Using Marzano's Six Steps to Vocabulary Instruction in a Fourth Grade Classroom

Christina L. Gherna

Eastern Illinois University

Abstract

The purpose of this study was to determine if Marzano's six steps to vocabulary instruction had a positive effect on vocabulary knowledge compared to the Wonders reading curriculum method used in a fourth grade classroom. The researcher also wanted to find out if Marzano's method was more effective for low achieving readers compared to high achieving readers. It was hypothesized that low achieving readers would have a higher increase in vocabulary knowledge when Marzano's steps were used for instruction and that high achieving readers would have an increase regardless of the method used. Two research questions guided this study: Does using Marzano's six steps to vocabulary instruction increase low achieving students' vocabulary knowledge? And does using Marzano's six steps to vocabulary instruction increase high achieving students' vocabulary knowledge? Twenty-two fourth grade students from one classroom, ages nine and ten, participated in the study for six weeks. Participants were given a pretest and post-test each week of the study. The researcher used the Wonders reading curriculum the first three weeks and Marzano's method the last three weeks. Out of the 22 participants in the study, 40% made greater gains when Marzano's method was used. When lookingat the low achieving group and the high achieving group of participants, 25% of low achieving readers made greater gains and 57% of high achieving readers made greater gains when Marzano's method was used.

Keywords: vocabulary, instruction, Marzano,

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There is a crisis in our nation that gets little media attention even though it is detrimental to those children who are affected by it. The 30,000,000 word gap by age three noted in the article by Hart and Risley (2003) spells out the differences between the vocabulary development of children from professional families and children from working class and welfare families. Unfortunately, educators have no control over the life experiences children have before they enter school. Research shows that children develop vocabulary much like the vocabulary of their parents or caregivers (Hart &Risley, 2003). When students come to school with an overwhelming vocabulary deficit, it is imperative that educators begin intervention immediately. The longer the intervention and instruction are put off, the bigger the vocabulary crisis becomes (Hart &Risley, 2003).

Vocabulary knowledge is directly tied to reading comprehension (Biemiller&Boote, 2006). The more vocabulary knowledge a student has, the more successful they will be comprehending what they read. When comprehension increases from materials read, the higher their overall school achievement will be. Because students come to school with a variety of strengths and weaknesses, it is important that these areas be identified right away and appropriate and specific lessons and interventions be put in place. Technology, group work and collaboration, visual aids, multisensory approaches, small group instruction, literature, and direct, systematic instruction are all strategies and methods educators use to teach vocabulary. However, it is difficult to know which method is more effective. Even the research is unclear about the best methods to use. "Vocabulary instruction can increase vocabulary knowledge; yet, the best program of instruction, including the type and amount is still elusive" (Hairrell, Rupley,

& Simmons, 2011, p. 265). This quote from the article prompted the author to find out what type of vocabulary instruction is most effective for students.

The purpose of the study was to determine if using Marzano's six steps to vocabulary instruction would increase student vocabulary knowledge. The large word gap that occurs between students when they come to school is alarming enough to warrant further research as well (Hart &Risley, 2003). Since educators have been given the task of attempting to close the vocabulary gap for their students, the researcher was determined to utilize the most effective method. The researcher used Marzano's six steps to vocabulary instruction in the study because the research on Marzano's methodindicates that it is highly effective in helping students to not only learn the vocabulary words, but remember them as well (Marzano, 2009). The study will offer educators research-based data about the value or non-value of using Marzano's six steps to vocabulary instruction in a fourth grade classroom.

Two research questions guided this study:

1. Does using Marzano's six steps to vocabulary instruction increase low achieving students' vocabulary knowledge?
2. Does using Marzano's six steps to vocabulary instruction increase high achieving students' vocabulary knowledge?

The study hypothesized that the low achieving participants would increase vocabulary knowledge when Marzano's six steps to vocabulary instruction were used. The study also hypothesizedthat the high achieving participants would have the same increase in vocabulary knowledge whether Marzano's six steps to vocabulary instruction or the Wonders reading curriculum method was used.

In the following literature review, the researcher discussed the importance of vocabulary instruction along with the connection to the Common Core State Standards (CCSS). The variety of methods and strategies educators can choose from for vocabulary instruction were examined as well as how words to be taught were chosen. The importance of integrating direct vocabulary instruction in the content areas was considered. The researcherexplained why direct vocabulary instruction should be used with struggling readers to ensure success. Finally, a review of the research in favor of Marzano's six steps to vocabulary instruction was described.

Vocabulary Instruction

Vocabulary is embedded in every content area and grade level of education. Educators and students use vocabulary for oral and written communication. Students are required to read, write, speak, and understand using common vocabulary all the way to content-specific vocabulary. Research indicates that there is a large gap between struggling students and high-achieving students when it comes to vocabulary knowledge. This gap has a direct effect on reading comprehension and academic success. Educators should examine and analyze the research available to them on vocabulary instruction. Taking the time to research the reasons for vocabulary instruction and the importance it has in reading comprehension and content areas will go a long way in helping educators choose the best methods and strategies to use with their students.

Why should vocabulary be taught? First and foremost, the majority of the research on reading comprehension and vocabulary points to the important connection between the two. Vadasy, Sanders, and Herrera (2015) conclude in their research about the efficacy of rich vocabulary instruction that there is a direct connection between vocabulary knowledge and reading comprehension. In fact, these researchers found that vocabulary instruction was most

valuable for struggling readers in their quest for success in reading comprehension. This research also suggests that being able to easily access vocabulary is a critical component of reading comprehension (Vadasy, et al., 2015). Therefore, if students can increase their vocabulary knowledge, they will most likely see an increase in reading achievement, too.

Next, research states that while the importance of vocabulary knowledge and reading comprehension can be shown, there is very little well-documented research on which methods should be used to teach vocabulary and how much time should be spent on it (Hairrell, et al., 2011). However, when large bodies of research on vocabulary was analyzed and synthesized, the researchers concluded that vocabulary instruction that included components such as contextual analysis, morphological analysis, semantic strategies, and mnemonic strategies increased word knowledge (Hairrell, et al., 2011). Again, the research shows that vocabulary instruction is important and certain components are necessary for successful vocabulary acquisition but there still is not concrete information about which method or strategy is best.

Finally, the CCSS spell out vocabulary acquisition and use standards for each grade level that educators are required to cover in their classrooms (Common Core State Standards Initiative, 2010). Specifically, the fourth grade standards for vocabulary in English/Language Arts are:

> CCSS.ELA-LITERACY.L.4.4
>
> Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.
>
> CCSS.ELA-LITERACY.L.1.5
>
> With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings.

> CCSS.ELA-LITERACY.L.1.6
>
> Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships.

Therefore, educators are mandated by the standards to ensure their students have a sufficient vocabulary base to work with. The trick is determining which words should be taught and what strategies should be used.

Which words should be taught? Many times educators use the vocabulary words that come with the published curriculums purchased by school districts to be used in the classrooms. Therefore, the decision on what words should be taught have already been made for the educator. The published programs are research-based and for the most part should have used the research out there to choose vocabulary words that are necessary and appropriate for the students the program was intended for. If the school does not use a published curriculum or if educators are given free-reign on determining what is taught, they may be faced with choosing vocabulary words to be taught.

Robert Marzano used his own extensive research as well as research from other experts in the field of vocabulary to determine the number of words that need to be learned in Kindergarten through twelfth grade year. There are approximately 15,000 words that students need to learn. These words are categorized into three tiers. Tier 1 terms are those words that the majority of students should already know coming to Kindergarten. Tier 2 terms are words that are important to understanding the English language but are not as frequently used as tier 1 words. Therefore, students will not be as familiar with these words and may need instruction. These words are taught as part of the regular curriculum. Tier 3 terms are all other words not included in tiers 1

and 2. These are typically subject specific words and will need to be taught during instruction in specific content areas (Marzano, 2012).

Another word selection strategy is referred to as Selecting Words for Instruction from Texts (SWIT) (Graves, et al, 2013). When teachers use SWIT they identify potentially unfamiliar words in a narrative or expository text they will be using with their students. Then they take these words and categorize them into four word types: essential words, valuable words, accessible words, and imported words. Essential words are those words necessary for understanding what is being read. Valuable words are words that will be important for students' long-term reading and writing. Accessible words are high frequency words that may not be understood by students who have less vocabulary knowledge than their peers. Imported words are those words that are not in the text but would be important to know in order to better understand what is being read (Graves, et al., 2013).

