IMPROVING THE KNOWLEDGE AND APPLICATION OF VOCABULARY WITHIN CONTENT AREAS

Dana Austermuehle
Tabitha Kautz
Jennifer Sprenzel

An Action Research Project Submitted to the Graduate Faculty of the

School of Education in Partial Fulfillment of the

Requirements for the Degree of Master of Arts in Teaching and Leadership

Saint Xavier University & IRI/Skylight Professional Development

Field-Based Masters Program

Chicago, Illinois

May, 2007

ABSTRACT

This action research paper depicts the teacher-developed instructional strategies to enhance vocabulary instruction among school-age students in the public school setting. The selected population spans across three school districts and includes a third grade classroom, a fifth grade classroom, as well as a select fourth and fifth grade students with learning disabilities in a pull out program. All three sites are located in suburban, middle-class communities in a large Midwestern city. The insufficient vocabulary performance is documented through district provided comprehension and vocabulary scores as well as content-based vocabulary assessments.

The literature shows that explicit instruction on research-supported practices (i.e. in-depth investigations, word maps, and other graphic organizers) and multiple exposures to the same unknown word are necessary for vocabulary growth. Research also pointed out that a variety of techniques for independent word learning should be taught. These researchers focused specifically on the intentional explicit instruction and organization of research-based independent word learning strategies.

The analysis of student achievement was determined by first examining district scores in comprehension and vocabulary (Star Reading Program, Guided Reading Program, SSAT (State Standardized Achievement Test), and MAPS (Measures of Academic Progress)) and a Content Vocabulary Pre-Assessment. The teacher researchers involved the students in two different techniques for independent word learning (i.e. word map, four-square, and flashcards) and vocabulary dictionaries. After completing the individual word learning strategies, content-area vocabulary growth was measured by Content Vocabulary Quizzes. Following the instruction and learning of the three strategies, vocabulary growth was evaluated by examining district provided scores in comprehension, Student Reflections, and a Vocabulary Post Assessment in specific content area.

Post intervention data indicated the interventions were highly successful. Overall, students showed a growth in vocabulary knowledge and reading comprehension. Student reflections indicated that they enjoyed learning the vocabulary strategies and using the vocabulary dictionaries. Student Reflections at Sites A and B indicated that they preferred learning vocabulary by using the flashcard strategy while students at Site C preferred the word map strategy. Students at Sites A and C demonstrated more vocabulary growth using the flashcard strategy while students at Site B showed the most growth using the four-square strategy.

ACKNOWLEDGEMENTS

The researchers would like to thank their mothers for understanding and supporting them through all the troubles and tribulations over the past two years. They honestly could not have handled the lack of sleep, work-filled evenings and weekends, and stressful deadlines without their understanding and emotional support. In addition, Jennifer and Tabitha would like to specifically thank their mothers for taking care of their dogs while they devoted time to the completion of this program. Also, Tabitha cannot begin to thank her fiancé for consistently understanding and listening to her frustrations over and over again and always remaining positive.

Furthermore, thank you to the students and students' parents for their participation in this action research study. Of course, the project would not have been possible without their support and cooperation. Finally, the researchers would like to acknowledge the encouragement of colleagues and administrators throughout this program and would like to thank these people for understanding and respecting the time commitments in the program.

TABLE OF CONTENTS

CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

Students lack the vocabulary skills to effectively demonstrate and communicate knowledge within content areas. This becomes a greater challenge as time persists. Evidence for the existence of the problem includes the student's district scores in comprehension (Star Reading Program, Guided Reading Program, and SSAT (State Standardized Achievement Test)) and vocabulary (SSAT, and MAP (Measures of Academic Progress) Test scores) fall below district expectations and inadequate performance on Content Vocabulary Quizzes and Post Assessments (Appendix A).

Immediate Problem Context

This study will be conducted at three sites. The sites share many similarities as well as differences. Each site's building is made of brick, located in a residential area, and all have parks nearby open to the schools. In addition, each site has a public library within approximately 5 miles. Finally, all three sites are located in suburbs of a major metropolitan city in the Midwestern United States. However, with these similarities come differences.

Site A

Site A is located in a northern suburb a major metropolitan city. The building, consisting of 32 classrooms, houses grades K-4. Grades K-1 are located on the bottom floor of the building and grades 3-4 on the top floor with grade 2 classrooms on both floors. The school was built in 1989. It has a library, two computer labs, a gym, and a cafeteria located on the first floor. A technology teacher uses one computer lab throughout each school day, while the other is open for classroom teachers to sign up and use. The gym is used by physical education classes and for all school assemblies. The cafeteria is also used for smaller assemblies. All classrooms are carpeted and the school has air conditioning throughout. A T.V. with V.C.R., telephone, and four computers are located within each classroom as well.

The site's student enrollment is 620, consisting of 78.5% White, 1.6% Black, 3.9% Hispanic, 15.5 % Asian/Pacific Islander, and 0.5% Native American. There is 4.7% low income rate and 0.3% limited English-Proficient rate. The attendance rate is 96% and the mobility rate is 6.5%. At this site the class size is 21.5 pupils with an instructional per pupil expenditure of $5,660 in 2004. There are four computers available for student use in each classroom, with two computer labs for a combined total of 50 computers.

The research study will take place in a third grade classroom. The teacher teaches all subjects except science. There are two scheduled block times. The math block is in the morning for an hour and the language arts block is in the afternoon for an hour. Students are flexibly placed into math groups for each math unit and switch classes during the math block time. During the language arts block students practice reading through guided reading, read aloud, independent reading, and partner reads. Students receive pullout support throughout the day from the following school services: ELL (English Language Learners) program, special

education, Reading Center, Math Lab, occupational therapy, speech, social work, and S.E.E.K (Special Education Enrichment for Kids).

At this site there are several out of school activities taking place within the building. There is a before and after school program called Clubhouse for students to attend whose parents work and can not drop them off and pick them up during regular school hours. Another activity-based program takes place after school wherein students select classes of their choice to attend. Activities in this program range from chess, scrap booking and games to learning Spanish. Optional busing home is provided for students in this program. Some non-school sponsored activities also take place at this site including Boy Scouts and Brownies.

Teachers employed at this site are 100% White with 16.4% male and 83.6% female. The school district has an average of 12.9 years of teaching per teacher with 36% of teachers with only a bachelor degree, 64% of teachers with a master's degree or beyond. The average teacher salary is $60, 351.

Administrators at this site include one female full time principal and one male full time assistant principal. The average administrator salary in the district is $131,180.

Site A's total school expenditure in 2003-4 was $26,364,372. School finances are spent with 46.1% going towards instruction, 4.9% to general administration, 33.8% for support services, and 15.2% going to other expenses.

Site B

Site B's building, located in a northern suburb of a major metropolitan city, houses grades K-5 with 24 regular education classrooms. However, when the one story building was built in 1957, the school housed grades K-6 with only 12 regular education classrooms. To

achieve its current size, Site B has undergone several changes and additions. The first addition was finished in the early 1960s and included the library and four small office rooms. Then, in the early 1970s, six classrooms and a new library were added, and the old library was divided into two rooms: a special education room and a workroom. To keep up with increasing enrollment in 1972, a middle school was built, and this site changed from a K-6 to a K-5 building. Two decades later, more expansions were needed. In 1994, additional construction included a computer lab, art room, gymnasium, music room, and another regular education classroom. Once again in the year 2000, additions were made and consisted of a regular education classroom as well as a new main office and nurse's room. While the classrooms do not have air conditioning, the computer lab, teacher's lounge, and main office do. All in all, as the numbers increased, rooms have been added, expanded, and rearranged.

As the number of rooms changed, the uses changed. At one point throughout the years, the library became two classrooms and three offices, the teacher's lounge changed to a classroom, the library included intervention and gifted programs, the workroom became a classroom, and the gym became the lunchroom. Although this site continuously undergoes changes, the classroom components remain the same. The regular education classrooms have one computer and one chalkboard, and the special education rooms have one computer, one chalkboard, and a telephone.

This site's enrollment of students is 487 students, consisting of 95.5% White, 0.2% Black, 0.2 % Hispanic, 1.6% Asian/Pacific Islander, and 2.5% Multi racial/Ethnic. The low-income rate is 0.4%, and the limited-English-proficient rate is 1.0%. The chronic truancy rate is 0.0%. The mobility rate is 3.2%, and the attendance rate is 95.8%. The average class size is 20.7 in kindergarten, 22.0 in Grade 1, and 22.3 in Grade 3. The 2003-04 instructional

expenditure per pupil is $5,411. Lastly, each classroom has one computer, and 15 computers are available to the students in the library and computer lab (School Report Card 2005).

At Site B, regular education classrooms devote a certain amount of time a day to teaching core subjects: mathematics-50 min./day, science-30 min./day, English/language arts-174 min./day, and social science-30 min./day. Each teacher is responsible for teaching each core subject for the allotted amount of time. Students may be pulled out of class for gifted math or language arts programs, specific learning interventions, or resource support.

The students participating in this action research program are students with learning disabilities who will be pulled out of the classrooms for specialized instruction. This specialized instruction will be implemented in one of the four resource rooms at this location. The resource room has all the components of the regular education classrooms in Site B. Each participating student has an individualized education plan (IEP) that stipulates the type and amount of service he/she receives in the resource setting. Only students with an IEP goal in the area of reading comprehension are eligible for specialized instruction in vocabulary instruction.

The parent teacher organization (PTO) offers enrichment programs at Site B. Although the PTO is in charge of running these programs, the regular education classrooms are used. These programs include robotics, arts and crafts, science experiments, and photography. The park district runs before school and after school babysitting in the cafeteria. In addition to PTO functions, district and community meetings and activities are often held at Site B.

With a total of 223 full-time teachers, this site does not offer a great diversity among its teachers. Statistics show that the teachers in the district consist of 99.1% White, 0.9% Black, 0% Hispanic, O% Asian/Pacific Islander, and 0% Native American. Across the district, there are 16.1% male teachers and 83.9% female teachers. The average teaching experience is 12.0 years.

While 45.7% of these teachers have a bachelor's degree, 54.3% of these teachers have a master's degree or higher. The percentage of teachers with emergency or provisional credentials is 0%. The average salary of full-time teacher's in this district is $55,292 (School Report Card 2005).

Each building in this district has two full-time administrators: a principal and an assistant principal. The principal is responsible for functions of the entire building, and the assistant principal is in charge of not only assisting the principal, but also managing the special education department. At Site B, both administrators are white females. The average salary for administrators in the district is $113,068 (School Report Card 2005).

Site C

Site C is a kindergarten through eighth grade building built in 1967 located in the northwest suburb of a major metropolitan area. Until 1993 Site C was a separate entity from the junior high. On August 26, 1993 the two separate schools were renamed and considered one entire school. A large hallway connects and separates the two schools. Again the school was changed in 2004, when it was decided that even though the schools are physically one, they will be considered and referred to as separate schools and will have separate administration staff.

Not only does Site C consist of kindergarten through sixth grade, but also houses the Adapted Instruction for Meaningful Education (AIME) program for the district. There are three AIME classes: kindergarten through second, third through fourth and fifth through sixth. There are 21 classrooms at the site and are all located on the first floor. Site C shares the library and the cafeteria with the junior high, but Site C has its own computer lab and gymnasium. The site is completely carpeted, except for the bathrooms and a small area around the sinks in each classroom. The site also has air-conditioning that is regulated by the custodian and the district

guidelines. Each classroom has its own television, videocassette recorder (VCR), telephone, and four computers. Of the four computers, three are for the students and one is for the teacher.

Site C currently has 475 students enrolled from a variety of racial backgrounds. Of the student population, 79.8% are White, 3.4% are Black, 10.5% are Hispanic, 5.3% are Asian/Pacific Islander, 0.6% Native American, and 0.4% Multi racial/Ethnic. Only 11.8% of the student population are considered to be low-income and are enrolled in the reduced lunch program. Also, of the 475 students, 2.1% are limited-English-proficient. Site C's attendance rate is 96.1%, has a 7.9% mobility rate and 0% truancy rate. The average class size varies by grade level, and ranges anywhere from 21 to 28 students. For the 2003-2004 school year the instructional expenditure per pupil was $5,766.

At Site C each classroom teacher instructs all the content areas. Subject specialist teachers, not the classroom teacher, teach the students physical education, music, and art. For the first time, the students are ability grouped, but only for math. The students were put on a matrix to qualify for the accelerated math. Otherwise, they are grouped heterogeneously. In the intermediate wing, all the classes are blocked for math for one hour in the morning. Students at Site C are pulled out for speech, social work, psychology, resource and reading intervention services. These services are provided during school hours.

Site C offers before and after school services for students whose parents work and cannot take or pick them up during regular start and dismissal times. These services are an extra cost to the parents. There are two clubs run by the school and one run by the Parent Teacher Association (PTA). The two clubs run by the school are Student Council and Patrol while the PTA runs the Make a Difference club. The PTA also offers students After-School Specials. This is where the students are given a list of different activities to choose from and are then

assigned to three different activities that take place after school on three consecutive Fridays in the spring. Brownies and Boy Scouts also meet at the school.

At Site C the staff consists of many others than just the teachers. This includes administration, clerical staff, psychologist, social worker, program assistants and one-on-one assistants. The staff statistics are less diverse than the student population. The percentage of White staff members are 93.5, while 0.8% are Black, 4.5% are Hispanic, 1.2% are Asian/Pacific Islander and 0% are Native American. The staff is mostly composed of females at the 85.2% level, which leaves only 14.8% who are male. The average teaching experience is 12.4 years with an average salary of $63,448. The percentage of staff members with a bachelor's degree is 49.3 and the percentage of teachers with their master's degree and above is 50.7.

The administration at Site C has changed drastically over the last five years. Until last year both the junior high and elementary shared one principal. Site C now has one full time principal and shares the assistant principal with another school in the district. The assistant principal is only at Site C twice a week, which makes it difficult for this person to have many responsibilities. The average salary of the administration is $104,645 at Site C.

