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Using Non-Fiction Conventions to Improve Expository Reading in 6* Grade History

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Using Non-Fiction Conventions to Improve Expository Reading in 6th Grade History
by
Annie Whitlock
December 2007

Master's Thesis
Submitted to the
Graduate Faculty of the College of Education
At Grand Valley State University
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Annie Whitlock
Abstract

Students often have very little experience with textbooks before they reach the middle and upper grades. Teachers of content areas in these grades also have very little resources available to help these students. In this study, a curriculum was developed to teach specific non-fiction conventions to 6th grade students in a history classroom. The purpose of the study was to test the hypothesis that this developed curriculum would positively impact these students' abilities to use non-fiction conventions while reading their textbook. The results of the study revealed that after being taught the developed curriculum, the students made improvements and showed growth in their knowledge and use of these conventions, as measured by a pre-post test. This thesis discusses these results and the effectiveness of the curriculum in order to help teachers understand how to improve expository reading skills of their students.
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CHAPTER 1: THESIS PROPOSAL

Problem Statement

The Grade Level Content Expectations for sixth grade social studies require the sixth grade students to study the geography and history of the Western Hemisphere through the use of informational text—more specifically, their geography textbook. Many students at this age and developmental level have had little experience with informational text. This study involves using a curriculum specifically developed for Spartan Academy students to see if it effectively helps sixth grade students understand patterns (or conventions) in non-fiction text in order to better comprehend informational text.

Spartan Academy does not have a specific curriculum available for teachers to use specifically for preparing students to learn subject area information in content textbooks. Students are expected to know how to navigate a textbook by sixth grade, but Spartan Academy does not have history textbooks to use in lower grades. Sixth grade is the first time students come into contact with a history textbook. The curriculum developed will give teachers clear lesson plans and ideas on how to introduce textbook reading to these new middle school students. Furthermore, the curriculum will be such that it will easily transfer to other content textbooks such as science or math. The purpose of this research study is to verify that the unit developed does impact and improve the students' knowledge of conventions of non-fiction text.
Importance of the problem and Rationale for the Study

Learning how to read non-fiction effectively is not a skill a student will use only in school. Being able to read non-fiction will help students be able to navigate the Internet for the use of gathering information and will be helpful in future education as most secondary courses use textbook and reference books. Students can also use their knowledge of certain non-fiction conventions to read a newspaper. Being able to understand graphs, tables, and maps in newspapers will enable students to be more knowledgeable of their country and their world. Gathering understanding from non-fiction text is a skill that can be transferred out of the classroom and into the real world.

Studies have shown that students are not getting enough specific instruction on non-fiction text. This is partly due to the lack of resources available for teachers on teaching content-area comprehension. In a study done by Spor and Schneider (1999) on content area strategies in the classroom, teachers were surveyed on their use of strategies, how frequently they use them, and what they feel is hindering their use of strategies. In this study, 50% of teachers surveyed said that textbooks are the primary source of content information for students. This just shows how important it is for students to learn how to read textbooks effectively.

However, many teachers felt that content area strategies, which would include direct instruction on non-fiction conventions, are not widely known and that educators in their schools are not familiar with many of the specific strategies listed in the survey. Only 33% of teachers surveyed said that professional development at their
school provides them with strategy ideas. Research has also shown that even though teachers may have learned comprehension strategies in their college courses, the actual application of these strategies are hindered by other classroom factors and obligations that teachers face (Bean 2001). It is clear that teachers do not have a clear curriculum to help them improve content area reading comprehension for their students. One of the goals for the non-fiction convention curriculum is to have it be shared with colleagues. The curriculum could be easily taught across subject areas in history, science, and math.

Current national requirements as part of the No Child Left Behind Act of 2001 place a heavy emphasis on standardized tests. At the state level, the social studies MEAP test is given in sixth grade. This is the only time students are tested on social studies in their elementary/middle school years. On the sixth grade social studies MEAP test given in the 2006-2007 school year, students were required to read maps, analyze data, and write an opinion piece based on this information. Since the MEAP is now being given to middle school students within the first month of the school year, it is most important that students are exposed to maps, charts, tables, graphs, and expository writing earlier in the year in order to be successful on these tests. The curriculum being tested in this study is to be used as the introductory unit of the 6th grade school year, thus helpful to students as they take the MEAP test during month two of the academic year.

In the past, Spartan students have not performed well on this test. According to school-wide data from the fall of 2006, Spartan students struggled with reading
bar graphs and tables, both in the social studies and the math MEAP tests. Students had trouble with expressing themselves in writing an expository piece about constitutional rights. Across the board, reading comprehension was low among all grades and in all subjects, including the content areas.

The importance on students to be great readers of non-fiction is evident. As students progress through their lives, reading for information is key to being a successful student and an informed citizen. It has also been proven that teachers need a clear curriculum to address this weakness. This research study proposes to determine if the curriculum developed by the principal investigator is effective for improving students' knowledge of non-fiction conventions.

Background of the Problem

The problem of finding the best way to teach students how to be more effective readers of informational text has been around for decades.

Reading for information was important in ancient civilizations such as Egypt and Mesopotamia. Scribes kept track of the calendar, finances, and descriptions of war battles. In 1250, the first library catalog system was created in order to organize the growing amount of informational text. However, at this point, only those with the highest status in society were able to access this information. The invention of the printing press in 1454 made informational text available to the masses. With this came the issue of the best way to use informational text in education (Manguel, 1996).

In the early 1900s, content area reading involved memorizing texts for recitation. Only a few researchers of the time, Edmund Burke Huey and E.L.
Thorndike, were interested in studying comprehension (Bean, 2000). In 1925, a reading educator named William Gray was the first to develop the idea that reading was essential in every subject, including the content areas. He was the first to note that student achievement was poor in these content areas without proper reading comprehension instruction. By 1934, there was the first attempt at research done to integrate specific study strategies involving reading into the content areas. This approach was common throughout the 1940s through the 1960s (Vacca, 2002).

However, by the 1980s, researchers admitted that not much was known about what students actually learn from textbooks. Educators were clueless about what exactly should be taught in social studies and where reading comprehension could fit (Shaver, 1987).

More progress on this topic was made in the 1990s. Caverly, Mandeville, and Nicholson (1995), the developers of the PLAN strategy, say that students tackle informational text the same way as they've learned how to read narrative text. Up until the formative sixth grade year in school, students have mostly been exposed to narrative text through read-alouds, chapter books, etc. As students get more exposure to the content areas in school, an emphasis on reading to learn is a skill that is new to many of them. Caverly, et al. say that students should not read “all texts as if they are structured the same way”, when in fact, narrative and expository texts each have their distinct characteristics (pg 190).

In their book, Strategies That Work, Harvey and Goudvis (1999) use the strategy of the “Non-Fiction Convention Notebook” in order to better teach students
comprehension skills for informational text. Because each activity has a set time limit (one day), this gives students a sense of routine, but also keeps them from getting bored with learning the skills.

Gathering meaning from textbooks and other non-fiction text has been a struggle for students for many years. Students need to be taught that fiction text and non-fiction text have different strategies for comprehension. Teaching students about the specific patterns of their textbook could be an effective way to show these differences and eventually lead to enhanced comprehension of non-fiction.

Statement of Purpose

The purpose of this study is to determine the impact of a curriculum unit developed to help students become familiar with patterns and characteristics of non-fiction text. In order to determine the impact of the instructional unit of study, an invalidated pre / post instruction measurement test pair will be administered to enrolled subjects. The curriculum was developed to supplement the current sixth grade social studies curriculum at Spartan Academy, with the goal of improving the knowledge of non-fiction conventions using the textbook that is issued to sixth grade students at Spartan.

Research questions

This research study proposes to answer the research question: Will the developed non-fiction curriculum improve the 6th grade students’ ability to use these strategies while reading social studies text as measured by a change in scores of a pre-post test?
Further questions can be asked in relation to the main research question: 1) Will the developed curriculum improve students’ interpretation of maps? 2) Will the developed curriculum improve students’ ability to gather the main idea of a non-fiction passage using captions and text? 3) Will the developed curriculum improve students’ interpretation of data using graphs? 4) Will the developed curriculum improve students’ vocabulary by finding definitions of bold words within the context of a passage? 5) Will the developed curriculum improve the students’ knowledge of appendixes (glossary and index) and how they are helpful textbook aids?

Hypotheses

The hypothesis of this study is that teaching the developed curriculum unit on non-fiction conventions will positively impact student learning on how to use this knowledge when reading their textbook. This includes 1) students’ ability to interpret maps and data from graphs, 2) stating the main idea of a non-fiction passage using captions and headings, 3) students’ ability to interpret data from graphs, 4) improving knowledge of content area vocabulary strategies, and 5) broadening knowledge of textbook aids such as the glossary and index.

Methods

This study uses quantitative methods to gather data in the pursuit of confirming a hypothesis concerning the usefulness of a specific curriculum for improving 6th grade student’s use of textbooks within content areas.
Design

The use of a pre-post test is deemed appropriate for this study in order to establish the effectiveness of this curriculum. The pre-post test was developed specifically for this curriculum and has not been used in former research.

Subjects

The developed curriculum and pre-post test will be administered to all 6th grade students enrolled in 6th grade history at Spartan Academy.

Procedures

The investigator will administer the pre test to all 6th grade students enrolled in 6th grade history at Spartan Academy and then teach the unit of study. After the unit is completed, the investigator will administer the post test to all 6th grade students. The subset of data will be analyzed based on parent and student consent for use in the research. Throughout this study, all subjects will remain confidential.

Analysis

The analyses consist of categorical coding of data, frequency counts of coding, and use of two-tailed paired t-tests. These procedures are used to analyze the data, present results and conclusions, and answer hypotheses about the use of a specific curriculum unit of study.

Definition of Terms

Comprehension - gaining understanding and making meaning of what is read

Content Area - a subject area that is not language arts, including math, social studies, and science. In this study, the content area of focus is social studies.
Conventions- characteristics that occur frequently in non-fiction or expository text. The developed curriculum measures student knowledge of maps, graphs, captions, headings, the glossary, bold words, and the index.

Expository Text- writing that is explanatory in nature, non-fiction, and often found in content areas.

GLCEs (Grade Level Content Expectations)- expectations of learning content that every sixth grade student must meet in social studies of their sixth grade year.

Strategy- a plan or method for improving one's understanding or comprehension of something.

Delimitations of the Study

This curriculum is designed specifically for sixth grade students, which may limit its use or effectiveness in other grade levels. More specifically, this curriculum is designed for Spartan Academy's sixth graders for use with their sixth grade textbook, Geography: A World and its People, Western Hemisphere from Glencoe Publishing Company (2005). This may limit its use to other school districts and textbooks. Also, the curriculum will be centered on social studies, and will require some adaptations to be used in science or math.

The developed curriculum has lessons designed to teach students how to use specific conventions chosen by the principal investigator as weak areas for the students at Spartan Academy. The unit of study will only focus on captions, headings, graphs, maps, bold words, the glossary, and the index, which excludes many other non-fiction conventions that could be effective for improving reading comprehension.
This curriculum is taught at the beginning of the students’ 6th grade year as an introductory unit, which may limit the effectiveness of the unit due to maturity levels of the students. This unit focuses on whole group and small group instruction as well as individual work.