Educators have a variety of ways in which to choose the vocabulary words to teach. Some may even use a combination of these methods. Regardless, it is important that the vocabulary words are carefully chosen and taught.

Teaching strategies. There is a small body of research on vocabulary teaching strategies that will be discussed in detail, but more is needed for educators to feel secure in their method of choice. The important thing to remember when choosing a strategy is to put student needs at the forefront of the decision-making. Base the strategy used on how groups of students and individual students learn (Hairrell, et al., 2013). Cooperative learning, direct instruction, using literature, multisensory approach, using pictures, principled approach, using technology, and Marzano's six steps to vocabulary instruction are among the strategies that have been researched recently.

Cooperative learning. Cooperative learning was put to the test in a study comparing traditional vocabulary instructional methods to cooperative learning groups. Bilen and Tavil, the researchers in this study, used Kagan structures, which are different systems for working in cooperative learning groups (2015). A total of 48 fourth grade students were chosen for the study. Each group had 24 students in the group. Exactly 30 words were chosen from the reading curriculum. The teacher of the control group used the traditional method of vocabulary instruction, and the teacher of the experimental group used the cooperative learning method to teach vocabulary. Both groups of students were given a pre-test, five weeks of instruction, and then a post-test. Students in both groups kept diaries about their experiences during vocabulary instruction and were interviewed after the five weeks were up. Both groups performed better on the post-test than the pre-test but the experimental group had greater increases. While the cooperative learning groups saw bigger gains, not all the students in this group liked learning this way. When researchers analyzed their diaries and answers to interview questions a higher number than expected had negative feelings about it (Bilen &Tavil, 2015). Even though this appears to be an effective method for vocabulary instruction, it may not be the most ideal strategy because not all students had a positive experience with it.

Direct instruction. Direct vocabulary instruction should include the follow key components:

- Provide a definition and context clues for each new word.
- Make connections between the new word and other known words.
- Give multiple opportunities for practicing and using the new word.
- Implement a variety of meaningful activities to recognize and use the new word.

When this kind of direction instruction is implemented, word learning and comprehension improve (Wanzek, 2014). In fact, in one study on direct vocabulary instruction "researchers found that on average, students who had placed at the 50th percentile in reading comprehension scored 30 percentile points higher after receiving direct vocabulary instruction" (Dunn, Bonner, &Huske, 2007, p. 3). In a study done by Jeanne Wanzek (2014), the research showed that direct vocabulary instruction improves vocabulary knowledge, word meaning acquisition, and text comprehension. Furthermore, the research showed higher vocabulary in early grades led to higher reading comprehension in later grades. Even though educators and administrators know this, very little time is allotted for direct and meaningful vocabulary instruction in the school day. In the same study, the researchers observed that only seven minutes per day was allotted to direct vocabulary instruction in the regular classroom and only 25 seconds of direct vocabulary instruction was included in the intervention block (Wanzek, 2014). While this is an effective strategy for teaching vocabulary, it is not being utilized enough in the classroom.

Using literature. Providing students with meaningful vocabulary instruction is central to authentic and long-term vocabulary retention. Learning and using vocabulary through stories is a popular strategy in the early elementary grades. Biemiller and Boote (2006) conducted a study to determine if repeated readings along with a small amount of direct vocabulary instruction would have a positive impact on vocabulary knowledge. Students in a Catholic school in Canada that had students in Kindergarten through second grade were pre-tested on vocabulary words that were in a specific book and would be read to them multiple times that week. The teachers read the story to the students on day one for enjoyment. On days two through four, the teachers read the book to the students again and made time for direct instruction of four to nine words. On the

fifth day, the teacher reviewed the new words with the students. Students were given a post-test two weeks after the study and again six weeks after that. The results showed that direct instruction along with repeated readings of the book had a significant, positive effect on word knowledge and students could transfer and retain this new knowledge six weeks later (Biemiller, et al., 2006).

Multisensory approach. It is common knowledge in the educational field that students learn in a variety of ways. However, educators do not always present new content to students in the specific modes that meet each student's learning needs. Some students learn best through writing, others are most successful when they have visual cues, and some prefer the auditory modality of learning. According to current cognitive research, using a multisensory approach that focuses on the kinesthetic, visual, and auditory modalities improves overall student learning (Goll, 2011).

One music professor at the Cleveland Institute of Music used this information to help his post-secondary, English Language Learners (ELLs) learn the vocabulary necessary for the Test of English as a Foreign Language (TOEFL) exam. These instrumentalists learned best through movement and kinesthetic experiences. The students would listen to and play music that illustrated the new vocabulary words they were presented so they could gain a better understanding of what the words meant. Overall, the students did better on the TOEFL exam than music students who did not have this same opportunity to practice the vocabulary words using music.

The information from this particular research can be used in elementary classrooms to help students become more familiar with new vocabulary words. Teachers can use music to

present new words to students and the teacher can allow students to represent new vocabulary words using songs. These activities can be used as needed to meet students' needs.

Picture use."Vocabulary is a powerful carrier of meaning," (Street, H., 2016, p. 55) and because of this it is imperative that educators make learning vocabulary meaningful and permanent. Many of the current research articles suggest that using visual images and aides to help students learn new words is an integral and important part of vocabulary instruction. In one particular study, Haji HadariNawawi Street conducted a mixed-method quantitative and qualitative descriptive study in a private junior high school in Indonesia (2016). Students in seventh grade were observed and tested to see if using pictures in vocabulary instruction and assessment were beneficial to the students. The quantitative research revealed that there is a positive correlation between using pictures during vocabulary instruction and on assessments and students' overall learning. The qualitative research showed that students were more relaxed when pictures were used compared to being stressed without the pictures. Students also told the researcher they liked having the pictures available (Street, 2016). It may be beneficial if educators included visual images and aides when implementing new strategies for vocabulary instruction.

Principled approach. Small group instruction is a popular format that many elementary teachers use in their classrooms. This is especially true with struggling learners. Teachers have been successful using small group instruction to help students who are lagging behind in vocabulary. Current research suggests there is a gap of nearly 4,000 words between high achieving students and low achieving students and it could take as many as five years for these students to catch up to their higher achieving peers (St. John & Vance, 2014). In one school in England, highly trained regular educators implemented a vocabulary intervention with their

lower-achieving students. The low-achieving students were put into groups of six and were given the intervention for four weeks. The interventions included a variety of research based games and activities that were all dyslexia-friendly. At the beginning of the study students were given a pre-test and then at the end of the four weeks they were given a post-test. Students made significant gains in word knowledge (St. John & Vance, 2014). It can be concluded that small group, principled approach vocabulary instruction can have a positive impact on students who are having difficulties learning vocabulary and hopefully close that gap in vocabulary between low achieving and high achieving students.

Technology.Technology is an integral part of education in today's classrooms. Teachers and students use technology for many things from lesson presentation to student practice. It would make sense for technology to be an effective method for assisting students in learning new vocabulary. In one qualitative and quantitative research project, Suhua Huang (2015) set out to determine if using technology was an effective method for vocabulary instruction. The study was limited to two second grade classrooms. During the study the classrooms only used two different software programs. The teacher of the control group used traditional vocabulary instruction for the entire semester with her students and the teacher of the experimental group used the vocabulary software programs and other traditional strategies with her students. At the end of the semester all students in the study were given an expressive vocabulary post-test. The experimental group had significantly higher scores on this test than the control group. Information gathered from observations of the students during vocabulary instruction throughout the semester revealed that students in the experimental group had meaningful and effective social interactions and collaboration along with higher levels of interest and motivation as compared to the students in the control group (Huang, 2015). While this particular study was done on a small

scale, it gives educators a look at how technology can be implemented into their vocabulary instruction to help students achieve higher gains.

Marzano's six steps to vocabulary instruction. In this thoroughly researched method, Marzano has integrated all of the previously mentioned strategies into one systematic approach that includes the following steps (Marzano, 2009).

1. Provide a description of the new word.
2. Students write the description in their own words.
3. Students make an illustration to represent the word.
4. Students engage in interactive notebook activities that will help them better understand the new word.
5. Allow students opportunities to talk with their peers about the new word.
6. Engage students in games involving the new word.