Surrounding Community

Site A

Site A is located 35 miles north of a large midwestern city and overlaps into two counties. It was founded in 1834. There are 3 school districts that serve the community consisting of 10 public primary/middle schools, 4 private schools, and one public high school. In 2000, the population was 43,195 with a median age of 37.4 years. The population breaks down to 88.5% being White, 3.3% Hispanic, 1.8% Chinese, 1.7% Asian Indian, and 1.2% Japanese,

0.8% Filipino and Black with 20.3% being foreign born. The median home value is $236,200 and the median per household income is $92,583 (U.S. Census Bureau 2000 and (http://factfinder.census.gov).

Site A has a public library within five miles that offers free programs for adults and children. There are three hospitals/medical centers within 9 miles of Site A that offer specialized medical care for residents. Around the school are public parks that residents can use for a variety of recreational activities such as basketball, hockey, tennis, and soccer. The park district offers sports programs and summer camp for the youth that attend Site A. The police department comes to Site A to do seasonal safety assemblies and teaches the Life Skills program to third graders. The program discusses Internet safety, stranger danger, drug abuse, and how to deal with peer pressure.

Site B

Site B's community was founded in 1903. It is located in the northern suburbs of a major city. Three school districts serve the children in this town of 18,420 people. These school districts include 4 primary/intermediate schools, 2 middle schools, and 1 high school. The racial/ethnic background of the community is: 95.9% White, 0.3% Black or African American, 2.5% Asian, 1.7% Hispanic or Latino, and 0.4% other race. The median value of a home is $342,900, and the median household income is $107,194 (U.S. Census Bureau 2000 and http://factfinder.census.gov).

The community offers a variety of activities for its residents. The library in town offers free programs for children and adults. In addition to free programs, many athletic clubs, gender and religious specific organizations, and various support groups are also available. The park district offers summer camps and events for the residents to socialize with each other. The

police department works with the school district to educate young people on drug abuse through the Drug Abuse Resistance Education program (D.A.R.E.). All fifth grade students participate in this program once a week for the duration of the program.

Site C

Site C is located in a suburban town approximately 30 miles northwest from a large metropolitan city and 15 miles from an international airport. The total area of this town is 13 square miles and is surrounded by other large, suburban towns. The town is considered to be middle-to-upper class. The community in which Site C is located in has two high schools and one community college.

According to the United States 2000 Census the population of the town in which Site C is located is 65,479 people. Of that total, 49.8% are male and 50.2% are female with a median age of 34.3 years old. There are 4,807 children under the age of five, 49,222 people are 18 years and older and 5.764 are over the age of 65. The ethnic population of this town is: 83.1% are White, 2.1% are Black or African American, 0.02% are American Indian or Alaska Native, 7.6% are Asian, 0.0% are Native Hawaiian or other Pacific Islander, 14.1% are Hispanic or Latino, 1.9% are two or more races and 5.1% are another race.

For the population 25 years and older the majority of the people in this town have attained at least a bachelor degree. Of this population 89.1% have attained their high school diploma or equivalent, 21.9% have some college with no degree, 6.4% have their associate's degree, 27.4% have their bachelor's degree and 14% have their graduate or master's degree. According to the 2000 census the median household income is $63,321 and the median family income is $76,270. Only 3.5% of families are considered to be living below poverty level. There are 13,965 single-family homes and the median cost is $199,200.

The community in which Site C is located provides many additional services to the school district. The Fire Department comes and visits each classroom at least once a year to discuss fire safety with the children. Until this year, due to budget cuts, the fifth grade classes have also gone to the fire department as a field trip to have more intensive training in fire safety, what to do if there is a fire and to see the effects a fire has on a house. The police department also offers services to the schools by visiting once a year. In the primary grades the officer discusses with the children "stranger danger" and how to spot a safe person. Then in the intermediate grades the officer discusses with the children the effects of going with a stranger and how it can become deadly. This discussion is much more in-depth and intense than the primary presentation.

National Context of the Problem

"A student's growth in reading power is dependent upon continuous growth in word knowledge." (Rule and Barrera, 2003, p. 14) What does this mean? Vocabulary knowledge is a key indicator to a student's success within all academic areas. Vocabulary in the context of content is not as frequently encountered on a daily basis. Therefore, there is minimal acquisition of these words unless a variety of strategies are implemented in the classroom.

In a first grade classroom of 23 students at Sowers Elementary School in Roanoke, Illinois, behavioral and academic concerns appeared to be a bigger issue than in prior years. Vocabulary instruction also posed to be a challenge because of the limited vocabulary acquired in kindergarten and because of specific learning disabilities. The teacher attended a workshop on reading instruction and felt ready to implement new reading strategies with these struggling first graders. The workshop familiarized the teacher with trade books, and she used this strategy to teach vocabulary. "Trade books provide a model of complex language and academic

vocabulary, increase word and world knowledge, and prepared children for future reading tasks by building listening comprehension." (Schippert, 2005, p. 11) With each of the trade books, words were divided into a three-tier system. Each tier has a specific purpose: tier-one words are high frequency or basic sight words (i.e.: hop, happy, dad); tier-two words are used in multiple texts and are often verbs or adjectives (i.e.: sly, elated, exasperated); tier-three words are specific to a content or theme (i.e.: homeostasis, immigrant, quotient).

The process lasts at least a week. The teacher reads aloud to the students. When the story is finished, he rereads the passage that contains the new vocabulary words. Then, for the next week the class focuses on two or three new vocabulary words. Many different strategies are used to practice. In order for the students to make personal connections the teacher displayed the words on sentence strips, used vocabulary four-square activity, held class discussions, had the students participate in role-playing activities and then finally exhibited the terms on the vocabulary bulletin board.

Progress was monitored daily for a month. Through the use of a table that recorded student responses, the students' data showed that most students were learning the new vocabulary words, and the new vocabulary words were becoming part of their everyday language. The teacher believed that this vocabulary instruction eliminated the students' need to concentrate on decoding or deciphering meaning, since these words were part of their schema. (Schippert, 2005)

In a rural public school in southwestern Idaho, two third grade classrooms with mixed ability levels, including a large population of students from migrant families who speak Spanish, conducted a study showing the effects of using objects to teach vocabulary words with multiple meanings. At this young age, learners are concrete thinkers and consequently benefit from

concrete examples. In addition, many of the children in this study had English as the second language or new language, which caused a language barrier.

Before the students were put into groups, all students were given a pre-assessment. Those that scored a 100% were eliminated from the study because of material mastery. A total of 30 students were divided into two heterogeneous groups of 15 students of varying ability levels and mixed ethnicity. Group A was the control group and received traditional instruction through illustrations via transparencies. Group B received the experimental instruction of using objects, word cards, and definition cards to teach words with multiple meanings. This study clearly indicated that the support given to Group B significantly impacted vocabulary growth. The control Group A's mean gain was 11.7% whereas the experimental Group B's mean gain was 18.1%. (Rule and Barrera, 2003)

According to a study done at Sunset View Elementary School in Provo, Utah, "development of vocabulary is crucial to any experience involving language." (Monroe & Orme, 2002, p. 139) This school was having difficulties with vocabulary instruction in the content area of mathematics. A plethora of obstacles limited the success of students in mathematics. Due to the limited exposure of math vocabulary in everyday life, background knowledge of these vocabulary words was limited. In addition, many terms have different meaning in mathematics than in everyday life. For example, volume to a child may mean the loudness of a noise; however, in mathematics, volume is a unit of measurement used to measure liquids. Another obstacle in succeeding in mathematical vocabulary is that mathematical terms are frequently not concrete. Therefore, the students have a hard time associating mathematical terms with something tangible.

A combined approach of learning vocabulary within meaningful context and direct teaching was found to be the most effective, as opposed to the definition-model. Interestingly enough, new words are learned in school the same way as home, "by observing how the words are used in intelligible contexts." (Monroe & Orme, 2002, p. 140) Although this has proven to be an effective strategy, it does not provide for adequate transfer of learning. To complete this transfer of learning, direct teaching of important vocabulary words must take place. However, not all forms of direct teaching are successful. The study suggests that the best approach is to directly teach using graphic organizers. Not only do graphic organizes contribute to teaching vocabulary, they also allow the learner to organize the information in a meaningful way.

In a sixth grade class in Los Angeles, California, a second year teacher was teaching vocabulary to her students when she came to the realization that it was always the same students that received A's and B's on the vocabulary assessments. She also realized that it was always the same students that did not study that failed the assessments, which deeply frustrated her. Though she was proud of the students that received A's she noticed that they tended to always forget the terms and definitions after a short period of time. She decided that even though some of the students were receiving A's that she was not successfully teaching, if they were only memorizing terms for the assessment.

The teacher would typically teach vocabulary instruction by writing all the vocabulary words with the definitions on the board and have the students copy them down in their notebooks. It was because of one's student's refusal to write the words and definitions in his notebook because he said he knew them all that started to turn her thinking around. The teacher thought that she would prove him wrong by giving him a quiz on the terms, but the student actually scored perfectly. This student thought her lessons was extremely boring and instead

loved reading books, which is where he learned many new words without direct instruction. She suddenly realized that this student was teaching her something new. She now understood that students are able to learn new words and their meanings by reading. It turns out that this student would rather be reading and learning new words through reading books, than through direct vocabulary instruction.

Instead of instructing the same way she had always done which resulted in only a few students receiving good grades and forgetting all they learned after a short time, she tried something new. She threw out all of her traditional vocabulary lists and reviewed the words by incorporating them into literature lessons. (Shin, 2004) Not only did she instruct vocabulary through literature lessons, but also had the students read more independently and learn new words on their own. This teacher also realized that she needed to invest more in books that have challenging words for the students to read, than to worry about different vocabulary instruction programs.

Unfortunately, low achievement scores were not the only problems at Herbert Hoover High School in San Diego, California. Staff and students focused more on crime, poverty, and consequently basic skills rather than achievement and higher learning skills. With all the discouraging thoughts, the teacher turnover rate increased. Although the school addressed these issues, the focus changed continuously, and nothing seemed to remain in effect long enough to make a difference. In addition to school wide changes, teachers' opinions and approaches to vocabulary instruction differed. Many thought of vocabulary instruction as a focus for elementary school teachers or just a concern for English teachers, and those teachers who believed in vocabulary instruction emphasized different words and used individual methods of instruction.

But this school was not going to give up. A team of teachers, administrators, and colleagues at San Diego University put together seven instructional strategies to address the school's academic needs. The goal was for these seven strategies to spread across all academic areas including shop. To support the staff at Herbert Hoover High School, a professional development plan was developed around the seven strategies. This plan accentuated strategic teaching as a key attribute of student learning.

Of these seven strategies, read-alouds, graphic organizers, vocabulary instruction, and reciprocal teaching were the four strategies that directly related to vocabulary growth. The read-alouds highlighted specific vocabulary words and spiked student interest. Graphic organizers allowed the students to connect information from class discussions with visual representations to enhance meaningful instruction. Vocabulary instruction included the instruction and studying of word families, affixes, word roots, vocabulary journals, and word sorts. The most difficult strategy for teachers appeared to be reciprocal teaching. In reciprocal teaching, student-directed discussion groups consisted of four students who each become the teachers for predicting, questioning, clarifying, and summarizing. (Fisher, Frey, & Williams, 2002)

After three years of implementing these strategies, not only was achievement higher, but also teachers and students reported numerous benefits to this learning. Read-alouds aided in extension of background knowledge. Students insisted that graphic organizers were undoubtedly the most beneficial tools to promote learning. Teachers noticed that student vocabulary transferred across content areas. Both teachers and students indicated that reciprocal teaching engaged all and promoted higher understanding of the content. (Fisher, Frey, & Williams)

In summarizing these five studies, the results support that direct vocabulary instruction is not the only, if even the best, key element of learning new words from elementary through high

school levels. Many of these articles agree that direct instruction can be successful for some students, but for the overall student body it is not the best technique to use. Even though some of the articles use different strategies for vocabulary instruction, the common element is using books to teach new words to students. Teacher usage of the books to better students' vocabulary varies from independent reading to class read-alouds. Another key component for students to grasp new words and their definitions is to review the words more than just once. In order for students to remember the new vocabulary words the teacher needs to review the words using different techniques and strategies so it does not become mundane and boring.

In review, current vocabulary instruction methods prove to be ineffective across all three sites. As the literature states, additional vocabulary instruction is necessary in all curricular areas for all age groups. Therefore, focused attention to instructional techniques or interventions is essential for effective vocabulary development.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

Several pre-assessments were given to students at Sites A, B, and C. The researchers analyzed this data in order to document the prior knowledge of vocabulary in content areas. The first measurement of comprehension scores used guided reading scores, SSAT (State Standardized Achievement Test) scores, and/or STAR reading scores. In addition, district provided vocabulary scores of SSAT scores and/or MAP (Measures of Academic Progress) scores were analyzed by the teacher-researchers. The third tool, the Content Vocabulary Pre-Assessment (Appendix A) containing all vocabulary words that will be studied in the research project by using the various strategies (word map, four-square, and flashcards), was created and administered to determine student prior knowledge of these words.