This curriculum is designed to be taught over the course of three weeks. Because students will be assessed on how well they have grasped the unit immediately after it has been taught, there are limitations to assessing how effective the curriculum will be throughout the year and in future years. At the earliest, the true effectiveness of the program won’t be known until near the end of the year in which it is introduced.

Limitations of the Study

There are a few limitations of the study that are beyond the control of the principal investigator.

*Mortality*

Students and parents may elect to not participate in the study, which would affect the data analysis by giving the study a smaller group to test. Students may withdraw from Spartan Academy during the process of teaching the curriculum.

*Subject characteristics*

No special considerations or accommodations will be made for students receiving special education services, which could negatively impact the results of the study. The academic ability and prior knowledge of the 6th grade students is beyond the control of the primary investigator.
Location

Because the teaching of the curriculum for purposes of this study is taking place in a normal classroom setting, the teaching of the unit (including the pre-post test) is subject to various interruptions or distractions during the school day and the school week. During the three weeks that this unit will be taught, the students will be leaving Spartan for three days of 6th grade camp, which could have a negative impact on their ability to retain what they have learned over their short break.

Attitude and maturation of subjects

Although engagement of all students is preferred when teaching any unit of study, the primary investigator can not control completely the behaviors of students when working in small groups. The study will be limited if students choose not to complete the required homework assignments or choose not to participate in class instruction and work time.

Instrumentation

With the use of a pre-test in this study, a "practice effect" may occur where the 6th grade students are responding differently to the curriculum after being exposed to the assessment questions during the pre-test.

Organization of the Study

The study and its results can be found in greater detail throughout this thesis document. In Chapter Two, other similar studies on the topic of content area reading will be discussed and reviewed. The design and details of the study, including descriptions of the subjects, methodology for analysis, and instruments involved can
be found in Chapter Three. Chapter Four will include the results of the data analysis, and Chapter Five will feature conclusions that can be drawn about the confirmation or disconfirmation of the hypotheses from the data, along with implications for further research and recommendations for teachers.

All references cited in this document are in the References section. Copies of the administration and parental permission letters for the study, the pre/post test, and developed curriculum activities can be found in the Appendix, as well as more detailed descriptions of the data analysis results.
CHAPTER TWO: LITERATURE REVIEW

Like many middle school students across the country, the 6th grade students at Spartan Academy have had very little experience with informational text. By testing a previously developed curriculum, this study hopes to show that direct instruction on conventions of non-fiction text is an effective way to improve students’ knowledge of non-fiction patterns.

In this chapter, literature on the differences between teaching and learning fiction and non-fiction will be reviewed. In the field of history, there is a debate over whether non-fiction text should even be used at all, with much of the literature agreeing that primary sources should be the integral part of content area reading. Specific to the developed curriculum, literature on best practices used in the teaching of the non-fiction conventions unit will be discussed. Finally, literature on teaching specific conventions (maps, graphs, headings, captions, and appendixes) will be explained.

Using Textbooks in the Classroom

Perhaps one of the biggest issues facing the use of textbooks in the classroom is the lack of using textbooks in the classroom. The students at Spartan Academy are not the only students in the country that are not experiencing informational text. In a study by Duke (2000), observations were done in a first grade classroom to determine how many minutes per day were spent using informational text. Observations revealed that there was a severe lack of informational text in the primary grade.
classroom. Informational text was scarce among classroom libraries, read-alouds, environmental print, and even in the content areas of social studies and science.

Maybe the lack of experience with expository text is what causes many students to have a negative attitude toward textbooks. Studies have shown that many students dismiss their textbooks as an important source of information, citing poor organization and uninteresting topics (Vacca & Vacca, 2007). A study by Bain (2006) agrees with this assessment. Bain gave his high school history students a research assignment with many different sources of information to use to research the topic of the bubonic plague, including their textbook. Bain found that even though many of his students were challenged by the assignment, none of his students chose to use their textbook to help solve the problem and the question.

One particular group of students that have problems with comprehending textbooks is learning disabled students. In many cases, textbooks are not geared toward the lower-level reader. Readability studies reflect that textbooks often have “short, disconnected sentences”, making them difficult to understand by learning disabled students (Harniss, Dickson, Kinder, & Hollenbeck, 2001). Sadly, reading support for learning disabled students drops off at the middle school and high school level, leaving many students alone with comprehending content area text (Zigmond, 2006).

Studies have been done to explore why students have such difficulty with comprehending informational text. Many researchers cite the fact that non-fiction and informational text have specific characteristics that are new and alien to most students.
For example, expository text has specific text structure that may be new to students. Students need to learn how to adjust their reading techniques when faced with an unfamiliar organization of text, such as comparison/contrast (Stephens & Brown, 2000). Calfee and Drum (1986) agree, saying that “the purpose for reading [non-fiction text] must... be considered before comprehension itself can be defined” (p.835). Calfee and Drum also state that informational text requires students to alter their “mental structure” (p.835). Vacca (2002), however, takes a slightly different approach. According to his research, there are skills that are unique only to certain subject areas, even differentiating between social studies, science, and math. Vacca concludes that when given direct instruction in the organization of these texts, students can improve their learning in that content area, despite all of the obstacles that may be in their way.

The literature suggests that the best way to get students on board with learning as much information as they can from their textbooks is to have teachers change their mindset and approach to teaching non-fiction. Many teachers assume that once a student has learned to read, that they can complete any reading task asked of them. Teachers themselves don’t often think about the complex thinking processes that go into reading expository text as opposed to narrative (Stephens & Brown, 2000). In reality, students have little knowledge of the differences between narrative and expository text. Middle school students, especially, are unable to switch their reading process and connect informational text with prior knowledge. In a sense, they are reading every kind of text they experience the same way (Caverly, Mandeville, &
Nicholson, 1995). In a study by Hite (2004), when testing the reading comprehension of various groups differing in cognitive style (field independent or field dependent), middle school students that had similar reading ability differed in comprehension of expository text more so than they differed on narrative text. This shows that there is a distinct population of students that have a lack of strategies on how to read expository text.

It is no surprise that students are not always interested in reading textbooks, or find them too difficult or confusing to read. This stems from the fact that students are very rarely exposed to informational text before middle school. Once the students get to middle school, there seems to be very little instruction on how to navigate and comprehend this new material. In the content area of social studies, another issue arises—should textbooks even be used at all?

Primary Sources or Textbooks?

Sadly, many students have a poor attitude toward the subject of history. Many researchers have observed that students find history boring because “facts rather than ideas are emphasized.” (Armento, 1986, p. 944). Bain (2006) agrees, saying teachers are also not excited about using textbooks in the classroom, even though it tends to be the center of their curriculum. Perhaps teachers should be looking to teach history as something more than teaching facts and dates. It would be ideal if students stopped looking at their textbook as a regurgitation of meaningless facts, and instead read their textbooks for deeper meaning and understanding. The problem is that many students and teachers do not know a way to achieve this.
Despite the negative attitudes toward the textbook, the textbook remains one of the only sources of information in the history classroom. 44% of 12th-grade history students read from a textbook every day (Bain, 2006). Shaver (1987) goes as far as to say that teachers are not planning with objectives in mind, instead they are content-focused, organizing their courses through the textbooks. Answering questions at the end of each chapter seems to be the only way to assess knowledge of content.

There are many reasons for this dependence on textbooks. Teaching directly from the book is more comfortable for teachers who have little experience with the content. Many teachers find it more practical to use resources that are readily available. For many schools, textbooks have cost schools and districts thousands of dollars. Teachers may feel like they have an obligation to use the textbooks for economic reasons. However, many teachers feel like the content is best delivered in textbook format (Stephens & Brown, 2000).

That last reason is what causes much opposition from history educators who believe that teaching history through primary sources is the best way to pass on content to students. Research has shown that primary source documents, such as journal entries, letters, photographs, and telegrams lend an “air of authenticity” to history and makes the content “come alive” for students (Harvey & Goudvis, 2007, p.165).

In a study done in a high school classroom, observations were completed on what types of texts the students used to learn history content. Several observations were made of students using the Internet to look at primary sources. More importantly
perhaps, the students reported "having fun" looking at "crazy laws" to learn civics. These same students reported reading from their textbook 1.7% of the time during the recorded observations. These teachers appear to only use the classroom textbook as a supplement to their primary sources (Zigmond, 2006).

A problem with the primary source based classroom is that teachers are perpetuating the problem of students having a lack of experience with true informational text. The more experience a student can have with informational text, the more they are able to strategically read informational text they encounter in high school, college, and in their adulthood (Yopp & Yopp, 2006). Teachers are role models for students, and according to research by Yopp & Yopp, very little informational text is read aloud to younger students in the primary grades, leaving these same student disinterested in informational text and inexperienced with the format by the time they reach middle school.

Like it or not, textbooks are the main focus of the classroom experience in secondary grades and students should have experience with analyzing textbooks to learn the content (Bain, 2006). However, primary sources are engaging for students. Many teachers are bridging this gap by using multiple texts and sources in the history classroom.

According to Bean (2000), "history is the story of events depicted in historical documents" (p. 641). However, Bean believes that in order for students to better be able to analyze primary sources, they need experiences with informational text. Bean believes that intermixing both primary sources and textbooks still "has the advantage
of capturing student interest because each text is a novel representation of an event” (p. 641).

In their book *Strategies at Work*, Harvey and Goudvis (2007) promote the use of a “multisource, multigenre curriculum” (p. 234) to teach the content area subjects. These authors believe that textbooks are most effective when they are surrounded by a variety of primary sources. Harvey and Goudvis believe that the best way to relieve the tensions that students have toward textbooks is to “dip in and dip out” (p. 235) of textbooks to gather summaries and important information as opposed to making the textbook the center of the history curriculum.

So the great debate rages on over whether textbooks or primary sources should be the main source of content in the classroom. If students rely only on primary sources, they lack the experience necessary to analyze and comprehend informational text. If teachers base their entire curriculum on the textbook, students lose interest. The best method of getting content across to students seems to use a variety of sources, both primary and secondary. Still, however, the textbook should remain part of the process.

Best Practices in Teaching Non-Fiction Conventions

The research study described in this thesis set out to measure the effectiveness of teaching a unit on the conventions or patterns of non-fiction. When developing a curriculum to teach conventions, best practices in teaching were considered.

The finished curriculum features whole group activities with direct instruction on non-fiction conventions and modeling of how to use the conventions. According to
the cognitive learning theory, as well as the schema theory, good instruction occurs when students are able to relate the knowledge they learn to something in their long-term memory (Grider, 1993). According to Perry (2001), information is hierarchically organized and students can only find meaning in new information when they can relate the information to what they already know. The direct instruction featured in the developed curriculum recognizes this cognitive learning theory through modeling. Each convention is taught by trying to connect the information to each learner's prior knowledge.

Students were also given opportunities to work in collaborative small groups for guided practice with these skills. This directly relates to the social constructivist theory. Since learning in small groups is a large part of this developed curriculum, social constructivism becomes the guiding theory behind this study. According to this theory, knowledge is developed through interacting with others in a social setting, such as a small group. The idea is that knowledge is constructed through others and that the students can help each other process the new knowledge. (McCarthey & Raphael, 1998). Throughout this study, students are constantly working with others and sharing ideas with their classmates in a large group setting as well as a small group.