Currently all the research points to this method of vocabulary instruction to be highly effective. In 2005, Robert J. Marzano wanted to find out if the six step approach was an effective method of vocabulary instruction in the content areas of math, science, literature, and all three areas combined. Specifically, the program called Building Academic Vocabulary (BAV) was evaluated. This program operates under the assumption that "teaching standards-based academic terminology using a specific six-step process can enhance students' abilities to read and understand subject-area content and ultimately help students build a store of academic background knowledge that enhances academic achievement," (Marzano, 2005, p. 1). A total of 2,683 students in Kindergarten through ninth grade from across the United States participated in this study. There were 1,450 students in the control group using the traditional method of academic vocabulary instruction and 1,233 students in the experimental group using the BAV

program. The teachers in the experimental group underwent a two-day training on the BAV program prior to the start of the study. Students in both groups were given a pre-test and post-test in the areas of math vocabulary, science vocabulary, literacy vocabulary, and all three subject areas combined. Students were given instruction over the course of six months. If they were in the control group, the teachers used the traditional method and those in the experimental group used the BAV program. The results showed that the experimental group using the BAV program had greater increases on the post-tests in all four areas and across all grade levels except Kindergarten and eighth grade compared to the students in the control group. The BAV program, which includes Marzano's six steps to vocabulary instruction, seems to be an effective method for building content area vocabulary knowledge.

In 2006, Marzano Research and Marzano decided to look at the same research project from 2005 involving the BAV program to find out if students classified as English Language Learners (ELL) and students classified as Free and Reduced Lunch (FRL) were successful learning academic vocabulary using the BAV program and Marzano's six steps. They looked at all the same data as before except the focus was on students under the ELL and FRL classifications. What they found was that the BAV program had a statistically positive effect on all areas and all grade levels except Kindergarten and eighth grade students just like they found when looking at students overall, regardless of their classification. When comparing ELL students and FRL students, the researchers found that the program was most effective for ELL students (Marzano, 2006). This is important to note, because ELL students typically have a more difficult time learning content area vocabulary because they are already burdened with learning the English language. If using Marzano's six steps to vocabulary instruction can help ELL

students learn content area vocabulary easier, then it should be considered as a method used in the classroom.

Finally in 2009, Marzano Research prepared a report authored by Mark. W. Haystead. In the report, Haystead (2009) conducted a meta-analysis of 24 quasi-experimental studies on Marzano's six steps to vocabulary instruction. In each of the 24 studies, the teacher taught two vocabulary units to the class. One unit was the control unit using the traditional method of vocabulary instruction. The other unit was the experimental unit using Marzano's six steps to vocabulary instruction. Students were given a pre-test and post-test for each unit. When looking at the results of each individual study, the findings were insignificant due to the sample size. However, when looking at the results of all the studies together, the findings are quite significant. Fifteen of the 24 studies, or 63 percent, showed increases using Marzano's six steps to vocabulary instruction.In fact, "the six step approach to direct vocabulary instruction represents a gain of 24 percentile points over what would be expected if teachers did not use the six step approach" (Haystead, 2009, p. 6). The information from this meta-analysis is in favor of this approach to vocabulary instruction.

Summary

There is no denying that vocabulary knowledge is an essential piece to the reading comprehension puzzle. It has been shown time and again that when students have a solid, substantial vocabulary base, they find success in academics. Researchers and educators have found valuable ways to choose vocabulary to teach. With careful instruction and practice, students can learn and retain the vocabulary they need. The research has come to the same conclusion from different parts of the world, from different grade levels, and from both public and private schools that vocabulary instruction is vital. A variety of different strategies and

methods have been tested but never on a large scale so it is difficult for educators to be confident in which method to use. Educators are still not sure how much time should be dedicated to vocabulary instruction each school day either. With so many essential skills and lessons packed into a student's day, teachers need to use their time efficiently for the most important elements of learning.

The research that was analyzed in this paper has outlined the importance of individual strategies such as cooperative learning, direct instruction, and multisensory approaches. In the end, it seems that using an approach that utilizes a variety of strategies is the best way to meet the educational needs of all students when teaching vocabulary. Marzano's six steps to vocabulary instruction is the approach that has it all. The teacher gives the students direct instruction in step one. When students use their own words to describe new vocabulary, they have the opportunity to use a multisensory approach to learning by tuning into their senses. In step three, picture use comes into play when students get to illustrate new words. Interactive notebook activities can include literature, such as mentor sentences, in step four. Cooperative learning and the small group instruction of the principled approach is evident in step four when students talk with their peers about the new words. The teacher can circulate among the groups and give instruction where needed. Finally, technology can be used when students play games using the new vocabulary words. At this time, with the research available on vocabulary instruction, the clear method of choice is Marzano's six steps to vocabulary instruction. The research that was conducted in this study tested out the effectiveness of Marzano's six steps to vocabulary instruction compared to the Wonders reading curriculum method in a fourth grade classroom.

Methods

The research conducted was a quantitative study approach that used a quasi-experimental design. The researcher collected data for a total of six weeks from fourth grade participants in the researcher's classroom during the spring semester of 2018. The following information details the participants, setting, data source and research materials, and data collection procedures.

Participants and Setting

Participants in this study were 22 fourth graders from a single classroom. High achieving and low achieving participants were determined using the Measure of Academic Progress (MAP) benchmark assessment for reading (Appendix C). Participants considered high achieving scored at the 80thpercentile or higher, and low achieving participants scored at or below the 30th percentile. The participants of the study were nine or ten years old. Of the 22 participants, 11 were boys and 12 were girls. There was one African American participant and 20 Caucasian participants. Four participants had an Individual Education Plan (IEP). The remaining 18 participants had no additional academic designations. See Table 1 below for participant academic designations.

Table 1

Participant Academic Designation for Reading. n=22

Designation	Low	Average	High	Total
Number of students	4	11	7	22

Note: Designations are based of Fall 2017 MAP scores.

During week two of the study, one participant was diagnosed with cancer and had to miss weekfour of the study. Scores for that participant were excluded during that week only.

The study took place in a fourth grade classroom in a small elementary school in rural, central Illinois of approximately 5,000 residents.The school of approximately 500 students housed preschool through fourth grade students. Each grade level had four classrooms of approximately 24 students and one teacher. The classroom chosen for the study had one participant with a personal aide. This student participated fully in the regular classroom with the assistance of the aide. Additionally, this school had one administrator, three administrative assistants, a nurse, four cafeteria workers, four custodians, two speech and language pathologists, two reading specialists, three special education teachers, an occupational therapist, a school psychologist, a school social worker, and seven paraprofessionals.

Data Source and Research Materials

Data for this study was collected using multiple choice weekly vocabulary tests that came with the Wonders reading series to determine the achievement of the participants (Appendices D, D.1). A pretest and post-test was given each week to determine participant growth in vocabulary knowledge. A total of six pretests and six post-tests were given over the duration of the study. Each test consisted of eight multiple choice questions; one for each new vocabulary word being taught that week. The researcher scored each pretest and post-test calculating and recording the raw score each week (Appendices E, E.1).

Procedures of Data Collection

Participants were given the multiple choice weekly vocabulary test as a pretest on Monday or the first school day of each week of the study. Then they were given the same multiple choice weekly vocabulary test as a post-test on Friday or the last school day of each

week of the study. The tests contained the eight vocabulary words the participants were taught for the week. For the first three weeks of the study the researchertaughtvocabulary using the Wonders reading curriculum method from the reading series.

On the first day of instruction participantstook the pretest first. Then they were introduced to each vocabulary word using a video from the Wonders reading series. The video consisted of a picture representing each new word, a sentence using each new word, a definition for each new word, and an opportunity for participants to discuss new words by giving examples of synonyms, antonyms, or experiences they have had with the words. Participants made vocabulary cards for the eight words with the word on one side and a simple definition on the other side. These were used at home and at school for review.

On the second day of each week participants read a story that included the new vocabulary words in context. They also completed a comprehension activity that included word work with the new words (Appendix F). On the third day of each week participants reviewed the words at home and discussed them with an adult. On the fourth day of each week participants completed a vocabulary worksheet where they had to write a definition for each word in their own words, complete a cloze activity with the vocabulary words, and provide a synonym or antonym for each word (Appendix G). If it was a four day week, the researcher combined days three and four. On the fifth or final day of the week, participants took the vocabulary post-test.

