially model each map representation on the chalkboard or with the overhead projector. Washington (1988) believes that the teacher needs to model for the children the way a paragraph is developed by using one strand of the organizer and having the children make up sentences to correlate with the phrase in the map. It is best to use key words and phrases rather than sentences." (Sinatra and Pizzo 1992).

Wesley and Wesley (1990) believe that conceptual maps may be used in many ways, ranging from evaluating students' prior knowledge to assessing the learning of the content area. It is also a classroom technique that helps students to reflect on their understanding or misconceptions of concepts (Wesley and Wesley 1990). Conceptual mapping can be a powerful tool

for self reflection and teacher evaluation. By helping students reflect critically upon their understanding, misconceptions, values, beliefs, and experiences, the teacher can continue to help prepare students for living in our great society" (Holcombe and Shonka 1993). Fleener and Marek (1992) also advocate using semantic mapping is one assessment technique that can be used to determine students' concept understandings or misunderstandings. (1992) Holcombe and Shonka (1993) believe that these organizers can be used to identify the areas in which a student needs to develop more accurate conceptual framework. Pearson and Johnson (1978) support the use of semantic mapping or clustering, as an assessment technique because they help reveal student perceptions of the relationship between concepts.

Vargas and Alvarez (1992) support the idea that concept maps can be useful for determining students' cognitive structuring of information and assessing how thorough an understanding they have of a topic. They believe that concept maps should be added as an evaluation tool to everyone's classroom assessment repertoire. These tools allows for a more accurate view of students learning and conceptual linkages. Mental modeling and semantic mapping allow for individual student differences in terms of rate of learning, prior knowledge and growth, developmental readiness, interest misconceptions and errors. (Fleener and Marek 1992)

Some students need assistance in learning how to group information. Fleener and Marek (1992) support the concept that

this clustering process will furnishes valuable information to the teacher revealing gaps or misconceptions in the students understanding. After the student forms word groups, the student can then provide category names for the headings. (Fleener and Marek 1992) Sinatra and Pizzo (1992) believe that when the map is completed, students can see how major ideas are related to subordinate ideas and how subordinate ideas contain factual information. They also advocate that using graphic organizers is a practical way to teach thinking and language development within the context of specific content course work. It allows a person to cover a topic in greater depth.

Sinatra and Pizzo (1992) believe that teachers can use listening, speaking, reading and writing (a whole language framework), rather than a question-and-answer format, to help students deep process and elaborate on content ideas. "Deep process" means that the students are encouraged, orally and in writing, to think deeply about and respond to the ideas in the text or in the writing exercise. This process is supported by Sinatra and Pizzo (1992) for the lazy and noninvolved readers to become more interested in the reading/writing ideas and to grasp a better understanding of the information.

Alvermann and Boothby in 1984 completed a study of twenty-four fourth grade students in a midwest city school district. They divided the group of children up into three groups. One experimental group received instruction on the use of graphic organizers for 14 days, another experimental group received

instruction on their use for 7 days, and the control group received no instruction at all on the use of organizers. Each of the groups were tested on the same three passages, which according to the Dale-Chall(1948) readability formula had a reading difficulty level of fifth grade. Instruction lasted over 14 class periods, each being twenty-five minutes in length.

This study revealed no significant difference between each of the three groups. All children seemed to do about the same on the on the end evaluation. The researcher did however, notice that there were some students who included their own unsolicited versions of an organizer. It is unfortunate that some of the information on the organizer did not show up in the child's written free recall as well. This implies that some of the students saw the importance of the organizer and were interested in and thought about many other facts about the passage than they felt was necessary to write on their written task.