Significant research has been done on these instructional methods and is reviewed in this section.
Direct Instruction

In the 2002 national report card on reading, created by the NAEP, research suggested that 25% of 8th grade students read below a basic level (Reis et al., 2007). Research has shown that a direct instructional reading program can increase fluency in order to prepare these students for more challenging academics in high school (Reis et al., 2007). Direct instruction is also frequently used to improve reading comprehension. Teachers often explicitly teach students reading comprehension strategies in order to better improve their metacognition on when to use the strategies (Vacca, 2002). Research has even been done to prove that direct instruction is preferred over the jigsaw method. A study on the jigsaw method proved that students learn more in direct instruction from the teacher rather than their fellow classmates (Hannze, 2007).

Direct instruction is proven to be especially effective when teaching textbook skills. Harvey and Goudvis (2007), authors of Strategies That Work, believe that if teachers “send kids off to read textbooks without teaching them how, they don’t get much out of them” (p. 236). Direct instruction on textbook conventions may seem time consuming, but can be very beneficial. Standal & Betza (1990) agree, saying that even one or two days of direct instruction on using the textbook can be enough to help students. Standal & Betza look at the textbook as a teaching tool. As with any tool, the user needs to be explicitly taught how to use it in order to be successful.

Middle school students especially can benefit from direct instruction on textbooks conventions. According to Ivey & Broaddus (2000), middle school students
are often left out of reading instruction and don’t get the chance to have access to varied reading materials. They believe that middle school students need direct instruction in how to learn from informational text that they may encounter. In research done by Taylor & Beach (1984), middle school students were successful in creating summaries of their social studies text after they had received direct instruction on how to recognize headings in their textbook and transfer that knowledge to writing. Direct instruction on textbook skills can even be beneficial when teaching about the structure of the text. It has been proven that direct instruction on text structure can help students organize information, comprehend text, and even use this knowledge in informational writing (Harniss et al., 2001).

**Modeling**

Modeling is a key part of a direct instructional method. Explicit, direct instruction involves the teacher showing the students how to use the textbook tool. Modeling can be especially effective when teaching students how to get meaning out of content area vocabulary. In research by Armbruster & Nagy (1992), they claim that teaching students how to derive meaning from text and giving them vocabulary strategies can help them truly become independent learners.

Modeling comprehension strategies are frequently cited in research as a skill that effective teachers exhibit in their classrooms. In a survey of effective primary grade teachers in K-2nd grades done by Pressley, Rankin, & Yokoi (1996), these great teachers reported modeling comprehension strategies to their students several times a week. Although the questions on this particular survey focused more on instruction of
narrative text, it still shows that modeling is a key component to effective literacy instruction.

Another survey by Parris and Block (2007) focused on secondary teachers and what characteristics make an effective literacy teacher in the middle and high school grades. According to this survey, modeling is listed as a characteristic of effective teachers. More specifically, this research mentions that effective literacy teachers of adolescents model how to read a variety of genres, not just fiction. Parris & Block (2007) also mention that many content area teachers do not have the knowledge of strategies to help students work their way through difficult informational text. This survey was done to help those inexperienced teachers learn the important steps to becoming a great literacy teacher in the secondary grades.

More research (Smolkin & Donovan, 2001) shows that modeling of comprehension strategies is an important part of classroom instruction, but that teachers have abandoned the direct teaching of strategies for a variety of reasons, such as lack of time, or because some teachers don’t see this explicit modeling of strategies as part of a “whole language” classroom. With respect to having a whole language classroom where skills are taught in context, the Smolkin & Donovan study (2001) observed a first-grade teacher as she used informational texts as her read-aloud time in her classroom and used that opportunity to model comprehension strategies. The results of this study showed that modeling is not complete unless it is integrated within the context of reading. It is not enough for the teacher to just model a strategy, but to model by showing *themselves* using the strategy while reading informational
text. This appeals to the cognitive learning approach as it shows that students can be taught how to connect new information with their prior knowledge if they see their teacher modeling how to do this.

**Guided Practice**

Once students have learned a new textbook convention or skill, they need to have a chance to practice using their textbook in this new way. When learning any new skill, teachers need to scaffold their students into being able to use or perform this skill independently.

In the past, teachers have taught a new skill to a class using whole group instruction, and then immediately moved to having the students practice this new skill independently. Students were often frustrated, and teachers did not get an accurate picture of whether their students had truly mastered the skill taught (Golden, Gersten, & Woodward, 1990). Guided practice can help lead the students toward independent work. In a study by Golden, Gersten, & Woodward, two groups of middle school students participated in a study were one group was not given time for guided practice, and one group was given an extra set of practice questions through a computer system before practicing a new literacy skill independently. The results of this study were mixed. On less demanding and familiar comprehension strategy skills, guided practice did not seem to make much difference between the two groups. However, when students were given time for guided practice before answering comprehension questions involving inferences or other complex comprehension strategies, the guided practice group performed very well. This study proves that guided practice is most
beneficial when giving instruction in newer or more complex skills. Certainly, the teaching of textbook conventions, when many students have had such little experience with informational text, could be considered a new and complex comprehension strategy.

Learning from a textbook lends itself well to using guided practice to help student understanding. Caverly, Mandeville, & Nicholson (1995) suggest using graphic organizers to help guide students in using text structure. Using graphic organizers as a means for guided practice can be helpful for learning disabled students as well. In a study done by Hudson (1997), teacher guided practice, or TGP, was proven to be a very effective instructional method for the learning disabled. When the students were given the chance to practice the new skill or strategy learned during whole group lecture, learning disabled students improved their test performance (Hudson, 1997). In addition to graphic organizers, questioning techniques used by teachers during the guided practice stage can truly help these students retain content information, further supporting the cognitive learning theory.

**Collaborative Small Groups**

To some teachers, collaborative, small group instruction can not exist in the same classroom as direct instruction. To many, having students work in groups to obtain knowledge is a classroom management challenge, not to mention that teachers are wary that students are really learning from each other. In a study done by Hannze (2007) over the effectiveness of the jigsaw method, it was proven that students actually learn better from the teacher as opposed to other classmates. In the jigsaw
method, students become experts on a topic and then teach the other classmates in small groups. Hannze believed that the students were getting less information from their peers than the teacher, but this study misses the key component of the social constructivist theory in that students are learning from each other when working in a social setting. Despite Hannze's views on small group instruction, when done right, it can be a very effective instructional method in learning social studies content and textbook conventions.

Research has been done on the effects of small group instruction with urban, Hispanic, middle school students, similar to the population at Spartan Academy. In a study by Lampe & Rooze (1994), groups of Hispanic, urban students were exposed to learning through collaborative groups and through "traditional methods", including lecture and independent seatwork. The group that learned through the collaborative approach showed growth in achievement, participation, and self-esteem in both males and females. This research, more so than the Hannze (2007) study, shows the positive effects of collaborative small group work and takes a more social constructivist approach. Not only are the students learning content here, but Lampe & Rooze show that the students' emotional needs for self-acceptance and confidence are met in this approach.

Collaborative groups are also effective in teaching content area skills specific to social studies, including making maps. Leinhardt, Stainton, & Bausmith (1998), completed research where students were asked to create a map in groups as opposed to reading and interpreting maps on their own. This constructivist approach worked
well because students were forced to talk about their task and use higher-order thinking skills to reason and determine the best way to create their maps.

Eventually, students will have to demonstrate on their own the new skills they have learned. Research shows that combining the independent practice of homework with small group instruction, can actually enhance the small group learning experience even more for students. A study by Foyle (1990) had a similar research goal to the study done by Lampe & Rooze (1994). In looking through studies on cooperative learning, Foyle found that in 82% of the studies, cooperative learning groups were proven to be a more successful instructional method than “traditional methods.” Foyle’s study specifically proved that adding homework and independent practice to small group instruction increased student achievement more so than either method did without the addition of independent practice.

The practices presented in this section used in the developed curriculum for teaching non-fiction conventions have been proven to be the most effective for improving student achievement for any skill. The curriculum developed for this study mixes the idea of having students socially construct their learning through working with peers, with the cognitive learning theory of connecting what they have learned to their prior knowledge through use of teacher direct instruction. Direct instruction and modeling, mixed with teacher guided practice and small group collaborative learning, when done well, can be a very effective way to teach textbook conventions.
Teaching Non-Fiction Conventions

Organization is very important when reading textbooks. The external structure of texts, such as headings, captions, maps, and Appendixes help guide the reader through the information presented in the text (Vacca & Vacca, 2007). The text features can help scaffold the less-experienced readers and help them synthesize information for more detailed comprehension. Taking the time to review the conventions of textbooks with students helps them determine what is important in their text to better understand what they are reading (Harvey & Goudvis, 2007). In this section, research is reviewed about the importance of teaching non-fiction conventions.

Captions

Social studies textbooks are often filled with exciting, colorful photographs of far-off cultures and places. Sadly, many times these pictures are overlooked by students and teachers as just a pretty dressing to a page of information. However, captions attached to photographs can be a great way to summarize and synthesize information on the page for students (Harvey & Goudvis, 2007).

Teaching students to look at photographs also appeals to the visual learner. Images shown in textbooks can spark a class discussion, present familiar concepts in new, unfamiliar ways, and can mix prior knowledge with content. Having students create their own captions is a great writing prompt and a good way for students to practice summarization (Stephens & Brown, 2000).
Headings

Research by Harniss et al. (2001) has shown that the structure and organization of a textbook may be a big indicator of its degree of difficulty. In their article, Harniss et al. discussed current concerns with history textbooks and offered suggestions for both students and teachers of ways to improve knowledge of history concepts and retain informational text for meaning. One of the concerns mentioned in the article dealt with readability of textbooks. According to Harniss et al., if a textbook is poorly organized, students will have a hard time with comprehension. When textbooks use headings and subheadings to organize information, students can better understand what they are reading. Teachers need to make sure their students understand that this organizational technique is there and available to help them. Showing students several examples of textbooks that are well organized can help them connect the new content area concepts that they are learning.

Using headings can also be a helpful preview technique so students can get an idea of what the section is about before they read it. If a textbook is well-organized with headings and subheadings, students are able to quickly breeze through the section in their textbook to get a feel for what they are about to read (Standal & Betza, 1990).

Students have to know how to use and recognize this organizational style in order for it to help them with non-fiction comprehension. A research study by Taylor & Beach (1984) revealed that sixth grade students who were sensitive to text structure had better delayed recall of expository text passages. In this study, a group of students

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were taught history concepts by reading through their classroom text and answering discussion questions. Another group had instruction in a hierarchal summary procedure involving summarizing what was read by using the organization of headings within the text. A control group received no special instruction at all. As a result, Taylor & Beach (1984) determined that students that learned how to summarize text with the help of headings had better memory for content area textbook material. These same students even showed improvement in their expository writing.

Maps

A big part of social studies textbooks is the many different types of maps featured in their pages. Maps feature so much content that can be underutilized if students do not know how to read and interpret maps. Learning to read a map involves very complex inferencing skills (Leinhardt, Stainton, & Bausmith, 1998). It goes beyond reading the names of locations on a page, but involves using data within the map to make generalizations about the area shown. Before asking students to make inferences, students need to know how to read the data on the map. Direct instruction on map symbols and scale must be taught before maps can really be an effective tool for comprehension (Harniss et al, 2001).