For the last three weeks of the study the researcher taught vocabulary using Marzano's six steps to vocabulary instruction.On day one of instruction participants took a pretest over the eight vocabulary words being taught that week. Participants were introduced to the new words using the Wonders videos in the same way they were the previous three weeks. However,

instead of making vocabulary cards for each word, participants filled out Frayer Models (Appendix H) for the words. This covered steps one, two, and three of Marzano's method.

On day two participantsspent time completing interactive activities (Appendix I) in their writing notebooks using the eight new vocabulary words for that week. That was step four of Marzano's method. On day three, participantsworked with a partner or small group and discussed the words, which is step five of Marzano's method. Participantscame up with stories together using all eight words, played charades with their partner using the vocabulary words, or played games using the vocabulary words. That was the sixth and final step of Marzano's method. If the school week was only four days long, the researcher combined activities five and six. On the last day of the school week participants were given a post-test on the eight vocabulary words. In the next section, the data analysis and results will be reported.

Data Analysis and Results

Data was analyzed quantitatively using descriptive analysis. The researcher collected pre-and post-test vocabulary scores of the participants for six weeks. The first three weeks of data was the result of vocabulary instruction from the Wonders reading curriculum method. The last three weeks of data was the result of vocabulary instruction that followed Marzano's six steps to vocabulary instruction.

Data Analysis

The researcher used descriptive analysis to analyze the data quantitatively. Each week the researcher collected data from pre-and post-tests. All of the data collected from all of the tests was organized and reported as raw scores on two different bar graphs using Microsoft Excel. The first graph shows each participant's pretest scores for all six weeks of the study. The second bar graph shows each participant's post-test scores for all six weeks of the study.

Two tables were created to compare individual participant's Mean pre-and post-test scores as well as the difference between the two Mean scores. The first table compares pre- and post-test scores collected during the first three weeks of the study when the researcher utilized the Wonders reading curriculum method for vocabulary instruction. The second table compares pre- and post-test scores collected during the last three weeks of the study when the researcher implemented Marzano's method for vocabulary instruction into the classroom.

It was hypothesized that the low achieving readers that participated in the study would make greater gains when Marzano's method was used for vocabulary instruction. It was also hypothesized that the high achieving readers that participated in the study would make gains regardless of the method of instruction for vocabulary that was used. As a result, the researcher created a table showing the Mean pre- and post-test scores and the difference between each score of the low achieving readers when using the Wonders reading curriculum method and Marzano's method. Another table was created showing the Mean pre- and post-test scores and the difference between each score of the high achieving readers when using the Wonders reading curriculum and Marzano's method. Following is a discussion of the results of the study based on the research questions.

Results

Overall results from pre- and post-tests revealed that participants made vocabulary gains regardless of which method of instruction was used. The mean pretest score was 5.62 and the mean post-test score was 7.40 for all six weeks of the study. Participants made an overall mean vocabulary gain of 1.78 points from the beginning to the end of the study. The highest mean pretest score was 7.5. Participant twenty-two, a high achieving reader, was the only one to score the highest. The lowest mean pretest score was 3.67 and only participant 8, an average reader,

scored the lowest. The highest mean post-test score was an 8. High achieving participants 4, 5, fourteen, and twenty-two all scored the highest as well as average participants 7 and twenty-one. The lowest mean post-test score was 5.67 and participant 8 was the only one who scored the lowest. This was the same participant that scored lowest on the pretests. Figure 1 and figure 2 below show the data collected.