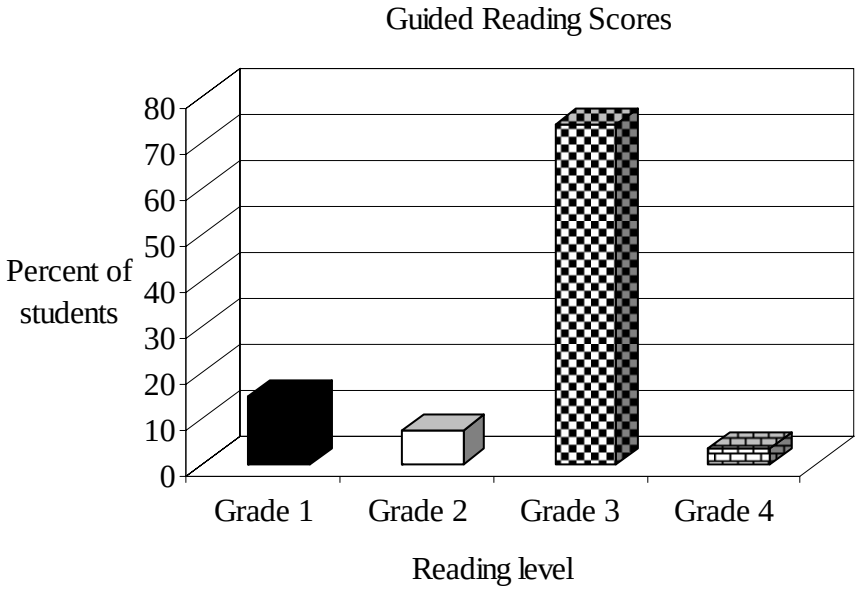

Figure 1. Guided reading scores for entering third grade students, fourth grade students, and fifth grade students.

Figure 1 above shows the results of guided reading scores (Appendix A) administered by regular education and special education teachers to 18 third graders at Site A and three fourth graders and two fifth graders at Site B during the second week of September 2006. The instrument that was used to assess guided reading scores at Site A was district-created and based on the Scholastic guided reading program. The guided reading scores at Site B were obtained from the Houghton-Mifflin reading assessment. Figure 1 reflects the combined scores from both Site A and B by grouping the reading level by grade: Grade 1 encompasses guided reading scores from beginning, early, mid, and late Grade 1 levels. Grade 2 includes levels of early and late Grade 2. Grade 3 indicates guided reading levels at early and late Grade 3, and Grade 4 denotes guided reading levels at Grade 4.

The maximum percent of students are at the third grade level according to the guided reading scores. The maximum was a combined percent of 74.07 of students at Sites A and B. The minimum was 3.7% of students at a Grade 4 guided reading level. These findings were interesting because these scores reflect reading scores entering the student's current grade. The maximum and minimum scores indicate that the majority of the students were reading at grade level or above grade level.

In studying the data further, the mean was 25. The standard deviation was 33.04, and the mean plus the standard deviation was 58.04 while the mean minus the standard deviation was -8.04. The maximum percent of 74.07 is significant and shows that the majority of the students at Sites A and B are reading at the third grade reading level. While it is positive that the maximum percent of students tested at reading scores at or above grade level, it is also important that 22.59% were below grade level. Guided reading scores from beginning, early, mid, and late Grade 1 levels represented 14.18% of these students where as 7.41% of students scored in the early and late Grade 2 levels. In conclusion, the guided reading scores revealed that slightly under a fourth of the students at Sites A and B are reading below grade level.

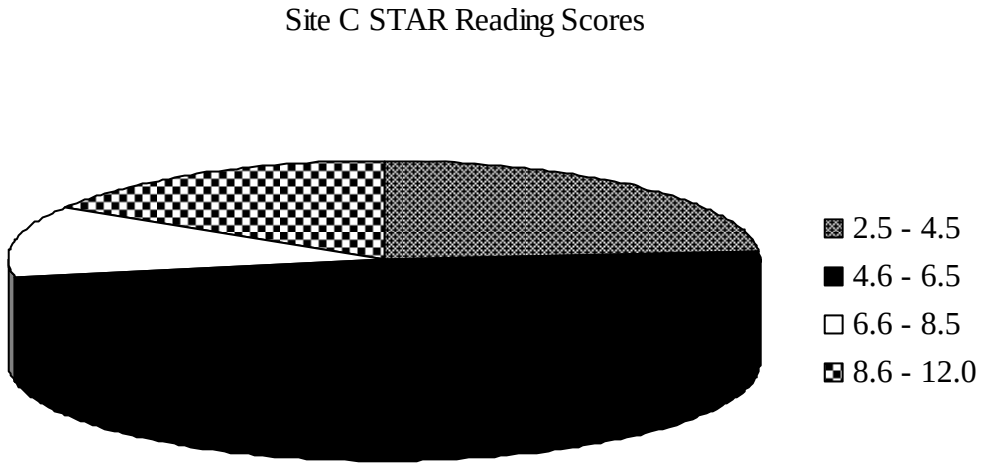

Figure 2. STAR reading scores for fifth grade students at Site C show current student reading level by grade and month (i.e. A score of 4.5 is the equivalent to reading at the fourth grade fifth month reading level.)

Figure 2 above shows the results of the STAR reading test (Appendix A), administered by regular and special education teachers to 25 fifth graders at Site C during the first week of school in August 2006. The STAR reading test is a district provided reading test that is taken three times a school year. This tool measures the student's individual reading level and shows reading growth throughout the year.

The maximum number of students was 12.00 at reading levels 4.6 to 6.5. The minimum number of students was 3.00 at reading levels 6.6 to 8.5. The mean was 6.25, and the standard deviation was 4.03. This information indicates the range is 2.22 to 10.28. Therefore, the maximum of 12.00 is significant because it falls outside of the range. This maximum shows that 12 out of 25 (48%) fifth graders at Site C are reading slightly below level, at level, or slightly above grade level. However, although the number of students reading below grade level does

not qualify as significant according to the mathematical equations, the conclusion is that this is important for this represents 6 out of 25 (24%) of the students at Site C.

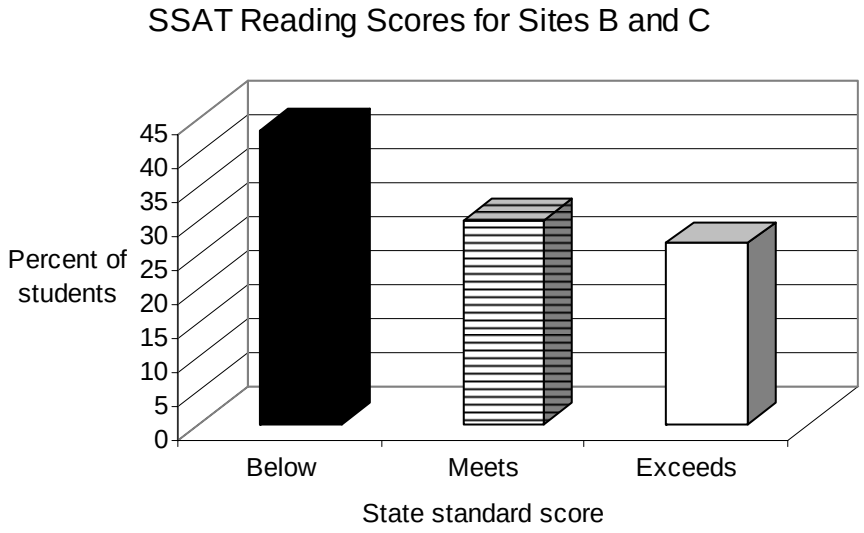

Figure 3. SSAT vocabulary scores for entering fourth and fifth grade students.

Figure 3 above shows the results of SSAT (State Standardized Achievement Test) vocabulary scores (Appendix A) administered by regular and special education teachers to three fourth graders and two fifth graders at Site B and 25 fifth graders at Site C during the second week of September 2006. SSAT is required by the state and taken at the same time district-wide. The SSAT assesses the student reading levels through multiple choice questions and extended response essays.

In reviewing the data, the maximum was 43.33% of students performing below standards, and the minimum was 26.67% of students with "exceeds" standards. These findings were interesting because only about a third of students met reading standards at the appropriate grade levels. Furthermore, the mean was 33.33. The standard deviation was 8.82, and the mean plus the standard deviation was 42.15, while the mean minus the standard deviation was 24.51. Most

importantly, it is significant that this maximum indicates the majority of the students' reading scores are below grade level.

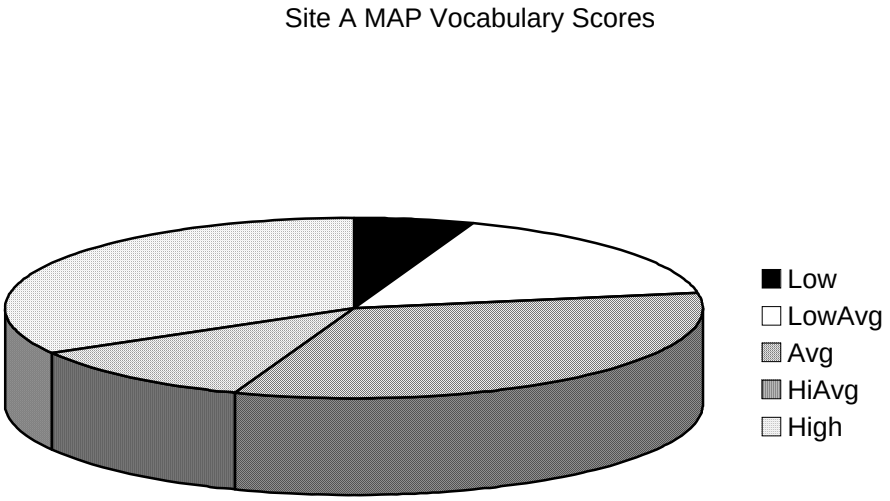

Figure 4. MAP vocabulary scores for third grade students.

Figure 4 above shows the results of MAP vocabulary scores (Appendix A) administered by regular education teachers to 18 third grade students in February 2006. MAP tests are district provided scores taken two times per school year. Students take math and reading portions that are divided into different skill areas. The above graph shows the vocabulary skill scores derived from this measurement tool.

The maximum of 33.33% of students fell into two categories: average and high, whereas 5.56% of students are considered to be low. This is the minimum. The mean is 20.00 and the standard deviation is 12.69. By analyzing the data, the range is 7.21 to 32.79. Therefore, the maximum of 33.33% represents significance because it falls above the range. This means that six students at Site A are deemed to be performing at an average level and six are considered to

be functioning at a high level. The minimum of 5.56% is also significant because it falls below the range. This equates to one student believed to be working at the level of low. Even though the percent of students who tested at a low average level is not significant, the total percent of students that performed either at a low or low average level, which are both to be considered below average, is 22.23.

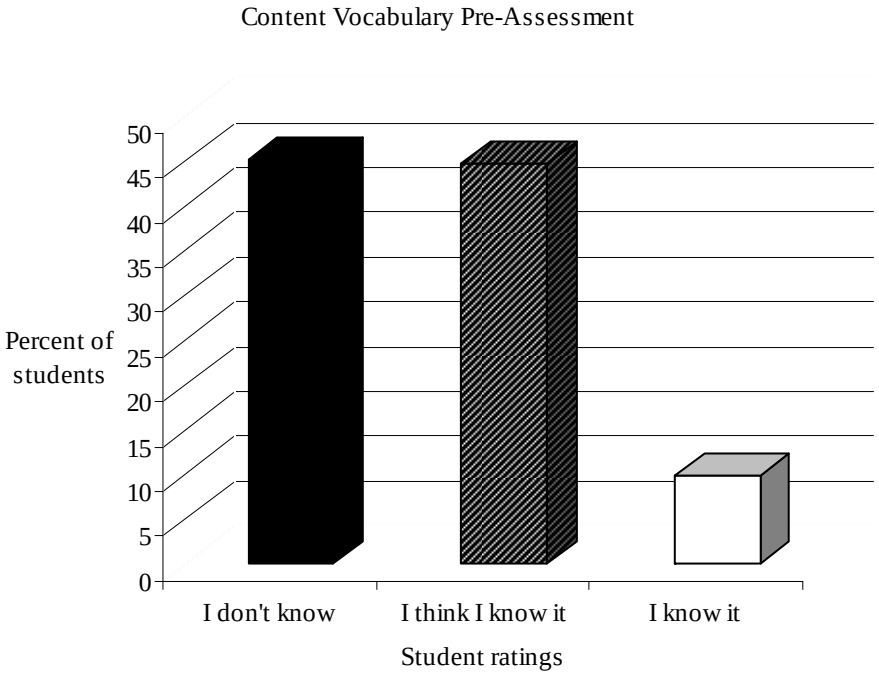

Figure 5. Content vocabulary pre-assessment for third grade social studies, fourth and fifth social studies, and fifth grade reading.

Figure 5 above shows the results of the Content Vocabulary Pre-Assessment (Appendix A), administered to 18 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during the second week of September, 2006. At Sites A & C, the assessments was administered by regular education teachers, and at Site B, the assessments

were administered by a special education teacher. The teacher-researcher created instrument asked students to rate knowledge of content vocabulary words prior to instruction.

The maximum was in the "I don't know" category with 45.28%. The "I think I know it" category had a high of 44.81. These two categories were extremely close. However, the "I know it" category had a minimum percentage of 9.91. The "I know it" category was defined as the students providing a correctly written definition to a vocabulary word. Words that were defined incorrectly were not counted in this category, but in the "I think I know it" category.

The data across all the Content Vocabulary Pre-Assessments yielded a mean of 33.33. However, the standard deviation showed a limited difference in students' ratings. The standard deviation was 20.29. The minimum percent of 9.91 was significant and represented the "I know it" category. In conclusion, the Content Vocabulary Pre-Assessment revealed minimal understanding of content vocabulary words.

In summary, the pre-assessments support the need for a vocabulary intervention. Figure 1 shows that guided reading scores for students at Sites A and B generally are at grade level with about a fourth of students reading below grade level. In addition, SSAT reading scores indicated that almost half of the students at Sites B and C were performing below standards in reading. Although Figure 3 mathematically does not show significance in students reading below grade level, it does show that a quarter of students at Site C are not up to grade level. Furthermore, Figure 4 shows that 22.23% of students are performing below grade level, although this is not to be considered statistically significant. The Content Vocabulary Pre-Assessment results shown in Figure 5 reveal an overwhelming uncertainty of vocabulary knowledge among students at Sites A, B, and C. Thus, taken as a whole, the pre-assessment tools confirm the need for vocabulary interventions.

Probable Causes

"People often consider a strong vocabulary the hallmark of an educated person" (Blachowicz, Fisher, 2004, p. 66). Therefore, it is imperative to investigate any probable causes that explain the lack of knowledge and application of content-area vocabulary. The research lists four major categories for these causes: student learning differences, home causes, teacher causes, and district causes.