Once students have mastered the basic skills of map reading, what is the best way for them to make the subtle inferences that are needed for true comprehension? One study by Leinhardt, Stainton, & Bausmith (1998) suggest that having students work in collaborative groups to create a map of their own is the best way to teach
map reading. In this study, a group of students that worked individually on creating a map, and a group of students that worked together to create a map took a geography test after finishing their maps. The test showed that the students that worked in small groups to create the map scored better on the geography test. According to Leinhardt, Stainton, & Bausmith, these students performed better on the test because they had the opportunity to talk about map concepts with others, plan, and evaluate their own work. Coming from a true social constructivist perspective, working together with others engages the students by giving them control over their learning. At a very general level, it can help students form an appreciation for maps and the content they can learn from them.

**Bold words**

In most content-area textbooks, there is a certain set of vocabulary that is specific to a particular topic. Textbooks often highlight these important vocabulary words within the text, with these same bold words appearing in the textbook glossary. A very big part of content area reading is the vast amount of new vocabulary a student is required to learn with each section they read. Content area vocabulary is different from vocabulary in narrative text because if students do not understand what they are reading in a social studies textbook, they will not understand the social studies concept. Narrative text lends itself more for students to use context clues to grasp the meaning of words.

According to Harniss et al (2001), textbooks introduce “1 to 1.5 specialized, text-identified, new vocabulary words on each page, in addition to the words that
teachers might feel need to be taught” (p. 132). This is a problem for students who are already struggling to comprehend informational text.

In vocabulary research done by Graves & Watts-Taffe (2002), they write that vocabulary instruction is effective when students have multiple encounters with new words. Teaching students to make note of these bold words gives them importance. If the students know they are important to learning the content, they will be able to see the importance in practicing these new words.

Students also need explicit instruction in how to use context clues to pick up meanings of new vocabulary words. Often textbooks have specific patterns for revealing the definitions of bold words right in the text. Students need to be taught how to use the other words in the text to better understand the bold words (Graves & Watts-Taffe, 2002).

*Appendixes*

Perhaps the most overlooked group of non-fiction conventions is the appendixes. Even though they are tucked in the back of the textbook, the index and the glossary are important tools for students to comprehend their text.

Standal & Betza (1990) relate using an index correctly to having “skillful use of...a survival skill” (p. 23). Using an index can help students locate information quickly and help them pursue topics of interest. However, the index is not very well known or understood by students (Standal & Betza, 1990).

A glossary is also a very valuable resource for students. Because a glossary defines bold words as they are used in that specific text, a glossary has immediate
value for students (Standal & Betza, 1990). Simply, the glossary explains new vocabulary words in the same context that the students will need to know them for reading the textbook.

Appendixes should not be overlooked by students or teachers. Showing students that there are resources there to help them should help ease the anxiety many students have toward textbook reading.

Summary

Middle school students have had very little experience with using the textbooks they’ve been assigned to read in their content area classes. This lack of experience with non-fiction prevents them from recognizing that textbooks need to be read and comprehended differently than fiction. Research shows that teachers need help with teaching these students comprehension strategies with non-fiction.

Many social studies teachers, however, debate whether or not textbooks should even be used at all in the classroom, instead preferring to expose their students to primary source documents only. Although primary source documents may be more interesting for students, research proved that the best way to teach social studies is to use a mix of primary sources and textbooks, so students get those important experiences with informational text.

Literature on the best practices of teaching was also reviewed. The developed curriculum used in this study to teach textbook conventions features direct instruction on specific characteristics and modeling of how to use and apply knowledge of conventions to reading comprehension. Research is also reviewed in the social
constructivism perspective on the importance of students learning from guided practice in collaborative small groups. The curriculum developed for this study gives students opportunities to learn conventions both from the teacher and from their classmates.

Finally, research is also reviewed on the importance of teaching specific non-fiction conventions, such as captions, headings, maps, bold words, and appendixes. According to research, helping students understand the organization of their textbooks can aid in reading comprehension.

Conclusions

In conclusion, this chapter shows that students need more experiences with textbooks and how to better gain understanding from what they read. The curriculum developed for this study features many of the best practices for teaching, with the goal being to improve students' knowledge of textbook conventions, which research has shown to be a need. However, there has been very little research done on non-fiction conventions and how to teach them.

This study is one of the few in the field of education to directly test students' knowledge and use of non-fiction conventions. The results of this study can show teachers at the upper elementary and early middle school level that teaching conventions to their students does work, and can be a foundation for learning throughout the year in their content-area classroom.

The need for developing a specific curriculum on non-fiction conventions stems from the fact that teachers severely lack informational text reading
comprehension strategies. The curriculum designed for this study not only features educational activities for teaching conventions, but also includes best practices in teaching in hopes that this is an effective way for students to retain this information.

This research can serve as a beginning to what could be a larger study done in the area of non-fiction conventions. Once teachers know that this curriculum could be used to effectively teach conventions of textbooks to students, more research can be done to take this topic further. Hopefully, this research can lead to more studies on the links between learning non-fiction conventions and reading comprehension, or the effectiveness of the developed curriculum on different populations of students.

In many content area classrooms, textbooks are the main source of information for the students to learn the subject area. Because students have so little experience with textbooks before 6th grade, a need arises to give these students the tools they need to succeed in understanding their textbook. This study is one of the few that gives teachers what they need to help students in the area of non-fiction conventions.

In the following chapters, this study hopes to demonstrate that using a non-fiction conventions curriculum that incorporates research-based instructional practices based on a constructivist theoretical framework will improve students' knowledge of informational textbooks.
CHAPTER THREE: METHODOLOGY

The purpose of this study is to determine the impact of a developed curriculum unit used to help students become familiar with patterns and characteristics of non-fiction text. This research study proposes to find out if the developed non-fiction curriculum will improve the 6th grade students’ ability to use what they learn in the lessons while reading social studies text. The conventions taught in the curriculum include maps, captions, headings, graphs, bold words, and appendixes. This chapter will discuss the participants in the study, the instrumentation used to measure success, and the process used in data collection and analysis.

Participants

Student Demographics

The developed curriculum and pre-post test was administered to all 6th grade students enrolled in 6th grade history at Spartan Academy, a tuition-free charter school consisting of elementary and middle school students from multiple counties in Michigan. (A pseudonym is used to maintain confidentiality.) Spartan Academy is located within another local school district’s boundaries. Spartan Academy has 434 students in grades Junior Kindergarten through 8th grade, with 106 students in the middle school grades. The population of Spartan Academy is very diverse.
Table 1.

*Gender Make-up of Spartan Academy*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Spartan Academy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51%</td>
</tr>
<tr>
<td>Female</td>
<td>49%</td>
</tr>
</tbody>
</table>

Table 2.

*Ethnicity of Spartan Academy Compared to the State Average*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Spartan Academy</th>
<th>MI Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>1%</td>
<td>n/a</td>
</tr>
<tr>
<td>Asian</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>44%</td>
<td>5%</td>
</tr>
<tr>
<td>Black</td>
<td>4%</td>
<td>23%</td>
</tr>
<tr>
<td>White</td>
<td>49%</td>
<td>67%</td>
</tr>
</tbody>
</table>

Table 3.

*Socio-economic Background of Spartan Academy Compared to the State Average*

<table>
<thead>
<tr>
<th>Socio-economic Background</th>
<th>Spartan Academy</th>
<th>MI Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Eligible for Free Lunch</td>
<td>40%</td>
<td>35%</td>
</tr>
<tr>
<td>% Eligible for Reduced Lunch</td>
<td>13%</td>
<td>7%</td>
</tr>
</tbody>
</table>

The study was conducted with 6\(^{th}\) grade students because the unit developed for the study in taught in 6\(^{th}\) grade. Students at this age have had little experience with textbooks and are entering the phase in their schooling where content area subjects are increasing in demand. A specific unit on textbook conventions was proven to be a need for this grade level of students.
Student Selection Procedure

Before beginning the study in the 2007-2008 school year, the study was approved by the Human Research Review Committee of Grand Valley State University. Approval from the HRRC was needed because the study used human subjects (Approval No. 08-14). See Appendix A for HRRC approval documentation. In the fall of 2007, when the study was conducted, there were 38 sixth grade students at Spartan Academy, consisting of 19 boys and 19 girls.

Table 4.

Demographics of Study Participants

<table>
<thead>
<tr>
<th></th>
<th>% of Participants in the Study</th>
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<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
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<tr>
<td>Male</td>
<td>48.5%</td>
</tr>
<tr>
<td>Female</td>
<td>51%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>48%</td>
</tr>
<tr>
<td>White</td>
<td>46%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Special Needs</strong></td>
<td></td>
</tr>
<tr>
<td>Receives special education services</td>
<td>6%</td>
</tr>
<tr>
<td>Does not receive special education services</td>
<td>94%</td>
</tr>
</tbody>
</table>
Before the pre-post test was administered, a letter was sent home to the parents of the sixth grade class at Spartan Academy asking for their permission to have their child participate in the study. Participation includes having the results of their pre and post test included in the data analysis. During the first week of the school year, a university faculty member advising this thesis project spoke to the students and asked them for their assent to have their scores included in the study. After gathering permission from both the students and parents, 35 students had agreed to participate.

Instrumentation

A pre-post test (Appendix B) was created by the primary investigator as the instrument used to demonstrate growth of knowledge in non-fiction conventions. The developed pre-post test has not been used in any previous research. The study aims to see if students develop an increase of knowledge and their ability to read maps, captions, headings, graphs, bold words, and appendixes, so questions on the pre-post test were created at the literal level of Bloom’s Taxonomy to measure basic conceptual knowledge of these conventions.

The pre-post test consisted of sixteen questions. Eleven questions were multiple choice formats, both for the ease of grading and to give students several options to choose from to maximize the chance of answering those questions correctly. The remaining five questions required a short answer after reading a small passage from their textbook.
The multiple choice questions on the pre-post test were not grouped together by convention. The short answer questions about a textbook excerpt were grouped together, so students understood which questions applied to which passage. The last three questions on the pre-post test involved reading data from a map. These questions were grouped together because they required students to use the same map to answer each question.

Table 5.

Questions on Pre-Post Test Corresponding to Research Sub-Questions

<table>
<thead>
<tr>
<th>Pre-Post Test Question #</th>
<th>1</th>
<th>2</th>
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<th>6</th>
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<th>13</th>
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<th>15</th>
<th>16</th>
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<tr>
<td>Sub-Ques 1: Maps</td>
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<td>X</td>
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<td>X</td>
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<td>X</td>
<td></td>
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<tr>
<td>Sub-Ques 2: Captions</td>
<td>X</td>
<td>X</td>
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<td>Sub-Ques 3: Graphs</td>
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<td>Sub-Ques 4: Bold Words</td>
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<td>X</td>
<td>X</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Sub Ques 5: Appendixes</td>
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<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>X</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Conventions measured in the pre-post test were chosen by the primary investigator based on the needs of the group of students at Spartan Academy. These conventions are featured heavily in the text used by the 6th grade students during the school year, Glencoe’s *A World and Its People: Western Hemisphere*. Thirteen of the sixteen questions were created by the primary investigator. The five short answer questions on the pre-post test were created by the primary investigator, but correspond to excerpts directly taken from the 6th grade textbook. The three questions on the pre-post test that require students to read data from a map were taken from...
textbook resources compiled by Glencoe to be used with the textbook as practice for map reading skills (see Appendix C for permission to use these materials).