Baum and Baum (1993) state that graphic organizers can be used to "develop critical and creative thinking skills so that they will address problems in the family, community and work environment in a way which improves life and strengthens families." Cassidy and Hossier (1992) support the theory that graphic organizers guide students to internalize important thinking skills. When given a single word or phrase, a student brainstorms all words or ideas associated with that word or phrase. (Fleener 1992)

"Creating new meaning requires the construction of new

propositions. The acquisition of new concepts is accomplished either by discovery, which is mainly the way young children acquire their first concepts and language, or by reception learning, which is the way school children and adults acquire most of their new meaning." (Novak 1991) Sinatra and Pizzo (1992) advocate that since many students have difficulty expressing relationships between ideas, a good technique to use is to provide students with a list of transition words and phrases appropriate to the organizational style of writing. These transition words may or may not be part of the organizer. The teacher should encourage students to present their own examples, either in writing or orally. This expressive task should require pupils to decide on a main idea and select appropriate examples to illustrate their main idea. In this way the skill is practiced and integrated into both receptive (reading and listening) and expressive (writing and speaking) language. (Grossen and Carnine 1992)

Beverly Lutze in 1994 completed a study concerning how graphic organizers might improve comprehension and summarization skills of developmental reading college students. Two developmental reading classes from a New Jersey community college were chosen for the study.

The students in the experimental group were shown the techniques of using the graphic organizer, webbing and mapping. These organizers gave the students the opportunity to visually display and see the relationships between the main idea, major

details and minor details. They were used as an after reading strategy to help the students with the summarization process. The experimental group also had the benefit of the teacher modeling and showing the first sample on the board followed by a class discussion of the value of the organizer.

Both the control group and the experimental group read the same stories and used other instructional materials that were the same and were taught by the same instructor.

The study lasted for fourteen weeks with the results indicating that there was no significant difference between the control group and the experimental group on the tests of written summarization. It did however, show that the learning disabled students did improve on their summarization skills, which was not revealed in the overall test results. Another favorable result of this study was that the students in the experimental group did indicate that they enjoyed completing the graphic organizers. They claimed it gave them something concrete to work with and said they felt as if they had more purpose and direction in their reading.

Recently, researchers have linked the reading and writing processes together. This is now known as the reading and writing connection. Using graphic organizers have helped children in both reading comprehension and writing because the procedure increases processing (Avery,1994). Both of these processes have certain steps that must be followed in order to have a successful outcome. Graphic organizers help the

children put things in a sequential order. Lehman (1992) believes that these organizers provide structure, organization, format and a place for the student to relate information to their personal experiences. Such a procedure is invaluable to the reading and writing processes.

Dunston (1992) in her article written for Reading Research and Instruction examined much of the research that has been done concerning graphic organizers. She believes that much more research needs to be done in this area.

Dunston (1992) feels that research does indicate that pre-reading graphic organizers do not function as intended with much success. The main problem with them, she states, is that the teacher/researcher constructed organizers appear to match the designers schema instead of the students. She suggests that in order for the organizer to match the students schemata, the student would have to create one on his/her own.

After evaluating some of the research on graphic organizers Dunston concludes that there is more positive findings that graphic organizers, as rereading and supplemental reading activities, improve comprehension skills. When graphic organizers are used in this manner, they are no longer teaching strategies, but rather learning strategies (Dunston 1992).

During the writing process the author must be able to state the topic and then support this topic with details. These supporting ideas must also be in sequential order. Flood and Lapp (1988) state that graphic organizers help the student

visualize the relationships between prior knowledge and the newly acquired knowledge. Graphic organizers are tools that can guide the students through the four stages of the writing process.

Sinatra and Pizzo (1992) advocate that map configurations will assist children who are weak in paragraphing. It helps them compose paragraphs to match the number of central ideas they perceive in the overall map whether it is in reading or writing. They also believe that writing about the mapped information strengthens the students understanding of the of information that is contained in the organizer. Washington (1989) states that each strand of a map is made up of a main idea and of supporting details. She advocates that each of these strands should make up a paragraph. Washington (1988) advocates that each of the category labels become the topic of the paragraph and that the details each support the topic. Grossen and Carnine (1992) state that good writers use examples sometimes from their prior knowledge,to illustrate and prove their main idea. A good reader works hard to find out what the author's main ideas are and uses the examples to help him or her understand the main idea.