Student learning differences can be categorized into two areas of struggling readers which can include ELL (English Language Learners) and students with learning disabilities. ELL include students whose primary language is something other than English. Students with learning disabilities have an Individualized Education Program (IEP) or a Section 504 plan to address learning disabilities, individual goals, accommodations, and/or modifications necessary to learn in school. ELL and students with learning disabilities in reading struggle with grade level material and are often reading two or more grade levels below peers (Blachowicz, Fisher, 2004).

Numerous issues in vocabulary impact struggling readers and ELL. Research states that young people do not engage in adequate amounts of reading (Greenwood, 2002). Thus, reading is not practiced and reinforced, so a cycle of frustration in reading begins (Hiebert, Lehr, Osborn, 2004). In addition, the research shows that reading vocabulary is often two years behind oral vocabulary (Blachowicz, Fisher, 2004), and poor readers tend to read less frequently (Hiebert, Lehr, Osborn, 2004) (Edwards, Gabriell Jacobson, Jitendra, 2004). Research by Biemiller (2003) points out that mastery of word identification does not necessarily mean improved comprehension and that early oral vocabulary assessments do not accurately indicate a student's reading comprehension success in future grades. Yet another obstacle for struggling readers lies

in the confusion between word meanings and similar sounding words, referred to as "word poverty" (Deffes, Juel, 2004, p. 30-31). Furthermore, students who lack background information or prior experiences have difficulty learning new words (Bromley, 2003). The research above reveals that struggling readers are challenged with several obstacles to overcome in order to improve vocabulary comprehension. Therefore, effective vocabulary instruction is necessary for vocabulary growth.

Even with effective vocabulary instruction, students with specific learning disabilities may continue to be struggling readers due to the very nature of the learning disability and the difference in which they learn. Specific learning disabilities of students also contribute to the differences in student learning and to the need for differentiation in instruction. LD students are part of the regular education population and must be considered when implementing vocabulary strategies. Students with learning disabilities struggle to learn strategies to help them understand word meanings (Bryant, D., Bryant, B., Goodwin, Higgins, 2003). Since these students tend to lack independent strategies (Edwards, Gabriell Jacobson, Jitendra, 2004), frequent re-teaching and reinforcement is necessary. "As a result of ineffective word learning strategies, students with learning disabilities have a fragmented and less complete knowledge of words, as well as a narrow understanding of particular word features" (Edwards, Gabriell Jacobson, Jitendra, 2004, p. 300).

The research also points to causes related to home life as a contributor to student's lack of knowledge and application of vocabulary. These will be referred to as home causes and are created by an environment lacking in rich vocabulary. Research by Biemiller states, "Vocabulary growth is largely determined by parental practices, particularly before third grade" (2003, p. 323). A study reviewed by Blachowicz and Fisher (2004, p. 67) adds, "…many

children receive little support for vocabulary growth in their daily lives," and it was noted that there is a gap in vocabulary knowledge relative to the focus of education in a household. In addition, daily conversations at home often lack the varied word use that is necessary for reading and writing (Hiebert, Lehr, Osborn, 2004). All these reasons add to the impact that the home has on vocabulary because if children have limited experiences with language, the words are not in the children's vocabulary, and comprehension is directly affected (Hiebert, Lehr, Osborn, 2004). Therefore, it is observable that children can enter kindergarten with sufficient differences in literacy skills (Coyne, Kame'enui, Simmons, Stoolmiller, 2004).

Research also indicated three areas related to teacher causes as probable causes regarding limited vocabulary. First, much of the research strongly pointed to ineffective instructional strategies that are currently used. Second, although research-based strategies have proven effective, all teachers have not implemented such strategies. In addition, the classroom environment also posed to be a problem when teachers failed to create an environment conducive to learning vocabulary.

One teacher cause of students' limited vocabulary is ineffective instructional strategies. "It was found that by third grade, 95 percent of children could read aloud more words than they could understand" and that "vocabulary, in addition to word identification, is a major factor that limits reading comprehension" (Biemiller, 2003, p. 324). In other words, if teachers confuse a student's ability to read aloud words with comprehension, the student could be in danger of not receiving direct vocabulary instruction for those words. This confusion could also be found in the assumption that simple dictionary instruction equates to the full understanding of a word (Hiebert, Lehr, Osborn, 2004) (Brabham, Villaume, 2002) (Harmon, Hedrick, Linerode, 2004). In addition, research stated that too much time is spent on teaching of such strategies as context

clues, decoding, and independent reading (Brabham, Villaume, 2002). Teachers should not limit vocabulary instruction to one method because one method does not apply to all. To make matters worse, words used in instruction are often rare, and, consequently, this vocabulary is not found in student-read texts. In conclusion, all these teacher causes support the idea that current teaching methods do not lead to students learning word strategies and being able to apply vocabulary knowledge (Hiebert, Lehr, Osborn, 2004).

Another probable teacher cause to limited vocabulary is the lack of using research-based strategies. Although research-based strategies are available, effective strategies are not used in the classroom (Asselin, 2002) (Harmon, Hedrick, Linerode, 2004). For example, "the limitations of textbooks directly impact vocabulary acquisition of content specific terms," and yet "textbooks, as major instructional tools, continue to prevail in content area classrooms" (Harmon, Hedrick, Linerode, 2004, p. 103). The research also pointed out that memorization alone will not foster vocabulary growth and comprehension, yet teachers continue to focus on this strategy, and there is not adequate vocabulary reinforcement (Misulis, 1999). Teachers are not devoting sufficient time to intentional explicit instruction in vocabulary, and vocabulary growth and application is suffering (Hiebert, Lehr, Osborn, 2004) (Edwards, Gabriell Jacobson, Jitendra, 2004) (Deffes, Juel, 2004). In conclusion, research-based vocabulary instruction is available for the reason of promoting student vocabulary growth and should be utilized by all teachers in order to maximize student learning of content-area vocabulary.

One more factor that teachers can control is the extent of language rich opportunities in the classroom environment. Since words in a child's oral vocabulary effect comprehension, the classroom environment must contain rich vocabulary (Hiebert, Lehr, Osborn, 2004). However, talk found in elementary classrooms typically is simple language (Hiebert, Lehr, Osborn, 2004).

Another problem is that daily conversations lack the diverse word use desirable for reading and writing (Hiebert, Lehr, Osborn, 2004). Furthermore, "For students without extensive oral language experiences, both English-speaking and English language learners, it is especially important to hear oral English that incorporates the vocabulary they will encounter in school texts" (Hiebert, Lehr, Osborn, 2004, p. 14). This research by Hiebert, Lehr, Osborn (2004) supports a classroom environment that is not always the case. A classroom environment conducive to vocabulary growth in content–areas should be filled with multiple opportunities and conversations containing rich vocabulary so that all students can hear and participate.

The final major, impacting probable cause to limited vocabulary growth encompasses several district causes that effect vocabulary knowledge. Greenwood, in 2002, gives many reasons as to why standardized tests negatively influence vocabulary and comprehension. Districts across the country have been required to assess and compare academic progress based on standardized tests. Consequently, excessive test prep that is mandated by the District has constricted the amount of time available for the curriculum and academic instruction. This backfires because "the definition of functional literacy has become more demanding for the twenty-first century" (Greenwood, 2002, p. 258), and instructional time is being taken away which, in return, directly limits the opportunities for vocabulary growth.

In addition, the district is responsible for selecting the curricula and resources to support the teachers and students. District selected textbooks are often difficult to read and offer too much information with not enough resources for teachers (Harmon, Hedrick, Linerode, 2004). Typical texts ignore multiple meanings of words and do not instruct on these various meanings (Hiebert, Lehr, Osborn, 2004) (Bryant, D., Bryant, B., Goodwin, Higgins, 2003). Blachowicz and Fisher (2004) provide support for this dilemma by pointing out that most curriculum texts

offer little or no information on vocabulary instruction. However, effective curricula and resources are needed to support teachers in the implementation of effective vocabulary instruction for adequate vocabulary growth in content-areas.

Lastly, in addition to this fact that "teachers don't always have adequate resources for developing alternative activities to make vocabulary instruction more productive and powerful" (Brabham, Villaume, 2002, p. 264), districts also supply inadequate amounts of professional development in this area (Brabham, Villaume, 2002). This lack of acknowledgement for resources and instruction in vocabulary instruction becomes an even greater problem for struggling readers such as students with learning disabilities and English Language Learners (ELL). Furthermore, with increased numbers of ELL students in classes, there is a problem with the limited research on effective ELL instruction, and this inadequate instruction is detrimental to vocabulary growth and academic success of these children (Hiebert, Lehr, Osborn, 2004). Research-based materials and teaching practices in vocabulary instruction are necessary to support the diverse classroom and teach to the different academic needs of struggling readers.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

Current literature on effective vocabulary instruction can be categorized into three main sections and include: general suggestions for vocabulary growth, instructional vocabulary techniques based on a study from the National Reading Panel, and strategies for teachers to use in the classroom during instruction to promote vocabulary acquisition.

General suggestions for vocabulary growth consist of: strategies for teachers to use, students to use, and strategies for selecting vocabulary words. The first strategy is teaching a variety of techniques for independent word learning strategies. That way the learner can choose which strategy works the best for them and they can apply it (Bryant, B. Bryant, D., Goodwin, Higgins, 2003). The second strategy that research supports teachers using is exposing students to the same unknown word. "In order for words to be truly learned, that is, to be used and committed to long-term memory, they must be reinforced many times in meaningful ways" (Misulis, 1999, p. 25). Exposing a child to an unknown word multiple times reinforces the word and it's meaning and helps move it from short to long-term memory (Juel, Deffes, 2004) (Findlan, Portman, Shields, 2005) (Asselin, 2002). The third strategy is having students work in

small groups or pairs for ideal vocabulary instructional practice. This way they get to talk and discuss the words more.

Fourth, vocabulary instruction should occur on a regular, frequent basis for optimal student retention of the words (Bryant, B. Bryant, D., Goodwin, Higgins, 2003). The fifth strategy recommended is to build new vocabulary instruction on prior knowledge. By doing so, this allows students to start with what they already know and make connections to new information. "Many exposures to a new word in a variety of contexts provide breadth and depth of meaning"(Findlan, Portman, Shields, 2005, p. 37). Another strategy teachers can use is to include using reinforcement activities such as: matching, multiple choice, word puzzles, writing activities, classification or categorizing activities, analogies, and review games to help add to the student repeated practice of the words (Misulis, 1999) (Rosenbaum, 2001). The last strategy research suggests that teachers use is making sure their instruction uses intentional vocabulary learning that assumes one of two basic forms: targeting specific words, or targeting specific strategies for deciphering word meanings. This ensures that students are specifically being taught either the specific vocabulary word or a strategy for how to learn a targeted word's meaning (Brabham, Villaume, 2002).

Current research also cites general suggestions for students to be doing to help their vocabulary development. Findings from research done by Heibert, Lehr, and Osborn show students need to engage in reading a variety of texts for enjoyment, as well as for a challenge. Therefore, they are being exposed to a variety of words at different difficulty levels (Hiebert, Lehr, Osborn, 2004). Also, the more reading a child does the more words they are exposed to and thus their vocabulary grows. "Based on estimates for independent reading word counts, students who read independently for at least 10 minutes each day appear to experience

substantially higher rates of vocabulary growth than students who do very little independent reading" (Jitendra, Edwards, Gabriell Jacobson, 2004, p. 299-300).

Research done on effective vocabulary instruction also suggests strategies for selecting vocabulary words. To start it is recommended that in choosing words think about importance, usefulness, and frequency. That way if a word has importance to content being studied, shows usefulness in everyday life, and has a high frequency of verbal and written application in the classroom a teacher will know it is a good word to select for vocabulary instruction. Also research suggests considering content, students, and time when selecting targeted instructional vocabulary words. "Words should be selected that are important to developing an understanding of the content and its related information and concepts"(Misulis, 1999, p. 25). However, professional development in this selection process has been greatly reduced by school districts (Heibert, Lehr, Osborn, 2004). Also, having teachers keep track of words that have been introduced in the classroom and the words that were mastered by students will help them in determining words that should be introduced in future instruction. This allows students to be able to make connections between words and learn the words more easily (Biemiller, 2003). Intentional vocabulary instruction is usually associated with teacher-selected words, but should also include words selected by the students. Research suggests having students selecting the words because it makes students more responsible for their own vocabulary growth (Brabham, Villaume, 2002). To conclude, research has shown great general suggestions for teachers, students, and selecting good vocabulary words.

In 2000, further research done by the National Reading Panel found that comprehension development cannot happen without good vocabulary knowledge. "Given that students' success in school and beyond depends in great measure upon their ability to read with comprehension,

there is an urgency to providing instruction that equips students with the skills and strategies necessary for lifelong vocabulary development" (Hiebert, Lehr, Osborn, 2004, p. 3). Research done by Elfrieda Hiebert, Fran Lehr, and Jean Osborn on the role of vocabulary in early reading has found many strategies helpful in vocabulary growth. They found that a variety of instructional methods is needed for good vocabulary instruction and should include incidental learning through repetition, richness or context, and motivation. As a teacher selects vocabulary words she needs to make sure they are deemed useful in many different texts and their vocabulary tasks should be restructured as "appropriate" during reading instruction. This ensures the words are ones students will encounter in many subject areas as well as the activities they are doing to learn them are appropriate for their age and learning style. Students can best learn words with a word rich environment where they encounter words in all activities. Pairing direct instruction of specific vocabulary with multiple exposures of these words ensures students learn the words and then are followed up by seeing them again and again. Their research also showed vocabulary instruction should entail active engagement from the students and that computer technology can be used to achieve this (Hiebert, Lehr, Osborn, 2004).

Finally, there have been many studies done that have yielded strategies for students to use in the classroom for good vocabulary acquisition. These strategies can be grouped by auditory, incidental, and specific strategies to use in the classroom based on what is being taught and the student learning styles.