The questions created by Glencoe Publishing are similar to the Brigance test, parts of which are given to students to measure their knowledge on reference skills. There is a section in the Brigance test that asks students to read and interpret a special purpose map and answer questions relating to that map. The three questions on the pre-post test involving interpreting a map are very similar. The map given to the students on the pre-post test is also a special purpose map. While the Brigance test has been tested for reliability and validity, the pre-post test developed for this study has not been tested for either.

The types of questions asked on the pre-post test were categorized into five groups for ease in data analysis; 1) questions assessing knowledge and use of maps, and reading special purpose maps; 2) questions assessing knowledge and use of main idea using captions and headings, and questions about the basic definitions of captions and headings; 3) questions assessing knowledge of graphs; 4) questioning assessing knowledge of bold words; and 5) questions assessing knowledge of appendixes, such as the glossary and index. These five categories of questions match up with the research sub-questions outlined in this thesis.

There are four questions on the pre-post test that do not apply to any of the previous five categories. These questions are reading comprehension questions used for the primary investigator to determine the comprehension needs of the 6th grade students in the classroom. The reading comprehension needs of the classroom do not
directly relate to the research questions in the study, but are useful to the primary investigator in determining further instruction beyond this study. Any questions that did not fit into a category of non-fiction conventions were not included in data analysis (see Appendix B for the pre-post test).

Data Collection

Data from the entire 6th grade students enrolled at Spartan Academy was collected in the early fall of the 2007-2008 school year. The data collection process started with parental permission forms and student assent forms being collected (see Appendix D for all consent forms used in this study). The students then completed a pre-test which provided a baseline of their knowledge of non-fiction text conventions.

After completing the pre-test, the unit of study was then taught to all 6th grade history students over the course of three weeks during their normal instruction time in history class. Homework assignments, classroom activities, and a final project were given to improve their knowledge of the non-fiction conventions. After the unit of study was completed, all students took a post-test as a final assessment of this knowledge (see Appendix E for an outline of the developed unit).

Since the pre and post tests used in this study were also used by the primary investigator for regular classroom assessment, the students took both tests in their regular history classroom during their normal history class period. All students took part in taking the pre and post tests, regardless of permission given for the results to be included in the study.

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Once all pre- and post-tests were completed, a university faculty member serving as thesis advisor removed the assessments for any student who did not give permission for their results to be used in the study, or whose parents did not give permission to use the test results in the study, with the assistance of the primary investigator. The primary investigator did not have access to the permission forms during the study, so that the knowledge of which students could or could not participate was unknown. This was done so that bias on teaching the unit was reduced. The primary investigator could not favor any one student or group of students over another while instruction took place.

The pre-post tests were then coded to ensure confidentiality. Confidentiality was maintained throughout the study. Each student’s pre and post test were coded using a three-digit number system starting with 101. This coding system was known only to the primary investigator and did not identify students based on race, gender, or ethnicity. The study does not include dissemination of information based on these categorizations.

Data Analysis

The research question that this study hoped to answer is if the developed curriculum on non-fiction conventions will improve the ability of the 6th grade students to use the non-fiction conventions taught in the unit while reading their social studies textbook. The hypothesis of this study is that teaching the developed curriculum unit on non-fiction conventions will positively impact student learning on how to use this knowledge when reading their textbook. Therefore, the null
hypothesis is that teaching the developed curriculum unit on non-fiction conventions would not impact student use conventions when reading textbooks. The change in student knowledge was measured using a pre-post test format. Before beginning the analysis of these tests, it was determined that a two-tailed, paired, t-test would be used to measure significant improvement.

A t-test was chosen for analysis of the two groups (pre and post tests) because the sample population of 35 students was very small. The t-test was a paired test because each student involved in the study has a data point in each group. Each student took both a pre and post test, and each test was taken in the same place under the same conditions. A two-tailed t-test was used because there was no way to know if post test scores would be higher or lower than the pre-test scores. Two-tailed t-tests are most commonly used in research to measure if there was a significant difference in the students' growth between the tests. Thus, using the t-test is appropriate to determine if there is a statistically significant difference between the pre and post test scores on the test or if the improvements from the two tests were made by chance. Before the analysis, a significance level of $\alpha = 0.05$ was determined to be the desired level. This is the most common significance level used in t-tests.

The analyses of the pre-post student results was completed using the Microsoft Excel Data Analysis program and the SPSS program. The use of these programs allows for data to be accurately analyzed, and present all statistical information needed. Furthermore, these programs are used to summarize and test hypotheses about the use of a specific curriculum unit of study. The Microsoft Excel
data analysis program used all of the coded data to produce a mean, standard deviation, and t-number.

Data was entered into the statistical programs by coding each student’s pre and post test answers with a 0 for an incorrect answer, and a 1 for a correct answer. A question on either test that was left blank was coded as incorrect, to stay consistent with assessment grading typically used in the history classroom. The coded data was entered into a Microsoft Excel spreadsheet and then transferred to the SPSS program using identifier variable names so that identification of each question was available.

Each question on the pre-post test was also coded into categories to correspond to a research sub-question outlined above (p. 36). The data analysis shows which specific areas where the students exhibited the least amount of growth from the pre test to the post test. If a particular convention showed that the students did not master it by the post test, then the primary investigator can extend the unit or re-teach that particular convention throughout the year, and possibly test for mastery at a later date. To show mastery or deficiency in a particular area, the primary investigator set a group mastery level of 80%. If 80% of the whole group of students scored a correct answer to questions of a particular type, then the corresponding non-fiction convention is determined to not need further whole group instruction. Instead, more focused instruction can be given to the 20% who did not show mastery of this skill, and can be embedded within other units. Whereas, if less than 80% of the whole group did not master this skill, more classroom time needs to be given in the area of these non-fiction conventions for the whole group.
The 80% cutoff for mastery was chosen because it is above average, and is consistent with how mastery and deficiency is normally used in the classroom.

Summary of Methodology

To determine if there was a statistically significant increase on test scores of students who were taught a unit on non-fiction conventions developed by the primary investigator an invalidated pre-post test was used.

An experimental study using a treatment and control group was not deemed appropriate for this study. Since the developed unit is part of the curriculum for 6th grade students at Spartan Academy, all students need to receive the same instruction in order to meet state and school standards.

Thirty-five 6th grade students at Spartan Academy, taking history class taught by the primary investigator, took a pre-test on their knowledge of non-fiction conventions. This pre-test, as well as the post-test, was developed by the primary investigator, using personally developed questions as well as questions developed by Glencoe Publishing, the creators of the social studies text used in the classroom. The questions developed by the primary investigator for this assessment are very similar in style to the Brigance achievement test.

After taking the pre-test, the students were then taught the unit of study and participated in activities relating to non-fiction conventions and how to use them. The students then took a post-test to measure their knowledge and use of non-fiction conventions. The results of these two tests were coded and entered into a Microsoft Excel and SPSS statistical programs. Computation of the data was completed so that
the primary researcher could interpret the data to determine improvement, and to
determine if the improvement was statistically significant.

In the following chapter, the data results are discussed in greater detail.
Statistics are given on whether or not improvements were made among the students
between the pre and post tests, and if these improvements are statistically significant.
Each individual research sub-question is discussed to see which non-fiction
conventions were learned or not learned by the students during the teaching of the
unit. This will inform the primary investigator which non-fiction conventions need
further instruction or extension activities.
CHAPTER FOUR: RESULTS

The purpose of this study was to see if teaching a developed curriculum on non-fiction conventions would improve students' knowledge of these conventions. Improvement was measured using scores from both a pre and post test. This chapter will discuss the total improvement from the pre and post test and the statistical significance of the study.

Questions on the pre and post test were categorized into question types that correlate to different non-fiction conventions. There are five question types relating to: maps, captions and headings, graphs, bold words, and Appendixes. This chapter will describe the improvement made on the pre-post test within each of these individual non-fiction conventions. The results will also show which of these non-fiction conventions need further instruction in the classroom.

Demographics

This study was done within the context of a unit that is normally taught every year in the 6th grade history classroom at Spartan Academy. Spartan Academy is a tuition-free charter school located in the downtown area of a town in Michigan. Spartan Academy has 434 students in grades ranging from Young Fives to 8th grade.

Assent was given by 35 students to have their pre and post test results included in the study. 48.5% of the participants were male; 51% were female students. The group is made up of 48% Hispanic students, 46% White students, and 6% of other ethnicities. 6% of the sample population receives special education services, but no students had repeated 6th grade.
Results

Introduction

In this section, the overall results of the study will be presented and discussed. The pre-post test also assessed five different kinds of non-fiction conventions. The questions on the pre-post tests were categorized to fit into each of these five kinds of conventions. The data was analyzed using the Microsoft Excel and SPSS programs in order to find the $t$ number, probability, and $df$ for each of the sub-questions. This will help to show the primary investigator which areas of the unit and which specific non-fiction conventions were difficult for the students. This will help guide future instruction in the classroom. The primary investigator determined that 80% of the students would need to answer correctly on the post-test in order for the non-fiction convention to be considered mastered. If 28 or less of the 35 students scored correctly, then the convention is considered deficient. The sub-areas of maps, captions and headings, graphs, bold words, and Appendixes are also discussed in this section.

Overall Results

The 6th grade students showed a definite improvement on the pre-post test overall. The mean score on the pre test was 10 out of 16 questions correct. This showed that the students already had some knowledge of non-fiction conventions. Many of the terms used on the pre-test were familiar to them, even though they had not been taught these conventions before. On the post test, the mean score of the students was 13 out of 16 questions correct. This shows that the students made growth in their knowledge of non-fiction conventions, even though they were already
familiar with the concept. This is the direct result of the effectiveness of the unit taught.

Table 6.

Overall Results

<table>
<thead>
<tr>
<th>t-Test: Paired Two Sample for Means</th>
<th>Variable 1</th>
<th>Variable 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>10.71429</td>
<td>13.17143</td>
</tr>
<tr>
<td>Variance</td>
<td>6.445378</td>
<td>4.616807</td>
</tr>
<tr>
<td>Observations</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.564588</td>
<td></td>
</tr>
<tr>
<td>Hypothesized Mean Difference</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>t Stat</td>
<td>-6.5653</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) one-tail</td>
<td>8.02E-08</td>
<td></td>
</tr>
<tr>
<td>t Critical one-tail</td>
<td>1.690924</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>1.6E-07</td>
<td></td>
</tr>
<tr>
<td>t Critical two-tail</td>
<td>2.032244</td>
<td></td>
</tr>
</tbody>
</table>

In this table, created from the data using a Microsoft Excel Data Analysis package, the mean of both the pre-post test is listed. More importantly in this table is the $t$ Critical Two Tail number.

A $t$ number of 2.03, using a $t$ distribution table for a sample size of 35 students, means that the significance level of the data in this study was better than $p < .05$. A significance level of 0.95 was desired for this study before the analysis. After analysis, $p < .025$. This suggests that the improvements the 6th grade students made from the pre-test to the post-test were significant enough to be 97.5% certain that the growth
made on the tests was due to the unit of non-fiction conventions developed by the primary investigator, and not by other circumstances.

Sub-Question Type 1: Maps

The first sub-question in the research hypothesis was whether or not the developed curriculum improved students’ knowledge and use of maps and how to interpret data from maps.

Table 7.