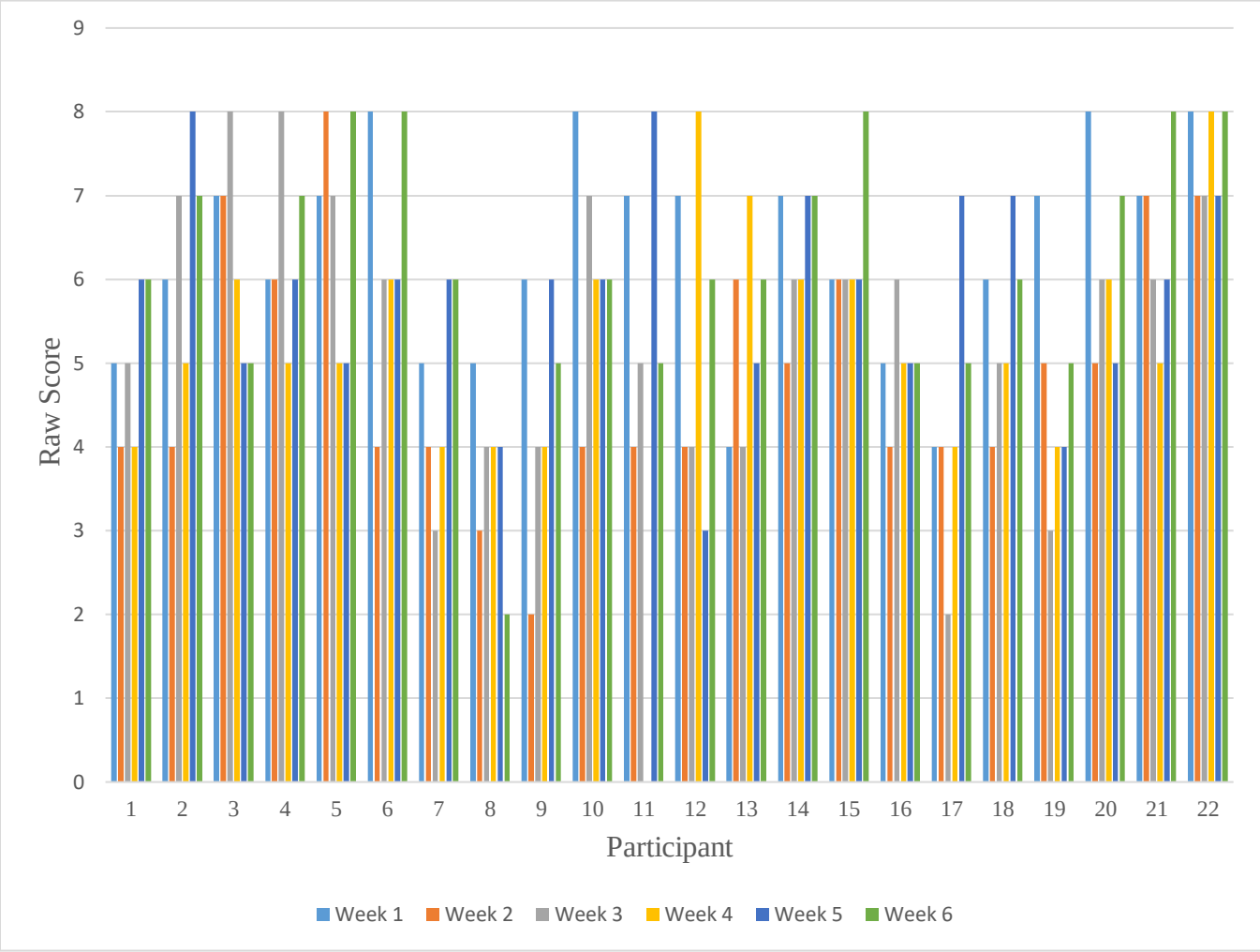

Figure 1. Participants' Pretest Raw Scores for the Entire Six-Week Study

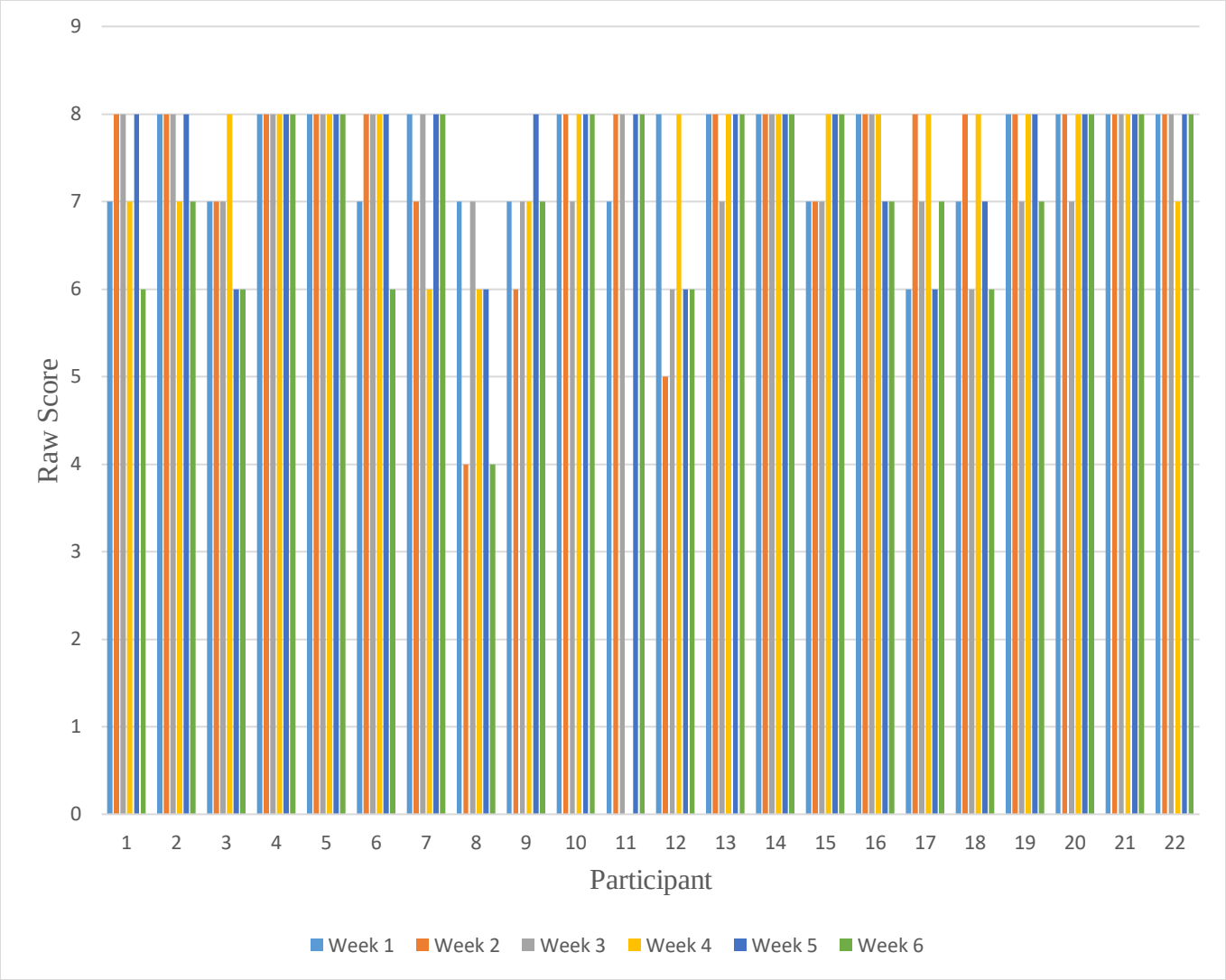

Figure 2. Participants' Post-test Raw Scores for the Entire Six-Week Study

Tables 2 and 3 show a comparison of each participants pretest and post-test scores during weeks one through three when the researcher was using the Wonders curriculum method and weeks four through six when the researcher was using Marzano's method. According to the data collected and the overall comparisons made between pretest and post-test scores, participants, as a whole, made greater gains on vocabulary knowledge when the researcher used the Wonders reading curriculum method for vocabulary instruction. In fact, the overall increase from pretest to post-test Mean scores was 1.94 points using the Wonders method and 1.64 points using

Marzano's method. When looking at individual participants, 12 of them performed better overall during the three weeks the Wonders method was being used. Nine students performed better overall during the three weeks Marzano's method was used. One student had no change in overall mean scores from the first three weeks of the study to the last three weeks. So, about 55% of the students made higher gains with the Wonders reading curriculum for vocabulary instruction, about 40% made higher gains with Marzano's method for vocabulary instruction, and 5% made equal gains regardless of the method used.

Table 2

Participants' Mean Scores from Pretests and Post-tests using Wonders Method. n=22

Participant	Pretest Score	Post-test Score	Difference
1	4.67	7.67	3.00
2	5.67	8.00	2.33
3	7.33	7.00	-0.33
4	6.67	8.00	1.33
5	7.33	8.00	0.67
6	6.00	7.67	1.67
7	4.00	7.67	3.67
8	4.00	6.00	2.00
9	4.00	6.67	2.67
10	6.33	7.67	1.34
11	5.33	7.67	2.34
12	5.00	6.33	1.33
13	4.67	7.67	3.00
14	6.00	8.00	2.00
15	6.00	7.00	1.00
16	5.00	8.00	3.00
17	3.33	7.00	3.67
18	5.00	7.00	2.00
19	5.00	7.67	2.67
20	6.33	7.67	1.34
21	6.67	8.00	1.33
22	7.33	8.00	0.67
Overall	5.53	7.47	1.94

Note: Participants in green are high achieving readers and participants in yellow are low achieving readers.

Table 3

Participants' Mean Scores from Pretests and Post-tests using Marzano's Method n=22

Student	Pretest Score	Post-test Score	Difference
1	5.33	7.00	1.67
2	6.67	7.33	0.66
3	5.33	6.67	1.34
4	6.00	8.00	2.00
5	6.00	8.00	2.00
6	6.67	7.33	0.66
7	5.33	7.33	2.00
8	3.33	5.33	2.00
9	5.00	7.33	2.33
10	6.00	8.00	2.00
11	6.50	8.00	1.50
12	5.67 6.67	1.00	
13	6.00	8.00	2.00
14	6.67	8.00	1.33
15	6.67	8.00	1.33
16	5.00	7.33	2.33
17	5.33	7.00	1.67
18	6.00	7.00	1.00
19	4.33	7.67	3.34
20	6.00	8.00	2.00
21	6.33	8.00	1.67
22	7.67	7.67	0.00
Overall	5.81	7.43	1.62

Note: Participants in green are high achieving readers and participants in yellow are low achieving readers.

The research questions that drove this study were focused on the low achieving readers and the high achieving readers. Therefore, it is important that we take a look at the data specific to these two groups of participants.

Does Using Marzano's Six Steps to Vocabulary Instruction Increase Low Achieving Student's Vocabulary Knowledge?

Low achieving readers were chosen for this study based on their Fall 2017 MAP scores in reading. Those participants who scored at or below the 30th percentile in reading were designated as low achieving readers for the purpose of this study. Four out of twenty-two participants fell into this category. In Table 4 below, the low achieving participants' mean scores are reported for weeks one through three when Wonders reading curriculum for vocabulary instruction was being used and weeks four through six when Marzano's method for vocabulary instruction was being used. Overall, low achieving readers made greater gains when using the Wonders reading curriculum method compared to when Marzano's method was used. These four participants had a 1.66 point increase from pre- to post-test using Wonders and a 1.24 point increase when using Marzano's. When looking at individual participants, three of them did better with Wonders and one did better with Marzano's. So, 75% of low achieving readers in this study made greater gains in vocabulary during instruction using the Wonders reading curriculum and 25% of low achieving readers in this study made greater gains in vocabulary during instruction using Marzano's method.

Table 4

Mean Scores of Low Achieving Readers on Pretests and Post-tests during the Study n=4

Approach	Wonders			Marzano's		
Participant	Pretest	Post-test	Difference	Pretest	Post-test	Difference
3	7.33	7.00	-0.33	5.33	6.67	1.34
12	5.00	6.33	1.33	5.67	6.67	1.00
17	3.33	7.00	3.67	5.33	7.00	1.67
18	5.00	7.00	2.00	6.00	7.00	1.00
Overall	5.17	6.83	1.66	5.58	6.83	1.25

Note: Participants designated as low achieving readers scored in the 30th percentile or below on the Fall 2017 MAP test.

Does Using Marzano's Six Steps to Vocabulary Instruction Increase High Achieving Students' Vocabulary Knowledge?