Auditory strategies are a great way for teachers to promote vocabulary growth. ELL (English Language Learners) and English speaking students need to hear oral English that will be seen in texts before they begin reading. This way, students will have had previous experiences of hearing the word before they encounter it in their text (Hiebert, Lehr, Osborn, 2004).

Researchers designed and implemented an intervention called PAVEd for Success that focuses on phonological awareness and vocabulary enhancement in preschool children. They found that "teachers who engaged children in the intervention of engaging in interactive teacher-child talk and storybook reading ended up with larger vocabularies" than students who did not. Other research students have also shown this to be true. Having teacher readings and book discussions enhances vocabulary development (Hiebert, Lehr, Osborn, 2004). During these teacher lead book discussions if teachers ask students to think aloud and analyze how they deal with unfamiliar words in their readings also has shown to help with vocabulary growth. As students share their strategies they are teaching and learning from each other (Brabham, Villaume, 2002). Using auditory strategies in the classroom can promote vocabulary inquisition.

Incorporating incidental teaching strategies into instruction has also shown helpful to vocabulary growth in research studies. Having a classroom rich in oral language and exposing students to new words in text will provide opportunities for incidental learning to occur (Hiebert, Lehr, Osborn, 2004). In this rich language environment if a teacher uses words in class discussions that capture, explore, and share experiences, students will be exposed to more words. Also, using silly songs and funny rhymes promotes a love of words and spontaneous language play. Meaningful conversation and word play is essential for vocabulary growth, particularly for students who acquire a significant fewer amount of words than their fellow peers do through incidental learning (Brabham, Villaume, 2002).

Research has also shown there are specific strategies teachers can use while they are teaching within different content areas and to help enhance the natural learning styles of their students. There are many strategies research has shown to do while teaching reading that will help promote vocabulary growth. Making sure that students engage in "wide reading" where

they are exposed to unfamiliar words and word families is one reading strategy research suggests to use (Hiebert, Lehr, Osborn, 2004) (Dixon-Krauss, 2001). Another reading strategy is to implicitly teach independent word learning strategies like dictionary use, context clues, and word parts. However, professional development in this area has been reduced by school districts, which results in fewer teachers using these strategies with students. Teaching these strategies to students allows them to apply them in their reading and therefore increase their vocabulary independently (Hiebert, Lehr, Osborn, 2004) (Misulis, 1999) (Asselin, 2002). Additional reading strategies include four research-based practices including: word play, the STAR (Select Teach Activate Revisit) Model, strategies for independence, and using a wide range of literature in the classroom. Word play involves manipulating words by moving around letters, finding rhyming words, and coming up with antonyms and synonyms. The STAR Model is a strategy involving the careful teacher selection of words, the implicit teaching of the words, activating student prior knowledge, and revisiting the new words frequently. This is an instructional model to ensure good teaching practice for vocabulary words. These two instructional strategies go well with teacher instruction for independent word learning during reading and encompassing a wide range of literature within the classroom (Blachowicz, Fisher, 2004). All of these strategies will enhance vocabulary development during reading.

There are many current strategies that an educator can choose from for developing a child's vocabulary. It is best if students take ownership for their learning because it heightens the chance that they will retain the information. One way teachers can help in students taking ownership is by providing different student-directed strategies and activities. One technique that promises increased vocabulary knowledge that is student directed is through the use of computer-related activities. There are five different types of computer-related ways to increase

vocabulary that are effective: game-like formats, hyperlinks, online dictionaries and reference materials, animations, and content-area related websites. The game-like format is highly effective in engaging the learner, especially compared to textbooks or workbooks. Hyperlinks are words or icons that students can click on that allow the student to see the word used in multiple contexts quickly. "When they [hyperlinks] are well designed, such extensions can add depth to word learning, particularly in the area of content-specific words" (Hiebert, Lehr, Osborn, 2004, p. 32). It is through the quick access to text and graphics that allow the students to further their understanding of the vocabulary word. Not all students are visual learners, many are auditory, so online dictionaries and reference materials allow the student to click on the word and hear the pronunciation and definition and consequently broaden more students' understanding of the words. Students of today are use to high quality computer and video game graphics, so with the use of animations and audio; more students' attention is captured and kept than just reading a textbook. Since the expansion of the Internet over the last 20 years, there are many websites that can be content-related. Where else could a student sitting in Illinois view a museum in Egypt or get to explore the spaceship from NASA's website? Only on the Internet can students encounter this type of first hand experience without leaving school. When a teacher is able to provide new and interesting experiences to students their attention is not only captured, but their interest level too, which increases the chance of retention of the vocabulary word. Technology not only provides an opportunity for students to gain vocabulary knowledge, but it does it in a way that keeps students interested and excited about what is next to come.

Another student-directed method to enhance vocabulary knowledge is through the use of children's literature. It is through the literature that is read to them by the teacher and then later read independently or with other students that the students are listening for specific words in a

new context. After the students find these words either on their own or with others, the students then start to learn other word study strategies to further their understanding of the words. This method allows all students, though especially English Language Learners (ELL), to increase their vocabulary knowledge on their own and in small groups.

A way to help students gain ownership of their learning is to provide them with opportunities to connect their prior knowledge to new concepts. Through the use of 'Individual Vocabulary Cards', students have the opportunity to associate their own personal experiences to a new word. Each vocabulary word card would contain the vocabulary word itself and words or clues to the definition of the word that the students understand and can relate to. Then once the students have an available concept of certain words, teachers can use the 'Sentence Plus Definition' method to further instruction. This method requires teachers to prepare sentences and definitions ahead of time. The teacher would provide a sentence with a vocabulary word present in it and the definition below it on the overhead or chalkboard. All students would be expected to do is to learn the word's definition and understand how it is used in the provided setting. Here would be an example:

> Old Jon Jorgenson, who was born on his farm south of Minneapolis 76 years ago, is a truly indigenous Minnesotan.
>
> Indigenous = native born (Greenwood, 2002, p. 261).

The example provides the students with not only a simple definition, but with a sentence so they can see how it is used in a specific context.

Another student-directed strategy to increase vocabulary knowledge is to use the 'Context-Relationship' procedure. This type will entail a great deal of teacher time prior to the lesson, but the benefits are endless. In order to use this procedure the teacher would need to

create a paragraph that has the vocabulary word used in it two to three times, followed by a multiple choice item. The multiple choice item would ask what the vocabulary word means with three different possibilities to choose from. There are many benefits because it provides the students with a variety of ways the word can be used in a certain context and the actual definition of the word. Even though student-directed strategies are beneficial there is always preparation for the teacher that can take much longer than the actual activity lasts.

There are many strategies that allow the students to take charge of the learning, but all learning of vocabulary words cannot be done that way. Many times there needs to be direct instructional strategies used in conjunction. A pre-reading strategy that would need to be taught to the students would be connecting the specific words to familiar synonyms. This method would be effective and requires a small amount of teacher preparation time. On the board would be sentences that contain the words the teacher is trying to target and definitions to the words using synonyms that are familiar to most students at that grade level. By using this strategy before the students read, they are given background knowledge they need to understand the word when they come to it in the text. This type of strategy does not interrupt the flow of the students' reading and is successful.

Effective instruction should not always provide the definition to the word. Effective instruction should provide the definition, the multiple meanings and the strategy to know when and how to use the word correctly. For many years students have been recording vocabulary words into their notebooks and defining them to never use them again. When a student is provided with the definition to a word and shown how it can be used in different contexts at multiple times is when the students begin to fully understand the word and how it should be used. It has also been proven that just having the kids look in the dictionary to locate the

definition is not the best practice. Instead the students should be given other strategies to use to figure out the definition to the word. Then the dictionary can be used to check to see if they were correct or not. Another strategy that can be used to help students learn new words is to have them establish their own vocabulary networks. Through their vocabulary networks the students will be able to figure out important prior knowledge needed to comprehend texts in the second language. If a teacher expects students to learn new words they need to allow them to investigate on their own, provide the correct definition when it is time and for the word to be seen in context on multiple occasions.

Direct instruction is important in learning new vocabulary words, but it is not until guided and independent practice that a teacher will know if the students are grasping the skill or strategy. Guided and independent practice using background knowledge and certain strategies will help to improve the students' capability to infer meanings. It is through practice that the students will develop a desire to problem solve themselves, which will enhance the possibility of learning a large amount of new words that they will come across in textbooks at school and at home. It is during guided practice that teachers can assist the students in making associations, for example, asking questions, categorizing, and using graphic organizers to help the students to learn new ways to learn the new words. "A series commitment to decreasing gaps in vocabulary and comprehension includes instruction that allows all students to learn and use strategies that will enable them to discover and deepen understandings of words during independent reading" (Brabham, Villaume, 2002, p. 266). Students need to be taught and encouraged to explore the different strategies to find out which one fits them the best and how they can adapt others to fit what they need. This is important so when they are reading on their own they can infer the definitions to words and not lose any meaning of the text they are reading.

Even though vocabulary is primarily covered during a language arts block, it can be worked it throughout the day. Many classrooms have entry tasks for the students to complete when they arrive in the morning. All it would take is a few extra minutes each day to include 'Mystery Word of the Day' as one of the entry tasks. This would entail the teacher choosing a new word and to write it in a sentence on the overhead or chalkboard. The teacher would need to make sure the sentence provides enough context clues so the student can infer what the definition is. After students arrive the teacher would allow the students a minute or two to discuss the word's meaning with a partner and to look it up in the dictionary, write a sentence and its definition in their Vocabulary Notebook. Another opportunity is 'Pre Teach Reading Vocabulary,' which would approach when the students are about to read independently or in a group. The teacher would need to choose three to five words that he feels are important to understand and put them in sentences on the overhead or chalkboard. The teacher would define the word and help them to establish a list of related words to help them establish background knowledge. If the teacher would like to take it even further, he can underline the roots and affixes in different colors and list other words that use the same root or affix. A last way to incorporate vocabulary throughout the day is through 'Line Up with Adjectives.' This activity can happen any time the students are lining up. The students would need to provide an adjective that starts with the same letter as their name. For example, "Winston: wise, Susan: sincere." (Bromley, 2003, p. 30). This activity would interest students because it has to do with their own name, so it personalizes it for them. Vocabulary activities do not need to be done only in the language arts block, and if they were done this way, the teacher and the students would be missing many fun and easy opportunities to further their vocabulary knowledge.

Many teachers think each student knows how to use a thesaurus correctly and for the right reason. How wrong so many of them are. Students need to be taught how to use a thesaurus and when to. Each student should have their own thesaurus available to them at all times and be provided with many opportunities to practice using it. Thesauruses should not only be used during writing, there are many times a thesaurus can be used to help a student understand the meaning of a new word. Using a thesaurus can improve a student's word usage and their understanding of synonyms to words. In order for students to feel safe using a new strategy or resource, they need to be directly taught how to use it.

As students learn strategies for learning new words and new vocabulary words graphic organizers become an important aspect. There are many graphic organizers, but there are specific ones that are vital in teaching students strategies to learn vocabulary words. Using certain graphic organizers, for example, visualizing, sorting words, and using semantic maps, word maps, and Venn diagrams for exploring word meanings teach students to use practices that have been proven effective and should be used when possible. The first one that is extremely important is semantic maps. "A semantic map is a graphic organizer that is organized around a word that represents an important concept" (Hiebert, Lehr, Osborn, 2004, p. 24). It is a graphic organizer that has the target word or concept in the middle with related words grouped together around it according to the criteria set forth. A semantic map is perfect to use with words that have multiple meanings because it is visual representation of how one word can mean so many different things.

Then there is the four-square concept map. This type of graphic organizer can only be used after there is a teacher-led discussion that identifies the features and examples for a concept. After the class has discussed what features constitute the concept and examples of the concept, a

four-square concept map can be used. In the upper right corner are examples of the word or concept and in the lower right are non-examples. Then in the upper left corner is the definition of the word or concept and in the lower left is what the word or concept is not. So now what was discussed in class is organized into four boxes for students to easily see and understand.

Another type of graphic organizer that is highly beneficial to use to teach new words to students is visual imaging. This concept is effective for students that are stronger spatial learners than verbal. In order to use this concept, students would need to convert the new words into visual images. By connecting verbal and visual images the students are more likely able to store and retrieve the information about the new word they learned. Now they are working on their comprehension, while building a vast vocabulary.

A word map is a type of graphic organizer that combines many aspects of other graphic organizers. "The Word Map technique is useful for helping students develop a general concept of definition" (Greenwood, 2002, p. 260). A Word Map answers three questions about the word: What is it? What is it like? What are some examples? Everything on a word map is organized into boxes so it is easily readable to the student and not overwhelming. Before students can be expected to fill out a Word Map on their own it needs to be direct instructed by the teacher using a word that is familiar to all students in the class. Word Maps do not need to only be used on words the teachers selects, but once the students have a grasp of how to use a Word Map they should get in the habit of using them daily. The words they choose to use in their map can be words they hear or see out of school and in their silent reading book. There are many variations to a Word Map and they can have addition aspects to them as synonyms, antonyms, and the word used in a sentence, but they always answer the three questions.

A variation of a Word Map is Word Webs. This type of activity must be done in a group because the students need to discuss the words and possible definitions. Word Webs have two or three categories related to the word, for example, synonyms, types, or attributes. Then under each category the students list two to three words that relate to the target word. After students have filled out their webs the teacher will want to hold a class discussion on how their words are alike and different. "Discussion is the key to word webbing" (Greenwood, 2002, p. 261). It is essential that the discussion take part in the small group when they are filling out their webs and as a class, so other students can hear what others put, and if need be, discuss why certain words would not work. Even though Word Webs and Word Maps are different they still get across to the students what the definition is and other words that relate to it.

In order to help students learn new words easier and be able to identify what words could possibly mean it is important to teach word structure. When students look at a word they need to be able to see that there is a base word and be able to identify what that base word means. In the English language there are many words that are in the same word family because they have the same base word. Through morphology the students would learn where certain words originated from and would be able to analyze the different parts to the word: prefix, suffix, and base. If a student was to learn what many bases mean there ability to define words would increase. It is imperative that students learn the relationship between base words and derived words in the same word family. When students learn this they will have another technique for inferring what words mean.