Results from Sub-Question 1: Maps

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>*p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1: Pre-Test</td>
<td>28.25</td>
<td>13.474</td>
<td>3</td>
<td>n/a</td>
</tr>
<tr>
<td>Type 1: Post-Test</td>
<td>31.50</td>
<td>63.000</td>
<td>3</td>
<td>0.000</td>
</tr>
</tbody>
</table>

There were four questions on the pre-post test that related to students’ knowledge of maps. The final three questions on the assessment corresponded to a special interest map of natural resources found in the Caribbean. These questions asked the students to read the map and use the map key to analyze the data shown.

The students did very well on these questions on the pre-test. Just over 80% of the sample population answered these types of questions correctly. Even though this non-fiction convention was considered mastered on the pre-test, there was clearly room for improvement. After the unit was taught and students had practiced with reading different kinds of special interest maps, 31 out of 35 of the students answered the map questions correctly. Clearly, the unit was effective in teaching students about different kinds of maps and their characteristics, as well as how to read maps. The improvements made were statistically significant (see Table 7).
Sub-Question Type 2: Captions and Headings

This sub-question of the hypothesis poses the question of whether the non-fiction conventions unit improves students’ knowledge of finding main ideas using captions and headings.

Table 8.

Results from Sub-Questions 2: Captions and Headings

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>*p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2: Pre-Test</td>
<td>14.67</td>
<td>2.834</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Type 2: Post-Test</td>
<td>26.00</td>
<td>8.510</td>
<td>2</td>
<td>0.014</td>
</tr>
</tbody>
</table>

The pre-post test featured three questions about captions and headings and their purpose in a textbook. According to Table 8, it is easy to see that the students were not very familiar with captions or headings before beginning the non-fiction conventions unit. The students were not aware that these textbook organization aids could be used to find the main idea of the text or pictures in their book. Less than 50% of the students answered these questions correctly.

After being taught the purpose of captions and headings, the students showed tremendous growth in their knowledge of these conventions. However, less than 80% of the sample answered these questions correctly on the post-test, so this convention can not be considered mastered by the end of the unit. This could be due to a break in the sequence of the unit for the 6th grade to attend camp. A three-day break from school right after experiencing the lesson on captions and headings may contribute to the low score in this particular area. The data shows that the students have potential to do well with further instruction on captions and headings.
Sub-Question Type 3: Graphs

The research hypothesis asks if the non-fiction conventions unit improves students' knowledge and use of graphs.

Table 9.

Results from Sub-Question 3: Graphs

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>*p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 3: Pre-Test</td>
<td>24.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 3: Post-Test</td>
<td>32.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One question on the pre-post test asked students about different types of graphs that they are familiar with. Before learning about different kinds of graphs through the developed curriculum, less than 80% of the students were able to name at least two types of graphs they may come across in their textbook. After a lesson on graphs within the unit, the mean of students answering these questions correctly improved.

However, there was only one question on the pre-post test that corresponded to graphs—this was asking students to name two different types of graphs that they knew. There was not enough data collected to determine if the improvement was statistically significant. Further testing on graphs would be needed to determine whether this part of the unit was truly effective.

Sub-Question Type 4: Bold Words

This sub-question of the hypothesis asks whether or not the non-fiction conventions unit improves students’ knowledge and use of bold words in the text to find meaning of unknown content-area vocabulary.
Table 10.

Results from Sub-Question 4: Bold Words

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>*p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 4: Pre-Test</td>
<td>29.00</td>
<td>9.667</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Type 4: Post-Test</td>
<td>31.00</td>
<td>15.500</td>
<td>1</td>
<td>0.041</td>
</tr>
</tbody>
</table>

There were two questions on the pre-post test involving bold words found within text. Both of these questions related to a passage of informational text on the assessment that featured bold words within the passage. The two questions asked assessed students’ knowledge of using context clues and text structure to find the meanings of these unknown words.

On the pre-test, the sample population scored very well on this portion of the test, with more than 80% of the students mastering the skill. On the post-test, the students made some improvement, but it showed the smallest amount of growth among all of the other non-fiction conventions assessed. These improvements are the least statistically significant out of all of the sub-questions assessed.

This could show that the students had quite a bit of prior knowledge on vocabulary strategies. This part of the developed curriculum helped some students reactivate this prior knowledge, but overall had very little effectiveness on their growth. Each of the sub-questions on the pre-post test was only represented by one or two questions on the assessment. The small growth on this part of the curriculum could have been due to a ceiling effect, where the pre-test was either too easy for the students, or the students made correct guesses. Due to the limited amount of questions, the improvements made may also be due to guessing as opposed to prior knowledge.
There were only two students in the sample population that showed negative growth, meaning they answered a question incorrectly on the post-test that they previously answered correctly on the pre-test. In the case of both of these students, the negative growth was displayed on questions relating to bold words. This could be due to the fact that the questions about bold words involved reading a paragraph from their textbook and answering questions about the bold words in the paragraph. Both of these students chose not to answer the questions related to bold words on the post-test, which was counted as an incorrect score. This could be attributed to carelessness on the part of the participants.

*Sub-Question Type 5: Appendixes*

This research sub-question poses the question of whether or not the non-fiction conventions curriculum improves students’ knowledge and use of appendixes such as the glossary and the index.

Table 11.

*Results from Sub-Question 5: Appendixes*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th><em>p</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 5: Pre-Test</td>
<td>25.00</td>
<td>8.333</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Type 5: Post-Test</td>
<td>33.00</td>
<td>33.000</td>
<td>1</td>
<td>0.019</td>
</tr>
</tbody>
</table>

There were two questions on the pre-post test about the glossary and the index and the purpose of each. On the pre-test, very few students knew the purpose of both the glossary and the index. The students were more familiar with the glossary than the index; many students probably have used a glossary or a dictionary more often in their schooling in other subjects in addition to history.
After learning how to use an index and creating their own glossaries as a part of the developed curriculum, close to 95% of the students were able to correctly name the purpose of each of these appendixes on the post-test. The activities in this curriculum had a very positive effect on their knowledge of this convention. However, there were only two questions on the assessment that related to appendixes, and any success in this area could also be attributed to holdover from the pre-test.

Conclusions

Overall, the non-fiction conventions unit developed by the primary investigator improved the 6th grade students’ knowledge of non-fiction conventions as measured by a pre-post test. The average score from the pre-test to the post-test improved by three questions. This improvement was statistically significant with 97.5% certainty, which was much greater than expected (see Table 6). Thus, the null hypothesis is rejected because there is a statistically significant difference between the pre and post test scores. Thus, this curriculum is an effective way to teach students how to navigate their textbook.

The main research question of this study was broken into five sub-questions to see specifically which parts of the unit are effective and which are not. Each sub-question applied to a non-fiction convention: maps, captions and headings, graphs, bold words, and appendixes (glossary and index).

Data showed that the unit was particularly effective in improving students’ knowledge in the areas of maps and appendixes. In both of these cases, the students had not previously mastered these conventions, but after learning the developed
curriculum, had success rates of well over 80%. Both of these improvements were statistically significant (see Tables 7 and 11). The unit was also very effective in improving knowledge of captions and headings, however, in the area of captions and headings, the sample population as a whole did not have 80% of the students answer all of the related questions correctly. This showed that although the students had made great gains in this area, that there was still more instruction needed.

In the area of bold words, the students already had prior knowledge of these conventions as shown by their scores on the pre-test. After the unit was taught, these students improved their knowledge in these areas, but the growth shown was much smaller than in other areas of non-fiction conventions. This could also be due to a possible ceiling effect on either test.

The fact that neither of these sub-questions was represented on the assessment by more than four questions could also have attributed to the success of the students due to a possible ceiling effect. Because there was only one question on the pre-post test about graphs, there was not enough data collected on that area to determine if the improvement between the means on the pre-post test was statistically significant.

The non-fiction conventions unit developed by the primary investigator has proven to be an effective way to teach non-fiction conventions to 6th grade students. All areas assessed showed growth and improvement, most to a mastery level as determined by the primary investigator. In the next chapter, these results will be discussed with greater detail with recommendations for how these results can be beneficial to classroom instruction in history.
CHAPTER FIVE: CONCLUSIONS

Summary of the study

At Spartan Academy, 6th grade students have had very little experience with content area textbooks. Teachers have very little resources or lesson plans to help their students through this new experience. Because of this, the primary investigator developed a curriculum to teach the 6th grade students conventions or patterns of non-fiction text in order to help them better navigate through the textbook. Knowing how a textbook is organized can also help improve the students' knowledge of reading comprehension of informational text. The study tested whether or not this developed curriculum was truly effective.

To measure the effectiveness of the unit on non-fiction conventions, a pre-post test was developed by the primary investigator. Before instruction began on the developed unit, all 6th grade students enrolled at Spartan Academy took the pre-test to measure baseline knowledge of non-fiction conventions. The unit of study was then taught to all 6th grade students in the context of their regular history classroom instruction. After the unit was completed, all students took a post test to measure the growth from the start of the unit to the finish.

Before the study had begun, both the students and the parents were asked permission for their child's assessment results to be utilized in the data collection. After the completion of the post-test, the investigator removed all student assessments where either the student or the parent did not give consent to participate in the study. All subjects remained confidential throughout the study.
After data had been collected, a Microsoft Excel Data Analysis program as well as SPSS was used to analyze the data. This helped the primary investigator determine if the developed non-fiction conventions unit was an effective way for the students to learn conventions of informational text. The data analysis gave the information necessary to measure whether the improvements made were statistically significant. The students made great improvements between the pre and post-tests on every non-fiction convention that was measured: maps, graphs, captions and headings, appendixes, and bold words. It is with 97.5% certainty that the investigator can say that the improvements made were the direct result of the unit taught (see Table 6). The SPSS program also broke down each individual non-fiction convention measured by the pre-post test to determine which ones, if any, were deficient for the students. Overall, the unit proved to be an effective way to teach non-fiction conventions to 6th grade students.

Conclusions

The main purpose of the study was to answer the question: Will the developed curriculum improve the ability of the 6th grade students to use the strategies learned in the unit while they read their social studies textbook as measured by a change in scores between the pre and post test?

The study certainly seems to show that teaching non-fiction conventions as an introductory unit in a 6th grade history class is very effective. The study showed that overall, the students made many improvements between the pre and post tests. This data showed that these improvements were made due to the effectiveness of the unit.
with 97.5% certainty (see Table 6). The study appears to have answered the research question; the unit is a truly effective way to teach non-fiction conventions.

The research question was broken up into five sub-questions, each relating to a specific non-fiction convention. The study also aimed to test whether the unit would improve students' knowledge of maps, graphs, captions and headings, bold words, and appendixes (glossary and index). Each research question was assessed on the pre-post test, but with a very limited number of questions. A ceiling effect may have taken place for the students from the pre- to the post-test, which could be contributing to the success of the students on the assessment.

Despite other possible interpretations, the students still improved in all areas assessed. Students made the biggest gains in the areas of maps and appendixes. These were the least familiar to the students based on their pre-test scores. By the time the post-test assessment was given, more than 80% of the sample population answered the questions correctly on the post-test that corresponded to maps and appendixes (see Tables 7 and 11). The activities developed for the unit proved to be an excellent way to teach these conventions.