High achieving readers were chosen for this study based on their Fall 2017 MAP scores in reading. Those participants who scored at or above the 80th percentile in reading were designated as high achieving readers for the purpose of this study. Seven out of 22 participants fell into this category. In Table 5 below, the high achieving participants' meanscores are reported for weeks one through three when Wonders reading curriculum for vocabulary instruction was being used and weeks four through six when Marzano's method for vocabulary

instruction was being used. Overall, high achieving readers made equal gains when using the Wonders reading curriculum method compared to when Marzano's method was used. These seven participants had a 1.33 point increase from pre- to post-test using both Wonders and Marzano's. When looking at individual participants, three of them did better with Wonders and four did better with Marzano's. Therefore, 43% of high achieving readers in this study made greater gains in vocabulary during instruction using the Wonders reading curriculum and 57% of high achieving readers in this study made greater gains in vocabulary during instruction using Marzano's method.

Table 5

Mean Scores of High Achieving Readers on Pretests and Post-tests for Wonders and Marzano

n=7

Approach	Wonders			Marzano's		
Participant	Pretest	Post-test	Difference	Pretest	Post-test	Difference
2	5.67	8.00	2.33	6.67	7.33	0.66
4	6.67	8.00	1.33	6.00	8.00	2.00
5	7.33	8.00	0.67	6.00	8.00	2.00
14	6.00	8.00	2.00	6.67	8.00	1.33
15	6.00	7.00	1.00	6.67	8.00	1.33
20	6.33	7.67	1.34	6.00	8.00	2.00
22	7.33	8.00	0.67	7.67	7.67	0.00
Mean	6.48	7.81	1.33	6.53	7.86	1.33

Note: Participants designated as high achieving readers scored in the 80th percentile or above on the Fall 2017 MAP test.

Findings, Implications, Limitations

Findings

Based on the data collected during the study, Marzano's six steps to vocabulary instruction was not the most effective method to use to increase vocabulary knowledge with this group of fourth grade participants. When looking at the group of participants overall, regardless of reading achievement designations, Marzano's method was only effective with 40% of the participants at improving vocabulary knowledge. The Wonders reading curriculum method was effective with 55% of participants.

The purpose of the study was to determine if Marzano's six steps to vocabulary instruction had a positive effect on vocabulary knowledge compared to the Wonders reading curriculum method in a fourth grade classroom. The research questions for this study focused on high achieving and low achieving readers and each group's success with Marzano's six steps to vocabulary instruction compared to the Wonders reading curriculum. The study hypothesized that the low achieving students would increase vocabulary knowledge when Marzano's method was used. The study concluded that only 25% of the low achieving readers that participated in the study had a higher increase in vocabulary knowledge when Marzano's method was used. Therefore, in this study using Marzano's method for vocabulary instruction did not do a better job than the Wonder's method in increasing low achieving readers' vocabulary knowledge.

The second hypothesis was that high achieving students would have the same increase in vocabulary knowledge whether Marzano's method was used or the Wonders method was used. The study concluded that 43% of high achieving readers that participated in the study had a

higher increase in vocabulary knowledge when Marzano's method was used and 57% of high achieving readers that participated in the study had a higher increase in vocabulary knowledge when the Wonders method was used. Therefore, both methods are effective with higher achieving readers in this study with Marzano's method being slightly more effective than Wonders.

Implications

Educators have a number of choices when it comes to methods and strategies to use in their classrooms. They also have a multitude of different learning styles and abilities within their students that they must try to reach and teach. However, educators are short on time. Therefore, it is important that educators make the best use of that time to meet the needs of their students.

Vocabulary instruction is one of the most important pieces to the literacy puzzle that students, parents, educators, and administrators must work together to build. Research has shown time and again that the more words a student knows, the more successful they are in school. So, educators try to choose the most effective, least time consuming method of teaching.

The results of this study showed that for the participants in the fourth grade classroom used in the study, the Wonders reading curriculum method was most effective for all levels of readers when it comes to vocabulary instruction. This is good news for the educators in this particular school because they are all required to use the Wonders reading curriculum for literacy instruction, including vocabulary. Fourth grade educators in this school in particular can be confident that their students will increase their vocabulary knowledge using the Wonders method. They can also be confident in supplementing their vocabulary curriculum with Marzano's six steps to vocabulary instruction with the high achieving readers for a change or with low achieving readers during Unit 5.1 in the Wonders curriculum. The data collected

showed that one of the low achieving readers did not increase vocabulary knowledge that week when the Wonders method was used. It may be appropriate for the educator to used Marzano's during that particular unit to see if the low achieving readers do better with that list of vocabulary words.

The administration and school board of the school where the study was done can be assured that the literacy curriculum they have chosen for the students and educators to use is helping students in the fourth grade make gains in vocabulary. This is a good use of time and resources.

Limitations

One limitation of the study was that the sample of participants was quite small and the study took place in only one classroom. A larger sample of students and educators would give more reliable results. Possibly conducting the study in multiple grade levels would give a more accurate account of effectiveness as well.

A second limitation was that some participants missed a day or more of instruction during the six week study due to appointments, illnesses, and vacations. When participants miss some of the instruction it may skew the results because they did not receive the same type and amount of vocabulary instruction as their peers in the study. If the participant was absent on the pre- or post-test day, they may not have been as focused when taking the make-up test.

Reflection and Action Plan

Reflection

Marzano's six steps to vocabulary instruction did not prove to be as effective in increasing vocabulary knowledge as the Wonders reading curriculum method, especially with the low achieving readers. This was contradictory to what the researcher hypothesized. When

conducting the study, the researcher observed that some of the participants were overwhelmed by the tasks they were required to complete when Marzano's method was being used. In the case of the low achieving readers, when participants had to fill out the Frayer Model for each word and complete the interactive notebook activities, it was very time-consuming for these four participants. They may have had to put a great deal of effort on the task itself and had less time to focus on learning the new words.

Marzano's method was just slightly more effective when it came to the high achieving readers. This was in-line with the hypothesis of the study and with the researcher's experience. While the high achieving readers made gains in vocabulary knowledge regardless of the method being used, according to the researcher's observations, these students were more actively engaged in their learning when Marzano's method was being used. The Frayer Models and interactive notebook activities gave them a challenge that they were not used to in the Wonders reading curriculum method.

Action Plan

The researcher plans to enlist fellow fourth grade teachers to experiment with supplementing the vocabulary curriculum with Marzano's six steps to vocabulary instruction to see if they get similar results to this study. The researcher also plans to present this study at a future faculty meeting to share the findings of the study with colleagues along with strategies from Marzano's method to try when students are struggling with vocabulary. The data and findings of the study will be presented to an action research committee at Eastern Illinois University using Power Point slides and a professional poster.

The researcher suggests that more research be done on the various types of vocabulary instruction available to students and educators to determine which method works best. Larger

participant samples, multiple grade levels, and a longer study would be beneficial in collecting more reliable data. In the meantime, the researcher will use the knowledge gained from this study to better serve students in the classroom when it comes to vocabulary instruction.

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Appendix A

ST. JOSEPH COMMUNITY CONSOLIDATED SCHOOL DISTRICT #169

404 S. 5th Street • P.O. Box 409 • St. Joseph, IL 61873 *www.stjoe.k12.il.us*
Ph: 217.469.2291 • Fax: 217.469.8906

January 22, 2018

To whom it may concern,

I am writing this letter in regards to Christina Gherna's research project she has proposed. She has my permission to implement the project in her classroom using Marazano's Six Steps to Vocabulary Instruction compared to the method described by the school district's curriculum. I feel that this is an exciting project that is grade level appropriate and will provide good data for the school.

After discussing the project with Christina I am confident she can complete it in the six week timeline that she presented. Christina will also gain written permission from legal guardian of each student in her class before starting the project.

If you have any questions for me please feel free to e-mail me at msennert@stjoe.k12.il.us or call at 217-469-2291.

Sincerely,
Mike Sennert

Mike Sennert, Principal
St. Joseph Grade School

Appendix B

February 2018

Dear Parent/Guardian,

I will be conducting an action research project in the classroom this semester as a requirement for my final master's degree course at Eastern Illinois University. Students assigned to my classroom will be the participants of the research project.

I will be teaching language arts vocabulary in the same manner that I have been all year using the Wonders' curriculum for the first three weeks of the study. For the last three weeks of the study, I will use a method called *Marzano's Six Steps to Vocabulary Instruction* to teach the language arts vocabulary. Students will gain vocabulary knowledge through a variety of modes during the entire six week period. I will give students a pretest of the vocabulary words at the beginning of each week and then a post-test at the end of the week to track vocabulary learning.