It is especially important to teach base words or cognates to students whose native language is not English. "It is estimated that there are between 10,000 and 15,000 Spanish-English cognates (Nash, 1997). These cognates may account for as much as one-third to one-half

of the average educated person's active vocabulary, indicating that instruction in how to use cognate knowledge can be highly beneficial to ELLs who are native Spanish speakers" (Hiebert, Lehr, Osborn, 2004, p. 33). As many teachers know the amount of students that are considered to be ELL are increasing vastly and teachers need to be equipped with strategies to help these students learn the language and new words. Many students can draw on these cognates because the Spanish language is closely tied to the Latin language where many of our root words come from. Teaching word structure and origins is especially beneficial to students who do not speak English as their first language, but it can also be advantageous for students that do speak English fluently.

Project Objectives and Processes

As a result of the use of vocabulary strategies during the period of September 11, 2006 to January 15, 2007, the targeted grades third through fifth grade students will increase their vocabulary skills as measured though the content area assessments and student reflections. In order to accomplish the project objectives, the following processes are necessary:

1. Consult research on effective vocabulary instruction.
2. Develop format of activities: word map, four-square, and flashcards.
3. Construct lessons reflecting vocabulary skills concepts.
4. Construct a series of mini-lessons involving direct instruction, guided practice, and independent practice for each vocabulary skill.
5. Model the independent use of vocabulary skills and procedures in mini-lessons.
6. Promote an environment that is socially safe and encourages risk taking.

As a result of the use of vocabulary dictionaries during the period of September 11, 2006

to January 15, 2007, the targeted grades third through fifth grade students will increase their vocabulary skills as measured though the content area assessments and student reflections. In order to accomplish the project objectives, the following processes are necessary:

1. Consult research on effective vocabulary instruction.
2. Develop format of activities: word map, four-square, and flashcards.
3. Construct lessons reflecting vocabulary skills concepts.
4. Construct a series of mini-lessons involving direct instruction, guided practice, and independent practice for each vocabulary skill.
5. Model the independent use of vocabulary skills and procedures in mini-lessons.
6. Model appropriate organization and usage of student vocabulary dictionaries.

Project Action Plan

Three researchers will implement three different vocabulary strategies at three different sites consisting of third graders, fourth graders, and fifth graders. The researchers will begin the intervention the second week of September 2006, and complete the lessons during the month of January 2007. Each vocabulary strategy will be covered for three weeks and then assessed by a vocabulary test during the fourth week. The three vocabulary strategies the researchers are implementing are: word map, four-square, and flashcards. While implementing the vocabulary strategies the vocabulary dictionaries will be used throughout to facilitate the organization and student learning. The following table shows the details of the plan.

Table 1. Action Plan.

PROJECT OBJECTIVE	INTERVENTION	TARGETED GROUP BEHAVIOR	TEACHER/ RESEARCHER BEHAVIOR	MATERIALS	TIME: FREQUENCY & DURATION
To increase students' vocabulary knowledge in content areas.	Teach vocabulary skills and strategies in various content areas.	None	Develop and organize materials into teaching units an individual lessons	Adopted textbook series and/or support materials	September 2006- Throughout Week 0
To increase students' vocabulary knowledge in content areas.	Teach vocabulary skills and strategies in various content areas.	None	Distribute, explain, and collect research consent forms from students.	Consent forms	September 2006- Throughout Week 1
To increase students' vocabulary knowledge in content areas.	Teach vocabulary skills and strategies in various content areas.	None	Collect and review district provided comprehend-sion and vocabulary scores.	District provided scores, preliminary record sheet	September 2006- Throughout Week 1
To increase students' vocabulary knowledge in content areas.	Teach vocabulary skills and strategies in various content areas.	Students take content vocabulary pre-assessment	Collect and review results of content vocabulary pre-assessment	Content vocabulary pre-assessment, record sheet	September 2006- Throughout Week 1
To increase students' vocabulary knowledge in content areas.	Teach organization and usage of vocabulary dictionary.	Students organize and practice using vocabulary dictionary.	Direct instruction and modeling of the organization and usage of vocabulary dictionary.	Vocabulary strategy sheets, student binders	September 2006- Throughout Week 1
To increase students' vocabulary knowledge in content areas.	Organize and use vocabulary dictionary.	Students organize and practice using vocabulary dictionary.	Facilitate appropriate organization and usage of vocabulary dictionary.	Vocabulary strategy sheets, student binders	September 2006-January 2007 Week 2-14

To increase students' vocabulary knowledge in content areas.	Use word maps to learn vocabulary words.	Students will complete word maps.	Direct instruction of word map strategy.	Word map sheets, student vocabulary dictionaries	September 2006 Week 2
To increase students' vocabulary knowledge in content areas.	Use word maps to learn vocabulary words.	Students will complete word maps.	Guided instruction of word map strategy.	Word map sheets, student vocabulary dictionaries	September 2006 Week 3
To increase students' vocabulary knowledge in content areas.	Use word maps to learn vocabulary words.	Students will complete word maps.	Guided instruction/ independent practice of word map strategy.	Word map sheets, student vocabulary dictionaries	October 2006 Week 4
To increase students' vocabulary knowledge in content areas.	Use word maps to learn vocabulary words.	Students will complete word maps.	Independent practice of word map strategy.	Word map sheets, student vocabulary dictionaries	October 2006 Week 5
To increase students' vocabulary knowledge in content areas.	Administer word map vocabulary quiz & student reflection	Students will complete quiz	Administer word map vocabulary quiz & reflection sheet	Vocabulary Quiz; Word Map Student Reflection	October 2006 Week 5
To increase students' vocabulary knowledge in content areas.	Use four-square strategy to learn vocabulary words.	Students will complete four-squares.	Direct instruction of four-square strategies.	Four-square sheets, student vocabulary sheets	October 2006 Week 6
To increase students' vocabulary knowledge in content areas.	Use four-square strategy to learn vocabulary words.	Students will complete four-squares.	Guided instruction of four-square strategies.	Four-square sheets, student vocabulary sheets	October 2006 Week 7

To increase students' vocabulary knowledge in content areas.	Use four-square strategy to learn vocabulary words.	Students will complete four-squares.	Guided instruction/ independent practice of four-square strategy.	Four-square sheets, student vocabulary sheets	October/ November 2006 Week 8
To increase students' vocabulary knowledge in content areas.	Use four-square strategy to learn vocabulary words.	Students will complete four-squares.	Independent practice of four-square strategy.	Four-square sheets, student vocabulary sheets	November 2006 Week 9
To increase students' vocabulary knowledge in content areas.	Administer four-square vocabulary quiz & student reflection	Students will complete vocabulary quiz	Administer four-square vocabulary quiz & student reflection	Vocabulary quiz & Four-Square Student Reflection	November 2006 Week 9
To increase students' vocabulary knowledge in content areas.	Use flashcard strategy to learn vocabulary words.	Students will create flashcards.	Direct instruction of flashcard creation and use.	Index cards, words with definitions, and student vocabulary dictionaries	November 2006 Week 10
To increase students' vocabulary knowledge in content areas.	Use flashcard strategy to learn vocabulary words.	Students will create flashcards.	Guided instruction of flashcard creation and use.	Index cards, words with definitions, and student vocabulary dictionaries	November 2006 Week 11
To increase students' vocabulary knowledge in content areas.	Use flashcard strategy to learn vocabulary words.	Students will create flashcards.	Guided instruction/ independent flashcard creation and use.	Index cards, words with definitions, and student vocabulary dictionaries	November/ December 2006 December 2006 Week 12
To increase students' vocabulary knowledge in content areas.	Use flashcard strategy to learn vocabulary words.	Students will create flashcards.	Independent flashcard creation and use.	Index cards, words with definitions, and student vocabulary dictionaries	December 2006 Week 13

To increase students' vocabulary knowledge in content areas.	Administer flashcard vocabulary quiz & student reflection	Students will complete quiz	Administer flashcard vocabulary quiz & student reflection	Vocabulary quiz & Flashcard Student Reflection	December 2006 Week 13
To increase students' vocabulary knowledge in content areas.	Intervention make up/ student reflection week.	Students will practice strategies/ complete student reflection of strategies.	Facilitate make-up instruction/ Explain, administer, and collect student reflection.	Materials needed for make-up instruction/ Student reflection packets	December 2006 Week 14
To increase students' vocabulary knowledge in content areas.	Administer content vocabulary post-assessments. Administer district provided reading comprehension assessment.	Students will take post-assessments.	Administer post-assessments and analyze data.	Teacher created content vocabulary post-assessments and district provided reading comprehen-sion assessment	January 2007 Week 15
To increase students' vocabulary knowledge in content areas.	Analyze, collect, and organize student data.	None	Analyze, collect, and organize student data.	District provided comprehen-sion and vocabulary scores, student reflections, content vocabulary assessments, and record forms.	January 2007 Week 16

Methods of Assessment

Three tools were used to assess student knowledge and application of vocabulary within content areas. The first tool used was district provided comprehension scores. This tool at Site A and B was guided reading testing used by the teacher-researcher for the school district and created by Scholastic, Inc. and Houghton Mifflin, Inc. It was given to 26 students in Week 15 of the Project Action Plan. This tool at Site B was the Star Reading Program comprehension scores. It was administered by the teacher-researcher for the school district and was created by Renaissance Learning, Inc. It was administered to 32 students in Week 15 of the Project Action Plan. This testing at all sites was used to show student growth in the application of vocabulary strategies and their impact on reading comprehension.

The second tool used was a Student Reflection (Appendix B) on the vocabulary strategies learned in the Project Action Plan. This tool was created and administered by the teacher-researchers to 65 students in Week 15 of the Project Action Plan. It was used to show student growth, as well as to assess student opinion, on the knowledge of vocabulary strategies learned.

The third tool used consisted of Content Vocabulary Quizzes and the Post Vocabulary Assessment (Appendix B). These are teacher-researcher created and administered tools given to 65 students. The Content Vocabulary Quizzes consisted of specific vocabulary words and were given after each vocabulary strategy was introduced, modeled, and practiced by students. A different Content Vocabulary Quiz was administered in Week 5, 9, 13 in the Project Action Plan. The Content Vocabulary Quizzes were used to show student vocabulary growth through the use of the specific vocabulary strategies. The Post Vocabulary Assessment was used for the purpose of showing student retention of all the selected content vocabulary words.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this research was to enhance student vocabulary skills and to have students effectively demonstrate and communicate their knowledge within content areas. To bring about the desired changes, the following strategies were used: word map, four-square, and flashcards which were all supported by the use of individual vocabulary dictionaries. The targeted third through fifth grade students received these interventions for a period of sixteen weeks. Implementation procedures were followed with minor modifications to meet students' needs at individual sites.

During the first week researchers at all sites collected pre-data including most recent STAR, guided reading, and SSAT scores. Researchers also sent home IRB (Internal Review Board) parent consent forms to give approval for student participation in this research study. In addition, researchers also made student vocabulary dictionaries and introduced how they are organized and used by students. Students were given the Content Vocabulary Pre-Assessment by the researchers to evaluate students' prior knowledge of vocabulary words that will be taught in upcoming content area units. Afterwards, the researchers evaluated the assessments. At Site

A and B students liked receiving their dictionaries, but also felt overwhelmed by the number of vocabulary words on their pre-assessment. At Site C students felt the researcher made-up some of the words on their pre-assessment.

Week 2 marked the beginning of direct instruction of the Word Map vocabulary strategy. Researchers introduced how to use a Word Map by using a familiar word and modeling how to complete the different parts (i.e. word forms, antonyms, synonyms, etc.). In addition, researchers facilitated the appropriate use and organization of the vocabulary dictionary. Students across all sites successfully completed the Word Map with a familiar word. At Site B, students were excited about learning vocabulary differently and liked that it had multiple parts to fill out. However, the researchers felt that process was very time-consuming, and students did not internalize the meaning of the words. Furthermore, the content vocabulary words did not always lend themselves for completion of all Word Map components. The students at Site C had a difficult time paying attention since there were so many different components to fill out, but they did like that the format was self-explanatory.

The following week, Week 3, students received guided instruction of the Word Map strategy for continued support of the correct usage. Students at Sites A and B required strong, teacher support because they did not fully understand concepts including word form, antonyms, synonyms, and original sentence. In addition, the lengthy completion of each Word Map at Sites A and C contributed to student frustration and lack of focus. At Site C the students found the Word Map to be easy to follow, but did not enjoy having to use a thesaurus to look up synonyms.

Week 4 wrapped up student work with the Word Map strategy. At Site A, the teacher-researcher continued some guided instruction, but also used a little independent practice. On the other hand, students at Site B were unable to complete Word Maps independently and depended

on complete guided instruction. Overall, higher-ability students were able to successfully complete Word Maps while lower-functioning students (i.e. ELL and specific learning disabilities) needed additional teacher support. Overall, most students at Site C were able to complete the Word Maps independently, but they found them to be time-consuming, especially for students with learning disabilities and Attention Deficit Disorder.

During Week 5, students continued to practice vocabulary through independent or guided practice as appropriate. Students at all sites took a Word Map Vocabulary Quiz including all content words learned with the Word Map strategy. The researcher at Site A read the quiz to select students who needed reading support, whereas researchers at Sites B and C chunked words into groups of four or five words based on individual student IEPs. After completion of the Word Map Vocabulary Quiz, students reflected on the effectiveness of this strategy. Both researchers at Site A and B were questioning in the usefulness of the Word Map strategy. The researcher at Site C found the Word Map strategy to be effective for acquiring the vocabulary definitions and for understanding synonyms of the words.