Based on the results of the pre-test, the sample population of students showed that they had a significant amount of prior knowledge on graphs and bold words, conventions commonly taught in other subjects like math and language arts classes. Very little improvements were made in these areas due to the amount of knowledge students already had about these subjects, compared to the large growth in knowledge the students’ exhibited in other non-fiction conventions tested (see Tables 9 and 10).
The pre-test results also showed that students knew very little about captions and headings and their purpose before beginning the unit. The developed curriculum helped the students make large improvements in their knowledge of captions and headings. However, less than 80% of the sample population scored correct answers on the post-test questions that corresponded to captions and headings (see Table 8). This shows that the curriculum may have not been an effective way to teach this particular convention.

Discussion

The developed unit on non-fiction conventions was a success. Judging by the students' scores on the pre and post test, the sample population of students made many improvements on the assessment overall. A $t$-score analysis shows that one can be 97.5% certain that the success the students showed from the pre to the post test can be attributed to the effectiveness of the unit.

In addition to determining the overall effectiveness of the unit, data was collected on each individual convention that was assessed on the pre-post test. This was to determine which areas need further instruction and to determine any potential weaknesses in the unit.

The students used in this study showed prior knowledge of maps and how to read and interpret data from maps, as determined by their scores on the pre-test. After being taught the non-fiction conventions unit, the students had made vast improvements in this area. The unit effectively used guided practice and small group work to give students experiences with map reading.
According to research done by Leinhardt, Stainton, & Bausmith (1998), students that work together to create maps perform better on geography tests. Activities in this unit, guided by the social constructivist perspective, gave the 6th grade students in the sample population plenty of opportunities to work with other students to create their knowledge.

Harniss, et al. (2001) believes that students must be taught how to read maps and their symbols before they can be asked to interpret data from them. Before being asked to work in groups to create and read maps, the students were given the opportunity to look at examples of maps in their textbook and discuss the common characteristics of them. The combination of being able to socially construct their knowledge of maps in groups and connecting their extensive prior knowledge on maps to the new information they learned, allowed the students to make great gains in this study in the areas of maps. On the pre-test questions relating to maps, 80% of the sample population answered these questions correctly. 89% of the group answered these questions correctly on the post-test.

The unit was not as effective in teaching captions and headings. On the pre-test, the students showed that they had very little knowledge of these textbook organization techniques. This is not surprising, considering the lack of textbook experience that these students have to work with. According to Duke (2000), informational text is nearly non-existent in the lower grades. This does a disservice to middle school-age students suddenly forced to read and comprehend this type of text without prior knowledge to help them.
Students showed improvement in their knowledge of captions and headings after being taught lessons on these conventions. Research by Vacca and Vacca (2007) and Harniss, et al. (2001), explains that students can improve comprehension and learning just by receiving direct instruction on textbook organization, including captions and headings. The 6th grade students in this study improved their knowledge on captions and headings, but less than 80% had mastered the skill.

The fact that the 6th grade students were still deficient in the area of captions and headings after the unit was taught can be explained in several ways. The 6th grade students were taught the lesson on captions and headings right before a three-day break from school, where they attended team-building camp. Knowledge from that day’s lesson could easily have been lost over the long break, or not fully absorbed due to the students’ minds being on their upcoming trip. Also, this part of the curriculum may not have effectively used best practices such as small group instruction as much as the other parts in the curriculum. With the students having very little knowledge to connect the new information to, they may have been set up to fail in this area. The lessons on captions and headings may need further review to make sure it features the best practices in teaching.

One question on the pre-post test related to types of graphs that students might see in their social studies textbook. Very few students could name two types of graphs before learning the unit, but afterward, showed significant improvement in their knowledge of graphs and how to obtain data from graphs. The unit was successful in this area because it used elements of the cognitive learning theory by
tapping into the students’ knowledge of graphs that they had learned in other subjects, such as math and science. The lesson on graphs had students thinking about real-life situations where they may have seen graphs in order to activate that prior knowledge. However, because of the small amount of data collected on this area, it is hard to tell if these improvements are statistically significant.

Using a glossary and finding meaning from bold words in the text are two areas of non-fiction conventions that were assessed on the pre-post test. The guided practice and small group work used in the unit were enough to make the students improve their knowledge of these conventions, but the sample population of students already showed a good amount of prior knowledge on these subjects. This could be due to the fact that students at this age have had many experiences with using a glossary or dictionary to find word meanings. Students at Spartan Academy have extensive vocabulary instruction in their language arts classes in elementary and middle school, and may have been accustomed to acquiring new words, even if these new words are more content-specific. Although the unit did a good job of activating this prior knowledge, students made the smallest amount of growth in the area of vocabulary—bold words and glossary usage. Perhaps the curriculum did not challenge the students in these areas enough to allow them to expand on their prior knowledge.

The final non-fiction convention studied in this unit had to do with how to use an index. Using an index and other appendixes are skills very specific to informational text. Very few students on the pre-test could name the purpose of the
index, let alone know how to effectively use one when reading their textbook. Again, this is not surprising, considering many of Spartan Academy's 6th grade students had not used a textbook in the content areas until 6th grade. Standal and Betza (1990), also list the index as a tool necessary for quickly gathering information from informational text, however, even these authors recognize that the index is not very well known by students.

The students were allowed to work in groups to practice using the index with a scavenger hunt of their textbook. As the students helped each other use key words to search for the information together, they were constructing their own knowledge and experiencing first-hand on how to use the index. Because of these instructional methods, 95% of the students could accurately name the purpose of the index on the post-test.

Teaching students about non-fiction conventions is uncharted territory; very little research has been done on the benefits of teaching non-fiction conventions to students. The success of the developed curriculum only proves that a significant amount of instructional time in the classroom, possibly at the beginning of their 6th grade year, set aside for non-fiction conventions instruction can be very beneficial to students. This new knowledge they get on textbook organization can set them up to successfully comprehend informational text throughout the rest of their school career.

Recommendations

If one were to replicate this study on another sample of students, many adjustments could be made to the procedure and methodology. For example, the non-
fiction conventions unit developed for this study was specifically designed for use with a specific social studies textbook. With only a few minor adjustments to the activities in the unit, this unit could be taught in a science class as well, another subject area where students need more textbook experience.

In any content area, the unit could be extended further than the non-fiction conventions assessed in the pre-post test of this curriculum. If a teacher has more classroom time available beyond three weeks, and is willing to make additions to the pre-post test, students can study such conventions as timelines, diagrams, sequential pictures, and many other textbook conventions not mentioned in this unit.

This study itself can also be extended. If doing further study on non-fiction conventions using this format, students can also be tested again several months after learning the unit to see if any information has been retained. As the students progress through their textbook, a teacher might want to see if they are using their new knowledge of conventions to help them comprehend their text. A pre-post test that features more reading comprehension questions, perhaps given at the beginning and the end of the school year, could possibly connect the teaching of non-fiction conventions to overall improvement in reading comprehension in the content areas. Adding more questions in any area on the pre-post test could give students more opportunities to show their new knowledge growth. This would prevent the problem of getting information from a limited amount of questions.

Doing the study on students at Spartan Academy limited the study in many ways. The population of 6th grade students at Spartan is very small. This study could
be done on a larger group of students, and yield different results. Smaller class sizes offered at Spartan Academy may also have contributed to the success of the unit. Because of time constraints with the 6th grade students' schedule at Spartan Academy, only three weeks of instruction time was allowed in between the pre and post tests, which could have resulted in a “practice effect”, where students were making improvements on the post-test because they had just recently taken the same test for a pre-assessment. In another setting, a teacher may have the luxury of extended time between assessments, or extending the unit beyond three weeks.

The success of the unit may also be contributed to a ceiling effect from the pre- to the post-test. Since each non-fiction convention was only represented by a small number of questions on the test, success may be due to good guessing. This would show a “false positive” result from this unit. The pre-post test could be altered to feature more questions, or different questions from the pre- to the post-test, in order to eliminate the chance of the ceiling effect.

No matter how the study is conducted, or the limitations that were unavoidable, there is no doubt that the unit developed by the primary investigator on non-fiction conventions improved these students’ knowledge of their textbook. The students that participated showed improvements in all areas studied, even those they had more prior knowledge on than expected. Perhaps the only adjustments that need to be made may be in the area of captions and headings. With the additions of more small group work, and perhaps the rearranging of the unit schedule around 6th grade camp, even more improvements could be made in this area.
The purpose of this study was to see if the developed curriculum improved 6th grade students' knowledge of non-fiction conventions such as maps, captions, headings, graphs, bold words, glossary, and the index. The data clearly shows that this unit helps students become more aware of their textbook and how it is organized. This should show that it would be beneficial for teachers of adolescents in the content areas to start the year with an introductory unit on how to use the specific textbooks that their students will encounter in the school and classrooms.

Studies have shown (Armento, 1986; Bain, 2006) that students have a very negative attitude about history and their history textbook, and even teachers themselves are not excited about using their assigned textbook to teach history. Perhaps these students and teachers are so negative because they both are struggling. Students are struggling with comprehending difficult and sometimes inconsiderate text, and teachers are struggling with finding good ways to help their students understand. This developed curriculum, which is now proven to be a way to help students succeed, can also improve teachers' attitudes toward using their classroom textbook. Perhaps if their students can successfully read and gain information from textbooks, teachers will be less likely to completely ignore this resource in the subject of history in favor of a primary sources-only classroom. This way, students can effectively “dip in and dip out” (Harvey & Goudvis, 2007, p.235) of textbooks in the classroom and still get the experience they need in reading informational text. This can help make both history and reading manageable for teachers and students.
References


(Research Report) Emporia, KS: Emporia State University, Faculty Research and Creativity Committee.


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Appendix A

Human Subject Approval Document
August 13, 2007

Proposal No.: 08-14-H 
Approval Date: August 13, 2007
Title: Using Non-Fiction Conventions to Improve Comprehension in Sixth Grade History

Dear Ms. Whitlock,

Your proposed research project named above has been reviewed. It has been APPROVED as EXEMPT from the regulations by section 45 CFR 46.101(b)(2) of the Federal Register 46(16):8336, January 26, 1981. Please include your proposal number in all future correspondence. The first principal investigator will be sent all correspondence from the University unless otherwise requested.

Revisions: The HRRC must review and approve any change in protocol procedures involving human subjects, prior to the initiation of the change. To revise an approved protocol, including a protocol that was initially exempt from the federal regulations, send a written request along with both the original and revised protocols including the subject consent form, to the Chair of HRRC. When requesting approval of revisions both the project’s HRRC number and title must be referenced.

Problems/Changes: The HRRC must be informed promptly if either of the following arises during the course of your project. 1) Problems (unexpected side effects, complaints, etc.) involving the subjects. 2) Changes in the research environment or new information that indicates greater risk to the human subjects than existed when the protocol was previously reviewed and approved. 3) Changes in personnel listed on the initial protocol, e.g. principal investigator, co-investigator(s) or secondary personnel.

If I can be of further assistance, please contact me at (616) 331-3417, or via e-mail at reitemep@gvsu.edu. You can also contact the Graduate Assistant in the Research and Development Office at (616) 331-3197.