All information and data collected and presented for the study will be kept confidential. Only myself and my faculty sponsor will have access to the information. Student's individual data will be tracked using a number system instead of names to protect privacy.

I have been granted permission from the school administration at St. Joseph Grade School to conduct this action research project in my classroom this semester. As a parent/guardian of a student in my classroom, it is your right to exclude your child from the study. If this is your wish, please contact me via phone or email using the contact information below.

Please let me know if you have any questions about the project or your child's participation.

Sincerely,

Mrs. Christina L. Gherna

ghernac@stjoe.k12.il.us

217-469-2291

Appendix C

map GROWTH

Class Report

GHERNA, CHRISTINA
Class: 4A

Term Rostered:	Fall 2017-2018	**Norms Reference Data:**	2015
Term Tested:	Fall 2017-2018	**Weeks of Instruction:**	4 (Fall 2017)
District:	St Joseph CCSD 169	**Small Group Display:**	No
School:	ST. JOSEPH ELEMENTARY SCHOOL		

Reading

Growth: Reading 2-5 CCSS 2010 V3 / Common Core State Standards English Language Arts/Literacy: 2010

Goal Performance

A. Literary Text: Key Ideas and Details
B. Literary Text: Language, Craft, Structure
C. Informational Text: Key Ideas and Details
D. Informational Text: Language, Craft, Structure
E. Vocabulary: Acquisition and Use

	Name (Student ID)	Grade	Test Date	RIT (+/- Std Err)	Percentile (+/- Std Err)	Lexile® Range	Test Duration	A	B	C	D	E
1	[redacted]	4	09/13/17	189-192-195	27-35-43	357-507L	61 m	*170-188*	**200-216**	184-200	184-199	*178-194*
2	[redacted]	4	09/12/17	199-202-205	51-60-68	537-687L	43 m	193-209	*187-203*	**205-221**	*184-200*	**201-217**
3	[redacted]	4	09/13/17	211-214-217	79-85-89	753-903L	89 m	203-219	**215-232**	*202-218*	**212-228**	*199-215*
4	[redacted]	4	09/12/17	183-186-189	16-22-28	249-399L	41 m	180-196	176-190	178-192	177-192	**184-200**
5	[redacted]	4	09/13/17	178-181-184	9-13-19	159-309L	36 m	*169-185*	**177-193**	*164-180*	*169-185*	**184-200**
6	[redacted]	4	09/13/17	218-221-224	89-93-95	879-1029L	131 m	*208-224*	*205-220*	**225-241**	213-227	216-232
7	[redacted]	4	09/13/17	210-213-216	77-83-88	735-885L	58 m	204-218	206-222	204-218	209-224	204-219
10	[redacted]	4	09/12/17	188-191-194	25-32-40	339-489L	51 m	**189-207**	186-200	180-196	*170-188*	**191-209**
8	[redacted]	4	09/13/17	207-210-213	71-78-84	681-831L	47 m	*185-201*	**206-222**	**207-223**	**216-232**	*192-210*
9	[redacted]	4	09/12/17	201-204-207	56-65-72	573-723L	59 m	**205-221**	*182-198*	**202-218**	197-211	196-212
11	[redacted]	4	09/12/17	202-205-208	59-67-74	591-741L	62 m	*191-207*	195-211	**202-216**	199-213	200-214
12	[redacted]	4	09/13/17	207-210-213	71-78-84	681-831L	46 m	**209-227**	**205-223**	*195-209*	*191-207*	**212-229**
13	[redacted]	4	09/13/17	197-200-203	46-55-63	501-651L	76 m	*186-201*	194-210	*183-199*	195-211	**203-219**
14	[redacted]	4	09/13/17	187-190-193	23-30-38	321-471L	46 m	185-201	*158-180*	**188-204**	**191-207**	185-200
15	[redacted]	4	09/13/17	189-192-195	27-35-43	357-507L	37 m	188-202	181-197	*174-190*	**193-209**	185-199
16	[redacted]	4	09/12/17	213-216-219	83-87-91	789-939L	78 m	210-226	**221-237**	*185-207*	208-224	211-227
17	[redacted]	4	09/13/17	211-214-217	79-85-89	753-903L	51 m	204-218	**214-230**	*201-217*	**212-228**	*202-217*
18	[redacted]	4	09/12/17	200-203-206	54-62-70	555-705L	41 m	**202-218**	*188-203*	**207-223**	197-213	*182-198*
19	[redacted]	4	09/12/17	187-190-193	23-30-38	321-471L	37 m	184-200	179-195	**187-203**	186-200	*175-191*
20	[redacted]	4	09/12/17	185-188-191	19-26-33	285-435L	41 m	**186-202**	*176-191*	184-198	179-193	177-193
21	[redacted]	4	09/13/17	199-202-205	51-60-68	537-687L	66 m	**200-215**	*190-205*	**199-214**	195-211	*188-204*
22	[redacted]	4	09/13/17	220-223-226	92-95-96	915-1065L	69 m	216-230	218-234	216-232	*211-225*	218-232
23	[redacted]	4	09/12/17	204-207-210	64-72-78	627-777L	55 m	*196-210*	*189-205*	*193-209*	**207-223**	**211-227**
24	[redacted]	4	09/13/17	219-222-225	91-94-96	897-1047L	53 m	**221-237**	212-228	**219-234**	213-227	*209-224*

Explanatory Notes

Tests shown in gray are excluded from summary statistics. Either the test occurred outside the testing window for a term, had an invalid score, or was a repeat test for a student within a term.
Test invalidations: ***1 The test duration was too short to provide a valid result.
Due to statistical unreliability, summary data for groups of less than 10 are not shown.
* This data is not available for reporting. Please refer to help and documentation for more information.
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Appendix D

Pretest 4.4 [redacted] Week 1

Name: _____ **Date:** _____

Why Does the Moon Change Shape?— Selection Vocabulary

Read each item below carefully and choose the correct answer.

1. What word means almost the SAME as *rotates*?
   - Ⓐ drives
   - Ⓑ flies
   - Ⓒ turns
   - Ⓓ waves

2. Which word means almost the SAME as *crescent*?
   - Ⓕ curved
   - Ⓖ round
   - Ⓗ square
   - Ⓘ wavy

3. What does the word *astronomers* mean?
   - Ⓐ people who design rockets
   - Ⓑ scientists who study artifacts
   - Ⓒ people who study planets, stars, and the sky
   - Ⓓ a scientist who studies the way people lived long ago

4. What does the word *phases* mean?
   - Ⓕ discussions
   - Ⓖ meetings
   - Ⓗ places
   - Ⓘ stages

GO ON →

Name: _____ **Date:** _____

5. Something that is a *sliver* is NOT
   - Ⓐ crooked.
   - Ⓑ gold.
   - Ⓒ slender.
   - Ⓓ thick.

6. Which word means almost the SAME as *series*?
   - Ⓕ individual
   - Ⓖ obstacle
   - Ⓗ pair
   - Ⓘ set

7. What does the word *specific* mean?
   - Ⓐ abstract
   - Ⓑ exact
   - Ⓒ odd
   - Ⓓ random

8. *Telescopes* are tools that help you
   - Ⓕ hear.
   - Ⓖ heal.
   - Ⓗ see.
   - Ⓘ travel.

STOP

Appendix D.1

Post-test 4.4 Week 1

Name: _____ **Date:** _____

Why Does the Moon Change Shape?— Selection Vocabulary

Read each item below carefully and choose the correct answer.

1. What word means almost the SAME as *rotates*?
   - Ⓐ drives
   - Ⓑ flies
   - Ⓒ turns
   - Ⓓ waves

2. Which word means almost the SAME as *crescent*?
   - Ⓕ curved
   - Ⓖ round
   - Ⓗ square
   - Ⓘ wavy

3. What does the word *astronomers* mean?
   - Ⓐ people who design rockets
   - Ⓑ scientists who study artifacts
   - Ⓒ people who study planets, stars, and the sky
   - Ⓓ a scientist who studies the way people lived long ago

4. What does the word *phases* mean?
   - Ⓕ discussions
   - Ⓖ meetings
   - Ⓗ places
   - Ⓘ stages

Name: _____ **Date:** _____

5 Something that is a *sliver* is NOT

Ⓐ crooked.

Ⓑ gold.

Ⓒ slender.