Week 6 began the use of the four-square strategy. Researchers introduced the strategy with students by using a word students previously learned to demonstrate the correct way to fill in the four-square. Site A students seemed to catch on quickly to the use of the new strategy, but took a long time to draw in pictures. At Site B, students cheered at the news of beginning a new strategy because they seemed empowered to learn because the path to getting there was less complex. Students at all sites had difficulty with filling in real life examples as well as what the word is not. Since so many of the vocabulary words at Site C were unknown to the students and the area they live in, the students had an extremely difficult time coming up with real like examples and needed a great deal of assistance from the researcher.

In Week 7, researchers implemented guided practice of the four-square strategy with students. Students at Site A and B were more focused and able to complete four-squares with little teacher direction. Although they enjoyed illustrating the word, students consumed their attention on their drawing and not on the learning the meaning of the word. However, students at Site C still faced confusion on real life examples and argued among themselves about what examples were appropriate and which were not.

Week 8 was the same as Week 7 in that students continued learning vocabulary by utilizing the four-square strategy. The only difference was that students were able to independently complete four-squares. Observations by researchers at all sites indicated that students took less time to complete four-squares and seemed to enjoy the strategy more because of it.

In Week 9, students continued independent completion of the four-square strategy. The researchers gave students the Four-square Vocabulary Quiz containing content vocabulary learned with this strategy. The researcher at Site A read the quiz to select students who need reading support, whereas researchers at Sites B and C chunked words into groups of four or five words based on individual student IEPs. Following completion of the Four-square Vocabulary Quiz, students reflected on the effectiveness of this strategy.

Week 10 began with the introduction of the flashcard strategy. Each researcher modeled appropriate creation and usage of the flashcards. At Sites A and C students completed their flashcards by adding an original illustration, while Site B students were provided with illustrated pictures of the vocabulary words to accommodate Special Education needs. Students at all sites appreciated the interaction with other students the flashcard practice allowed them.

Week 11 included additional instruction of the flashcard strategy. Guided instruction of this strategy incorporated discussion of definitions and monitoring of flashcard construction. Students at all sites continued to like this strategy because there was more freedom to work with their peers and be creative. By Week 12, students at all sites were able to create and use flashcards on their own without teacher support.

Week 13 concluded the implementation of the flashcard strategy. In wrapping up, the researchers administered the Flashcard Strategy Vocabulary Quiz containing content vocabulary learned with this strategy. Again, the researcher at Site A read the quiz to select students who needed reading support, whereas researchers at Sites B and C chunked the vocabulary words and definitions into groups of four or five words based on individual student IEPs. Upon completion of the Flashcard Vocabulary Quiz, students reflected on the effectiveness of this strategy.

Weeks 14 through 16 completed the research project in the administration of post assessments, and reflections and in the analysis of all data. Week 14 specifically entailed any make-up instruction to conclude the research study as well as administration of the Vocabulary Strategies Student Reflection. In Week 15, the researchers at the three sites gave the students the Post Vocabulary Assessment with all vocabulary words learned through the three strategies. In addition, to the overall vocabulary assessment, the researchers implemented district provided reading comprehension assessments (i.e. guided reading and STAR testing). Week 16 concluded the entire research project with the collection, organization, and analysis of all student data.

Presentation and Analysis of Results

Students in school lack the vocabulary skills to successfully demonstrate and communicate knowledge within the different content areas, and as time persists this becomes a greater challenge. Through the implementation of the word map, flashcards, and four-square strategies, students improved their retention of content vocabulary words.

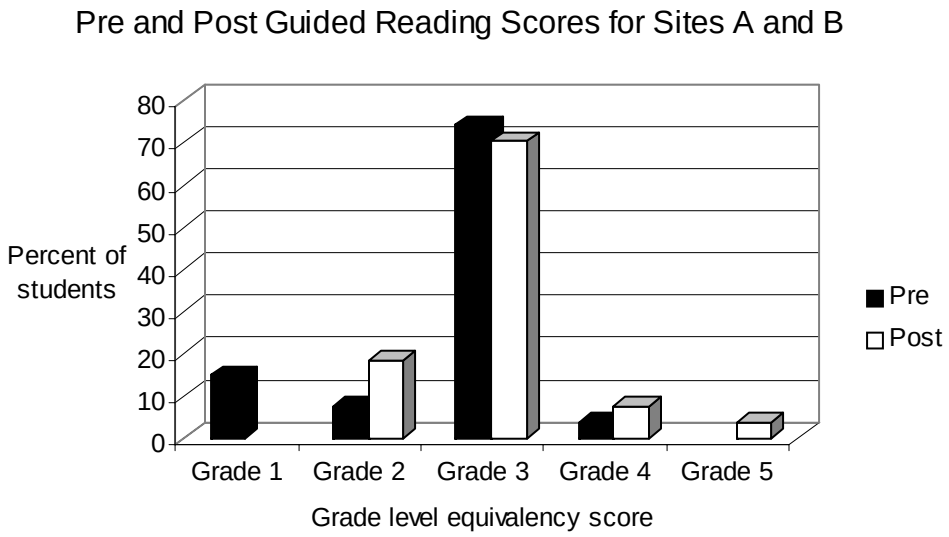

Figure 6. Pre and post guided reading scores for Sites A and B.

Figure 6 shows the results of the guided reading scores for 22 third graders at Site A and three fourth and two fifth graders at Site B. At Site A the regular education teacher administered the guided reading assessment, while at Site B the special education teacher administered the assessment. Site A consisted of all third graders and Site B consisted of three fourth grade special education students and two fifth grade special education students. The pre-assessment was given during the second week of September 2006, while the post assessment was given during the second week in January of 2007. The assessment illustrates what reading grade level

equivalency score each student received. The students at Site A and B assessment results range from grade one to grade five.

The post assessment results state no student was reading at a first grade level, while 18.52% were reading at a second grade level, 70.37% were reading at a third grade level, 7.41% were reading at the fourth grade level and 3.70% were reading at a fifth grade level. Based on the data, the maximum was 70.37%. This means that 70.37% of the students at Site A and B are reading at a third grade level. The minimum is 3.70%, which means that this percent of students are reading at a fifth grade level. The mean for the post assessment was 32.10%. The standard deviation was 33.61, while the mean plus the standard deviation was 65.71% and the mean minus the standard deviation was –1.51%. The maximum of 70.37% is significant because it falls above 65.71%. This means that 70.37% of the students at Site A and B are reading at a third grade level. Consequently, based on this data most of the students at Sites A and B are reading at the level that is to be expected based on the grade level they are currently enrolled in.

The overall mean growth was 7.1%. This number represents a positive growth. The category of "grade level equivalency score grade one" had a –14.81% negative growth. This number represents 14.81% of students who were reading at a first grade reading level at the beginning of the intervention, but who no longer were reading at a first grade level by the end of the intervention. The category of "grade level equivalency score grade two" had 11.11% positive growth. This number shows the number of students reading a second grade reading level increased. Next, the category of "grade level equivalency score of grade three" yielded a -3.7% negative growth. This percentage shows that the number of students who read at a third grade reading level decreased by the end of the intervention as students' reading comprehension improved. In addition, the category of "grade level equivalency score of grade four" showed a

positive growth of 3.71%. This number increased at the conclusion of the intervention because students' showed growth in their overall reading comprehension. Finally, the category of "grade level equivalency grade five" resulted in 3.7% positive growth. In summary, the overall reading comprehension of students moved along in a positive continuum.

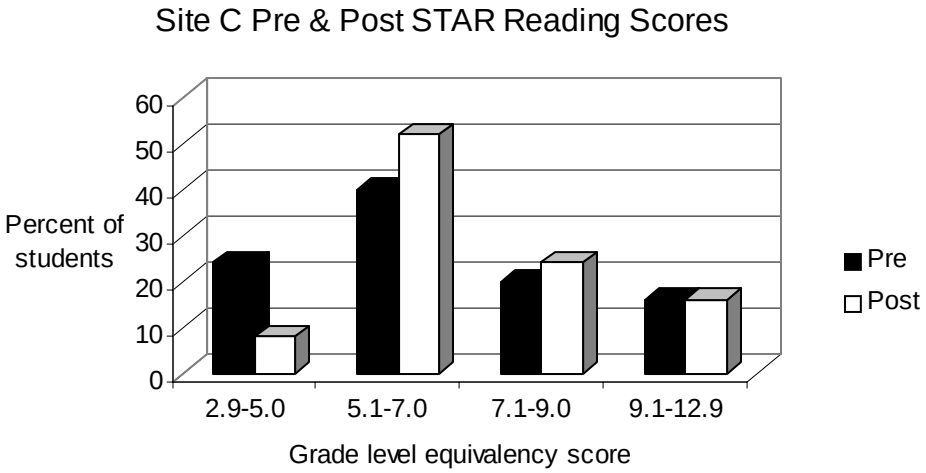

Figure 7. STAR reading scores for students in fifth grade at Site C.

Figure 7 above illustrates the results of the district provided STAR reading test. The regular education teacher administered the test at Site C to 25 fifth grade students during the second week of January 2007. This test was used to assess the progress the students made from the beginning of the action research implementation in September 2006 in regards to their individual reading level. The results of the test range from the grade level equivalency of 2.9 to 12.9.

The maximum percent of students scored at the grade level equivalency between 5.1 and 7.0. This converts to fifth grade, first month to the beginning of seventh grade. Fifty-two percent of the fifth graders scored between this range. The minimum was eight percent that

scored in the range of 2.9 to 5.0. This means second grade, ninth month to the beginning of fifth grade.

After analyzing the data further, the mean is 25%. The standard deviation is 19.15 and the mean plus the standard deviation is 44.15%, while the mean minus the standard deviation is 5.85%. The maximum percent of 52 is significant and shows that at least half of the fifth graders at Site C scored between the grade level equivalency of 5.1 and 7.0, which is typically where fifth graders in the eighth month should score. Although eight percent of the students still scored below grade level it, the percent of students at this level did go down by 16% from when the test was first administered in September of 2006. In conclusion, the STAR reading scores showed improvement or stayed the same in all grade level equivalency ranges.

The overall mean resulted in zero percent growth, but after analyzing the data further there is evident growth in each category. In the first category, "grade level equivalency score grade 2.9-5.0," there was a negative growth of -16%. This number shows that the students in this category decreased by the end of the implementation because reading comprehension scores of students increased. In the category, "grade level equivalency score of 5.1-7.0," there was 12% positive gain. Next, the category," grade level equivalency score of 7.1-9.0," yielded a positive 4% growth. The last category, "grade level equivalency score of 9.1-12.9," concluded a zero percent growth. To conclude, overall reading comprehension scores as determined by the STAR reading test improved.

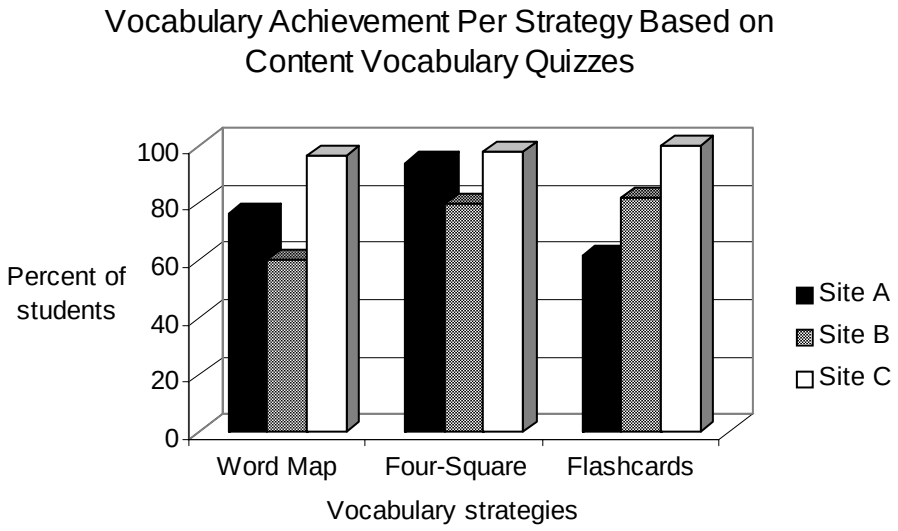

Figure 8. Content vocabulary quizzes for third grade students, fourth grade students, and fifth grade students.

Figure 8 shows the results of the vocabulary achievement the students had in the beginning of January. This test was administered to 22 third students at Site A, three fourth grade students and two fifth grade students at Site B, and 25 fifth grade students at Site C during the second week of January 2007. The test was administered by the regular education teachers at Site A and C and by the special education teacher at Site B. The students were asked to match the definitions with the correct vocabulary word. All of the words on the test were the same ones that the students were pre-assessed on during the second week of September 2006 and the ones that were taught using one of the three strategies: word map, four-square, and flashcards.

The maximum percent of achievement at Site A was 93.95 for the strategy of four-square, while the minimum was 61.41% for the flashcards strategy. The mean for Site A was 77.08%. The standard deviation was 16.31, while the mean plus that standard deviation was 93.38% and

the mean minus the standard deviation was 60.77%. Based on this data there were no significant statistical findings.

At Site B the maximum percent of achievement was 82% for the strategy of flashcards and the minimum was 60.20% for the vocabulary strategy of word map. The mean for Site B was 73.93%. The standard deviation for this site was 11.95, while the mean plus the standard deviation was 85.89% and the mean minus the standard deviation was 61.98%. The maximum is not significant, but the minimum is. The minimum was 60.20%, which falls below the mean minus the standard deviation of 61.98%. This means that only 60.20% of the students at Site B achieved using the vocabulary strategy of word map.

Site C had similar results for all three strategies. The maximum for this site was 100% for the flashcards strategy and the minimum was 96.52% for the vocabulary strategy of word map. The mean for Site C was 98.17%. The standard deviation was 1.75. The mean plus the standard deviation was 98.27% and the mean minus the standard deviation was 94.77%. While the minimum is not significant, the maximum is. The maximum of 100% for the strategy of flashcards falls above the mean plus standard deviation of 98.27%. This means that 100% of the students at Site C achieved using the vocabulary strategy of flashcards. Consequently, at Sites B and C flashcards was the most successful strategy used in learning the new meanings of vocabulary words, while at Site A the strategy of four-square was the most successful.