Sincerely,

Paul J. Reitemeier, Ph.D.
Human Research Review Committee Chair
301C DeVos Center
Grand Rapids, MI 49504
Phone: (616) 331-2281

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Appendix B

Pre-Post Test
Non-Fiction Conventions Pre-Post Test

1. List two ways that narrative (fiction) stories are different from informational (non-fiction) texts
   a) __________________________________________
   b) __________________________________________

2. A caption:
   a) tells the main idea of a passage in a history book
   b) divides the textbook into sections on different topics
   c) describes a picture or diagram
   d) tells you the definitions of words

3. A heading:
   a) summarizes the main idea of a section in a textbook
   b) describes a picture or diagram
   c) tells you the definitions of words
   d) lists important details from a textbook by subject

4. An atlas can show you:
   a) data from a graph or chart
   b) where to find important information out of a textbook
   c) what the main idea is of a section in a textbook
   d) locations of countries and capitals on a map

5. List two types of graphs that you have learned about:
   a) __________________________________________
   b) __________________________________________

6. Where do you look in a textbook to find the meanings of unknown words?
   a) the index
   b) the glossary
   c) the atlas
   d) charts and graphs

7. Where do you look in a textbook to locate where specific information is located in your textbook?
   a) the glossary
   b) the atlas
   c) charts and graphs
d) the index

Read this passage below and answer the questions that follow:

**Native American Civilizations**

The Olmecs built the first civilization in the Americas around 1200 B.C. They made large carved stone statues to decorate their cities. They also made jewelry out of jade. Jade is a shiny stone that comes in many shades of green and other colors. They used obsidian, a hard black glass created by volcanoes in the area, to carve the statues and jewelry. The Olmecs used obsidian because they had no metals.

8. What is the definition of the word jade in this passage?

9. Why did the Olmecs use obsidian?

Read the passage below and answer the questions that follow:

**Brazil’s Rainforests and Highlands**

Brazil has many different types of landforms and climates. Brazil’s landforms include narrow plains along the coast, highland areas, and lowland river valleys. The Amazon River is located in Brazil. It is the world’s second-largest river. It winds almost 4,000 miles from the Andes mountain ranges to the Atlantic Ocean. The area around the Amazon River is a wide, flat basin. A basin is a low area with higher land around it. Heavy rains fall in the Amazon Basin. This rainfall—up to 120 inches a year—helps thick tropical rainforests to grow. Brazilians call their rainforests selvas.

Brazil has other lowlands along the Parana River and the Sao Francisco River. It also has highlands. The Brazilian Highlands cover about half the country. The highlands drop sharply into the Atlantic Ocean. This drop is called the Great Escarpment. An escarpment is a steep cliff between higher and lower land.

10. What landform covers about half of Brazil?
Appendix C

Copyright Permission Form
Appendix D

Administration, Parent, and Student Permission Forms
Dear Mr. Kraker,

I am working on completing a Masters Degree as a Reading Specialist from Grand Valley State University. As my final thesis, I am conducting a study on the effects of teaching specific parts of a textbook and whether or not it improves reading comprehension of non-fiction text in 6th graders. Every year at the start of 6th grade, I teach a unit on how to use and read our history textbook successfully. I believe that this unit is beneficial to 6th graders in improving their reading comprehension, writing, and homework in history. The skills they learn in this unit can also be applied to science and math. I would like to collect data and prove that this is truly effective instruction that is helpful for 6th grade students. Hopefully my research can be shared with other teachers beyond this community.

I am asking for permission to collect data before and after teaching the unit of study. Specifically, at the beginning and at the end of the unit I teach on the parts of a textbook, I will give a small test to see what the 6th graders know and have learned from the unit. The results of this test will not affect their grade in my history class, but the data will be analyzed for my research study. Since the unit on parts of a textbook is always taught in 6th grade and is part of the curriculum, this pre- and post test is the only new addition to the unit. I am asking for your permission to allow me to conduct the study using Spartan 6th grade students.

All 6th graders will be learning the unit and taking the pre- and post-test. Confidentiality will be maintained throughout the process. Grand Valley State University will not be given names of students attached to the tests—a coding system of numbers will be used.

I hope that you will agree to help me finish my Masters Degree. I truly believe that my research will be beneficial and enlightening to the students and staff at Spartan. I would be more than happy to share the results of the study with you and the whole staff when it is completed. Please see me if you have any further questions.

Sincerely,

Annie Whitlock
Middle School History
Spartan Academy
(616) 820-5050
5.whitlock@heritageacademies.com
Dear 6th Grade Parents,

I am working on completing a Masters Degree as a Reading Specialist from Grand Valley State University. As my final thesis, I am conducting a study on the effects of teaching specific parts of a textbook and whether or not it improves reading comprehension of non-fiction text. Every year at the start of 6th grade, I teach a unit on how to use and read our history textbook successfully. I believe that this unit is beneficial to 6th graders in improving their reading comprehension, writing, and homework in history. The skills they learn in this unit can also be applied to science and math. This fall, I will be collecting data to determine if my instruction is truly effective and helpful for 6th grade students. Hopefully my research and instructional unit can be shared with other teachers so they benefit from my work.

At this time, I am required to seek your support in my work with your child. My research includes gathering student information before and after teaching of the textbook unit. Specifically, at the beginning and at the end of the unit I teach on the parts of a textbook, I will be giving a small test to see what the 6th graders know at the beginning of the unit and after they have learned the skills. The results of this test will not affect their grade in my history class, but the data will be analyzed for my research study. Since the unit on parts of a textbook is always taught in 6th grade and is part of the curriculum, this pre- and post test is the only new addition to the unit.

All 6th graders will be learning the unit and taking the pre- and post-test. You are free, however, to exclude your child’s test from being included in my data analysis. If you choose this, their grade in history will not be affected. This study will not give compensation for the inclusion of your child in this study.

Confidentiality will be maintained throughout the process. Grand Valley State University will not be given names of students attached to the tests—a coding system of numbers will be used so that complete confidentiality is maintained.

This study has been approved by the Human Research Review Committee at Grand Valley State University. If you have further questions about your child’s rights as a research subject that have not been answered by me, please feel free to contact the HRRC at 616-331-3197.

I appreciate your help in finishing my Masters Degree! I will be more than happy to share the final results of my study with you when it is completed upon your request. If you have any questions, please don’t hesitate to e-mail or call me using the contact information below. Please sign and return the bottom of this letter as soon as possible. Thank you in advance for your help!

Sincerely,

Annie Whitlock
Middle School History
Spartan Academy
(616) 820-5050
5.a whitlock@heritageacademies.com

_____ Yes, I allow my student’s test results to be included in the study

_____ No, I would prefer my student’s test results not be included in the study

Student’s Name ________________________________
Parent Signature ________________________________
Child Assent Form

I understand Dr. Reinken's explanation of what it means to be involved in Mrs. Whitlock's research study. I have decided that:

_______ Yes, I want to have my test scores included in the study.

_______ No, I do not want my test scores included in the study.

Your decision will not affect your grade in History class. Please answer honestly.
Appendix E

Outline of Unit
Non-Fiction Conventions Unit

Learning Activities

1. In the daily warm-up, ask the students how they feel about their textbook and what they already know about conventions. They will write this in their notebooks and we will share answers in a class discussion.

2. As a class, we will brainstorm how narrative and informational text are the same and different using a Venn Diagram.

3. The students will take a pre-test to determine more specifically what they know about non-fiction conventions.

4. As a whole class, we will discuss the overview of the unit and the essential questions.

5. Teacher will model what a caption is and how to write one using a newspaper picture.

6. Students will find a caption in their own textbook.

7. Students will produce captions to the pictures in a wordless picture book.

8. Teacher will model what a heading is and how to use them within their textbook.

9. Students will work in groups to fill in the missing headings from a different textbook than their own.

10. Students will write a paragraph using headlines from a newspaper.

11. Teacher will model how to use the atlas in their textbook and how to use Internet maps.

12. In groups, the students will use a map of Grand Rapids to find places.

13. In their group, students will derive a set of directions using a map of Grand Rapids.

14. As a whole group, the class will brainstorm the types of graphs they have learned about in other classes.

15. The students will search for types of graphs in their textbook.

16. The students will collect data from their classmates (survey) on a topic and create their own graph.

17. Teacher will model how to use the glossary in their textbook.

18. Teacher will show examples of other glossaries used in real-world examples.

19. Individually, students will create a glossary of slang words or topic-related words.

20. Teacher will model where to find bold words and their importance.

21. Students will use their glossary list from the day before and create a short story with the words, making sure to bold the words in some way.

22. Students can share their stories.

23. Teacher will model how to use an index and its importance.

24. Students will solve a scavenger hunt using the index in their textbook.

25. Students will complete a post-test about what they now know about conventions.

26. As a whole class, we will add to the earlier Venn Diagram about narrative and informational text using our knew knowledge.

27. As a whole class, we will discuss what we have learned at the end of the unit and how this can be helpful to the rest of the year in history class.
## Non-Fiction Conventions Unit

### Lesson Planner

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Warm-up: Discuss feelings about the textbook and prior knowledge on conventions</td>
<td>2 Venn Diagram on differences between narrative and informational text</td>
<td>3 Model what a caption is and how to find one in the textbook and newspapers. “Read” wordless picture book and discuss Create a caption for a picture in the wordless book</td>
<td>4 Model what a heading is, their importance, and how to find one in a textbook and newspapers. Fill in missing headlines from a textbook. Homework: Write a paragraph to fit a headline</td>
<td>5 Model how to use a textbook atlas and Internet maps. Use a map of Grand Rapids to find locations Write a set of directions from one place to another using the map of GR</td>
</tr>
<tr>
<td>Pre-test on prior knowledge of conventions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Brainstorm types of graphs they already know how to make and recognize Find examples of types of graphs in their textbook Collect data on a topic from their classmates (favorite color, birthday month, etc.)</td>
<td>7 Create a graph of their choice using the data collected</td>
<td>8 Model how to use a glossary Show other examples of glossaries Create their own glossary of slang words or topic-related words</td>
<td>9 Model bold words and their importance Use their glossary to write a short story with glossary words in bold</td>
<td>10 Model how to use an index Scavenger hunt with their textbook using the index</td>
</tr>
<tr>
<td>11 Introduce performance task—explain requirements of project, choose convention, brainstorm ideas</td>
<td>12 Work on performance task—create poster, collect real world examples</td>
<td>13 Finish posters for performance task Add to Venn Diagram</td>
<td>14 Show posters to elementary students</td>
<td>15 Post-test on new knowledge Discuss what they have learned</td>
</tr>
</tbody>
</table>

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NAME: Annie Whitlock

MAJOR: (Choose only 1)

_____ Adult/High Ed  _____ Elem Ed  _____ SpEd Admin
_____ CSAL  _____ Ed Diff  _____ SpEd ECDD
_____ Early Child  _____ Mid & H.S.  _____ SpEd EI
_____ Ed Tech  X  Read/Lang Arts  _____ SpEd LD
_____ Ed Leadership  _____ School Counseling  _____ TESOL

TITLE: Using Non-Fiction Conventions to Improve Expository Reading Comprehension in 6th Grade History

PAPER TYPE: (Choose only 1)  SEM/YR COMPLETED: Fall 2007

_____ Project
X  Thesis

SUPERVISOR'S SIGNATURE OF APPROVAL __________________________

Using key words or phrases, choose several ERIC descriptors (5 - 7 minimum) to describe the contents of your project. ERIC descriptors can be found online at http://www.eric.ed.gov/ERICWebPortal/Home.portal?nfpb=true&_pageLabel=Thesaurus&nfls=false

1. Reading
2. Content-Area Reading
3. Conventions
4. Middle School
5. History