Ⓓ thick.

6 Which word means almost the SAME as *series*?

Ⓕ individual

Ⓖ obstacle

Ⓗ pair

Ⓘ set

7 What does the word *specific* mean?

Ⓐ abstract

Ⓑ exact

Ⓒ odd

Ⓓ random

8 *Telescopes* are tools that help you

Ⓕ hear.

Ⓖ heal.

Ⓗ see.

Ⓘ travel.

STOP

Appendix E

Data Collection Sheet

Date:	**Researcher: Christina Gherna**

Pretests

Participant	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Mean**
1							
2 (high)							
3 (low)							
4 (high)							
5 (high)							
6							
7							
8							
9							
10							
11							
12 (low)							
13							
14 (high)							
15 (high)							
16							
17 (low)							
18 (low)							
19							
20 (high)							
21							
22 (high)							

Notes:

Appendix E.1

Data Collection Sheet

Date:	**Researcher: Christina Gherna**

Post-tests

Participant	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Mean**
1							
2 (high)							
3 (low)							
4 (high)							
5 (high)							
6							
7							
8							
9							
10							
11							
12 (low)							
13							
14 (high)							
15 (high)							
16							
17 (low)							
18 (low)							
19							
20 (high)							
21							
22 (high)							

Notes:

Appendix F

Making Inferences

Why would Mercury take 277 fewer days than Earth to orbit the sun? Reread p. 340.

Why does it take Neptune 164 Earth years longer than Earth to orbit the sun? Reread p. 340.

Cause & Effect

What causes the moon and other planets to seem to glow when they do not have light of their own? Reread p. 345.

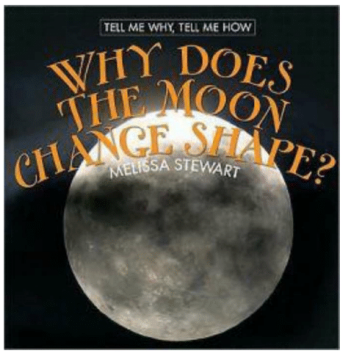
~Be sure to restate…then answer.

Response:

Comprehension Skills Practice

Why Does the Moon Change Shape?

Anthology Book
pp. 336 -351



Name: _____

Created by: Joanne Warner

Cause & Effect

Complete the chart.

Text	Cause	Effect
Reread p. 345. When some of that reflected light reaches our eyes, the planet seems to glow.		
Reread p. 345. ...it looks bigger and brighter to us because it is much closer to Earth than those planets are.		

Vocabulary ~ Context Clues

Vocabulary	Strategy	Context Clues - Meaning
dwarf planet p.341	Use context clues from paragraph #1.	
crescent p. 347	Use context clues from paragraph #2.	

Extended Response (Cause & Effect)

Reread pp.346 – 348. Why does the moon appear to change shape?

~ Be sure to restate...then answer.

Response:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Appendix G

1 Definitions

1. astronomer
2. crescent
3. phases
4. rotates
5. series
6. sliver
7. specific
8. telescope

2 Fill in the blank

1. Since I wasn't very hungry, I only ate a small _____ of cake.
2. The planning for our holiday party will take place in two _____.
3. The Earth _____ on its axis once a day.
4. She wears _____ shoes for running and exercising.
5. That banana is shaped like a _____.
6. I am reading the final book in the _____.
7. She wants to be an _____ when she grows up since she enjoys studying the planets and stars.
8. I looked through the _____ in order to take a closer look at the stars.

3 Answer ?'s

What is a synonym for:

1. exact
2. stages
3. set
4. curved
5. turns
6. tool that helps you see

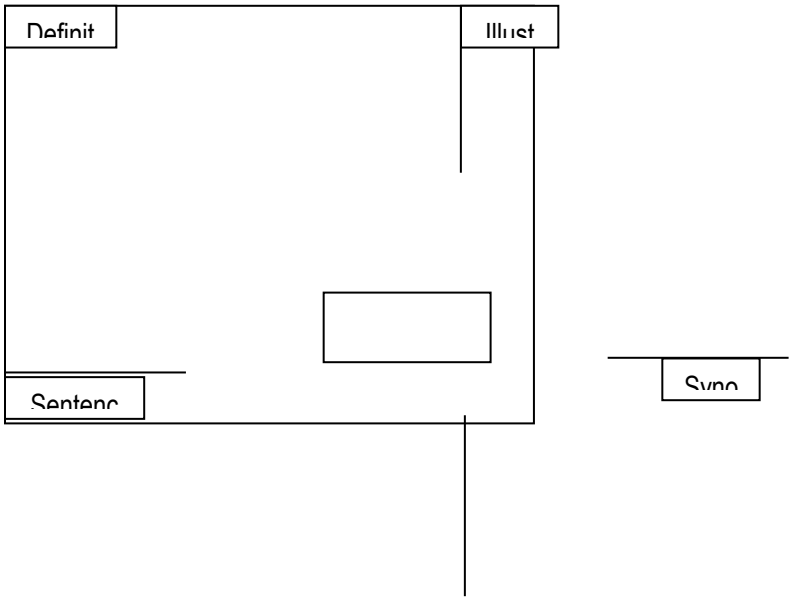
What is an antonym for:

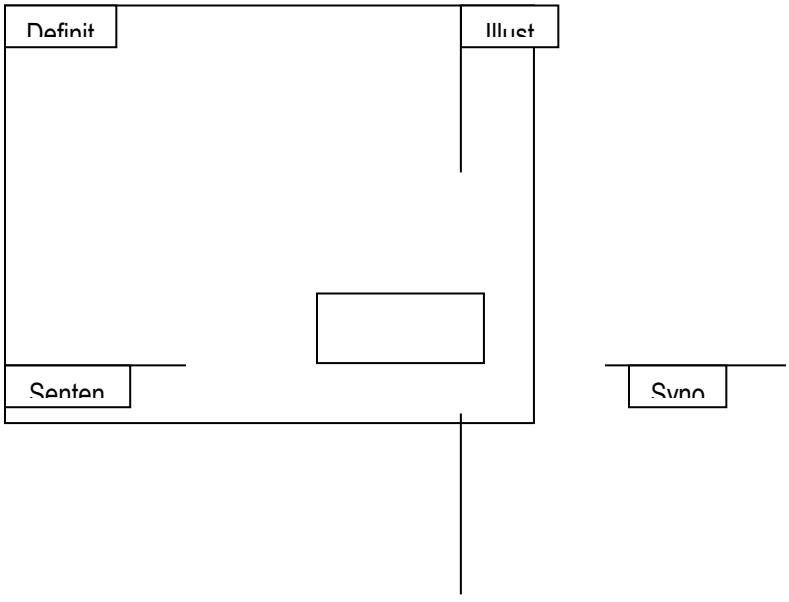
7. thick

Complete the sentence:

8. A person who studies the planets, stars, and sky is an _____.

Appendix H





Appendix I

Vocabulary Word:	Part of Speech:
Teacher Definition:	My Definition:
Use It:	Draw It:

Vocabulary Word:	Part of Speech:
Teacher Definition:	My Definition:
Use It:	Draw It:

Appendix J

January 30, 2018

Christina Gherna
EC/ELE/MLE

Thank you for submitting the action research protocol titled, "Using Marzano's Six Steps to Vocabulary Instruction in a Fourth Grade Classroom" for review by the Eastern Illinois University Institutional Review Board (IRB). The protocol was reviewed on 1/30/2018 and has been certified that it meets the federal regulations exemption criteria for human subjects research. The protocol has been given the IRB number 18-015. You are approved to proceed with your project.
The classification of this protocol as exempt is valid only for the research activities and subjects described in the above named protocol. IRB policy requires that any proposed changes to this protocol must be reported to, and approved by, the IRB before being implemented. You are also required to inform the IRB immediately of any problems encountered that could adversely affect the health or welfare of the subjects in this study. Please contact me in the event of an emergency. All correspondence should be sent to:

Institutional Review Board
c/o Office of Research and Sponsored Programs
Telephone: 217-581-8576
Fax: 217-581-7181
Email: eiuirb@www.eiu.edu

Thank you for your cooperation, and the best of success with your research.

Cheryl Siddens, Compliance Coordinator
Office of Research and Sponsored Programs
Telephone: 581-8576
Email: casiddens@eiu.edu