"An important difference between good comprehenders and poor comprehenders is the ability to identify what the author considers to be important." (Winograd 1984). Sinatra (1986) states that when a map is used for writing, an improvement is noted concerning the quality and quantity of the children's

writing.

Moore and Readence in 1984 wrote a review of graphic organizer research for The Journal of Educational Research. In their article, they first explained that the main difference between graphic organizers and traditional outlines is that terms are not sequenced according to their presentation, but rather by their topic.

Moore and Readence (1984) used three main sources to identify graphic organizer research reports; Current Index to Journals in Education, Dissertation Abstracts, and the Educational Resources Information Center (ERIC) database.

There were 23 graphic organizer studies included in this review. The finding tell us that graphic organizers usually produce only a small effect on learning from text, but those effects can vary rather widely. The variety occurs when certain variables are compared.

Some of the general statements that Moore and Readence make in relation to graphic organizers and the studies are that there is evidence that they activate learners' prior knowledge, instructors believe that they are better organized and more in control of the learning activity. They also note that post organizers seem to produce greater effects than advance organizers do, probably due to student involvement. They conclude that graphic organizers affect both short and long term learning with a little more positive evidence toward long term learning.

On a whole this article attempted to correlate all the research concerning graphic organizers. It does agree on some of the advantages listed above, however Moore and Readence feel that more research is needed before more specific conclusions can be reached.

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Appendices

Appendix A

Holistic Experimental

	Pre-test	Post-test
Student 1	2	5
Student 2	3	4
Student 3	1	4
Student 4	1	2
Student 5		
Student 6	5	6
Student 7		
Student 8	4	4
Student 9	3	6
Student 10	2	4
Student 11	4	4
Student 12	3	5
Student 13		
Student 14	4	7
Student 15	5	4
Student 16	4	5
Student 17	2	3
Student 18		
Student 19	1	4
Student 20	3	3
Student 21	3	3
Student 22	2	3
Student 23		
Student 24		

Appendix B

Holistic Control

	Pre-test	Post-test
Student 1	7	6
Student 2	7	5
Student 3	5	5
Student 4	3	3
Student 5	6	6
Student 6	4	6
Student 7		
Student 8	2	2
Student 9	4	6
Student 10	4	3
Student 11	2	7
Student 12	5	7
Student 13	6	6
Student 14	5	6
Student 15		
Student 16		
Student 17	5	3
Student 18	4	4
Student 19	4	1
Student 20	2	4
Student 21	6	6
Student 22	4	4
Student 23	2	4
Student 24	5	6

Appendix C

Readability Experimental

	Pre-test	Post-test
Student 1	6	3
Student 2	3	3
Student 3	2	
Student 4	3	1
Student 5		
Student 6	3	1
Student 7		
Student 8	5	4
Student 9	9	1
Student 10	2	5
Student 11	7	3
Student 12	4	1
Student 13		
Student 14	6	4
Student 15	2	2
Student 16	7	3
Student 17	4	3
Student 18		
Student 19	1	1
Student 20	3	4
Student 21	2	1
Student 22	5	3
Student 23		

Appendix D

Readability Control

	Pre-test	Post-test
Student 1	2	2
Student 2	1	1
Student 3	7	1
Student 4	1	4
Student 5	6	1
Student 6	3	2
Student 7		
Student 8	4	2
Student 9	3	1
Student 10	2	6
Student 11	1	4
Student 12	6	3
Student 13	2	5
Student 14	1	1
Student 15		
Student 16		
Student 17	3	2
Student 18	4	3
Student 19	4	3
Student 20	3	1
Student 21	1	3
Student 22	4	2
Student 23	3	2
Student 24	4	2