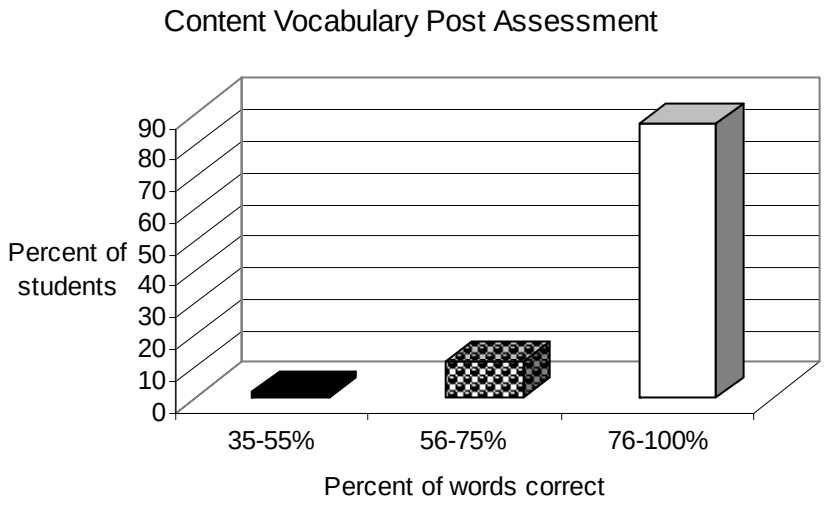

Figure 9. Content vocabulary post assessment for third grade social studies, fourth and fifth social studies, and fifth grade reading.

Figure 9 above shows the results of the Content Vocabulary Post Assessment (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during the week 15 in January 2006. At Sites A and C, the assessment was administered by regular education teachers, and at Site B, the assessments were administered by a special education teacher. The teacher-researcher created instrument asked students to match content vocabulary words with their definitions. The vocabulary words in this assessment were learned during the implementation of the three strategies: word map, four-square, and flashcards.

In reviewing the data from these assessments, the data indicates that the mean number of students in each scoring category is 33.33%. However, the maximum number of students was in the highest category, 76-100%, with 86.54% of students. In addition, the minimum number of students was in the lowest category, 35-55%, with 1.92% of students. Furthermore, the standard deviation was 50.42 making the mean plus the standard deviation 83.75 and the mean minus the

standard deviation 33.33. These statistics indicate that the maximum is significant because the majority of students scored above the mean plus standard deviation.

Although the Content Vocabulary Pre-Assessments and the Content Vocabulary Post Assessment are different, the data is comparable. The results of the Content Vocabulary Pre-Assessment placed the majority of students, 45.28%, in the "I don't know" category for the content vocabulary taught in this action research project. In addition, this pre-assessment indicated that a minimum of 9.91% of students knew the vocabulary. After the students studied the content vocabulary by using the three strategies, 86.54% of students scored 76-100% on the Content Vocabulary Post Assessment. By taking the 9.91% of the students that knew the vocabulary on the pre-assessment and subtracting that from the 86.54% of the students that scored in the range of 76-100% on the Content Vocabulary Post Assessment this shows that there was an overall positive growth of 76.63%.

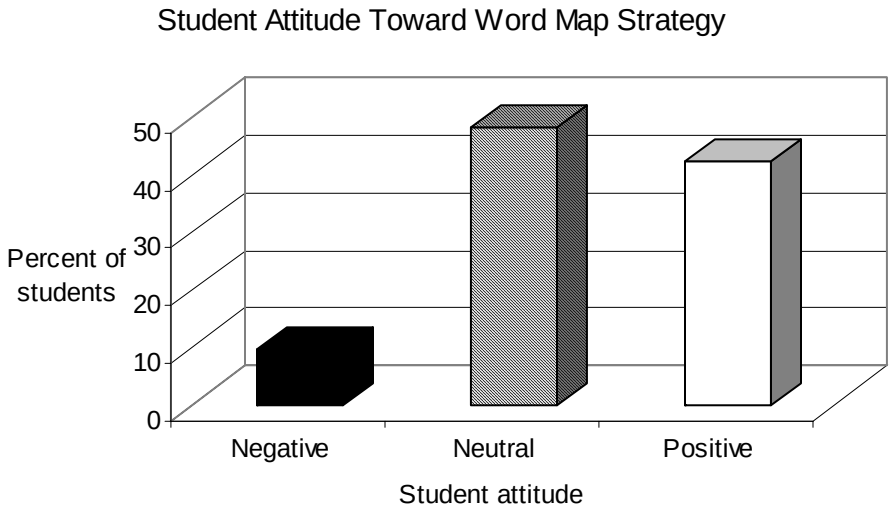

Figure 10a. Student attitude towards learning the word map strategy.

Figure 10a above shows the results of the Word Map Student Reflection (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during the week 5 in October 2006. At Sites A and C, the assessments was administered by regular education teachers, and at Site B, the assessments were administered by a special education teacher. The teacher-researcher created instrument asked students to reflect on how they felt about learning the word map strategy. This reflection was given to students after they took the Word Map Vocabulary Quiz.

Upon review of this data, the mean resulted in 33.33% with a maximum of 48.08% and a minimum of 9.62%. In addition, the standard deviation is calculated at 20.74, while the mean plus the standard deviation is 54.08% and the mean minus the standard deviation is 12.59%. Although the student reflection shows that more students had a "neutral" or "positive" attitude towards the word map strategy, this is not significant as determined by the standard deviation. According to the mean, there should be more students in the "negative" category. However, the percentage is below the mean, and this also is not significant.

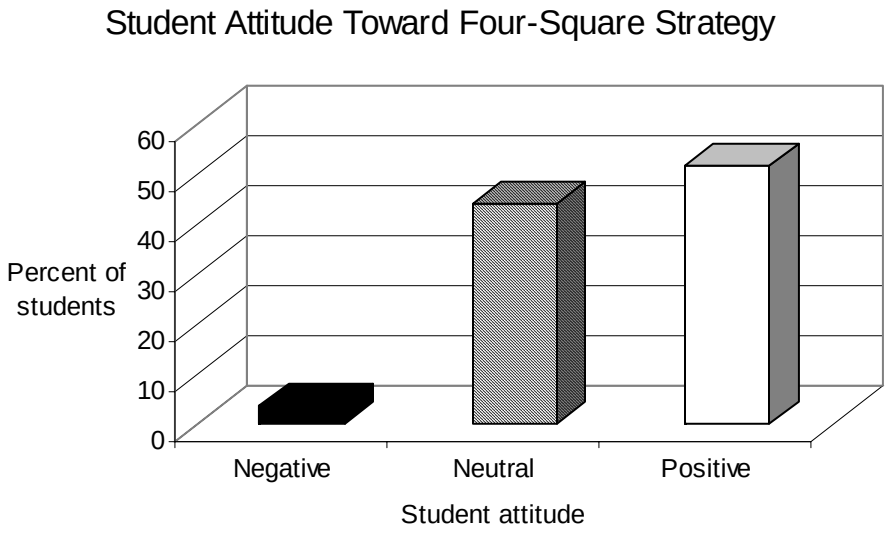

Figure 10b. Student attitude towards learning the four-square strategy.

Figure 10b above shows the results of the Word Map Student Reflection (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during the week 5 in October 2006. At Sites A and C, the assessments was administered by regular education teachers, and at Site B, the assessments were administered by a special education teacher. The teacher-researcher created instrument asked students to reflect on how they felt about learning the word map strategy. This reflection was given to students after they took the Word Map Vocabulary Quiz.

Upon review of this data, the mean resulted in 33.33% with a maximum of 48.08% and a minimum of 9.62%. In addition, the standard deviation is calculated at 20.74, while the mean plus the standard deviation is 54.08% and the mean minus the standard deviation is 12.59%. Although the student reflection shows that more students had a "neutral" or "positive" attitude towards the word map strategy, this is not significant as determined by the standard deviation. According to the mean, there should be more students in the "negative" category. However, the percentage is below the mean, and this also is not significant data because they fell within the mean minus standard deviation and mean plus standard deviation.

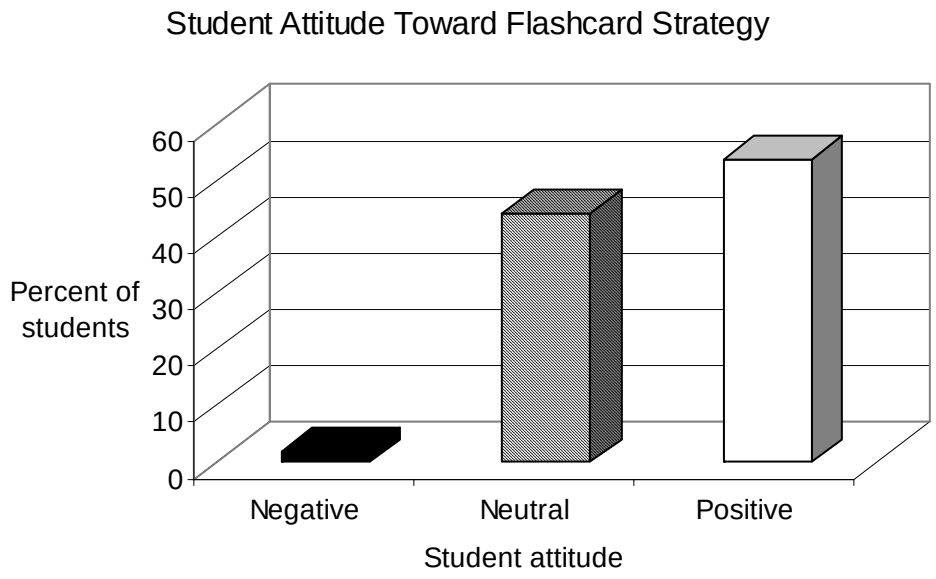

Figure 10c. Student attitude towards learning the flashcard strategy.

Figure 10c above shows the results of the Flashcard Student Reflection (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during the week 9 in November 2006. At Sites A and C, the assessments was administered by regular education teachers, and at Site B, the assessments were administered by a special education teacher. The teacher-researcher created instrument asked students to reflect on how they felt about learning the word map strategy. This reflection was given to students after they took the Flashcard Vocabulary Quiz.

Upon review of this data, the mean resulted in 33.33% with a maximum of 53.85% and a minimum of 1.92%. This calculates the standard deviation at 27.62, while the mean plus the standard deviation is 60.96% and the mean minus the standard deviation is 5.71%. The results of the Four-Square Student Reflection point out that a minimum of 1.92% of students rated this strategy in the "negative" category. This is significant because this score outside of the mean minus the standard deviation. Although the student reflection shows that more students had a

"neutral" or "positive" attitude towards the word map strategy, this is not significant as determined by the standard deviation.

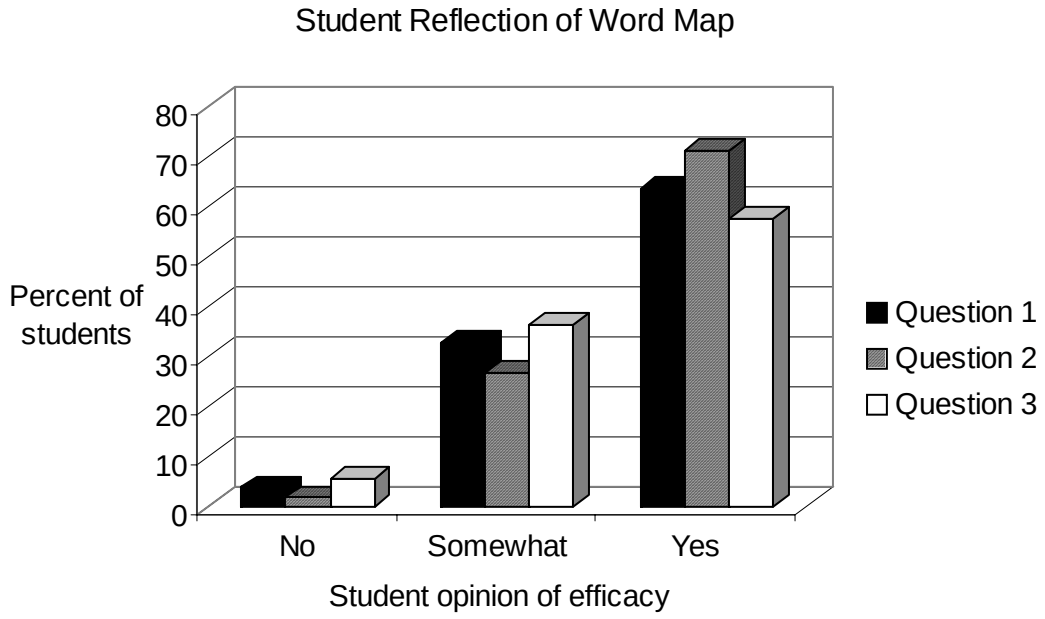

Figure 11a. Student reflection on efficacy of word map strategy.

Figure 11a shows the results of the Word Map Student Reflection (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during week 5 in September 2006. At Sites A and C, the reflections were administered by regular education teachers, and at Site B, the reflections were administered by a special education teacher. The teacher-researcher created instrument asked students to rate three questions "no," "somewhat," or "yes." Questions are as follows: Question 1-"Have you learned from using this strategy?," Question 2-"Has this strategy helped you learn new vocabulary words?," Question 3-"when you have to learn new vocabulary words on your own, will you use this strategy to help you?"

According to the data from Question 1, the maximum is 63.46% of students marking "yes" to learning from the word map strategy, and the minimum is 3.85% of students marking "no" to learning from this strategy. The mean for question 1 is 33.33% of students in each category. The standard deviation is calculated at 29.81 with a mean plus standard deviation of 63.15% and mean minus standard deviation of 3.52%. Statistically, nothing appears to be significant for question 1 in this student reflection.

The information from Question 2 indicates that the maximum is 71.15% of students marking "yes" to agreeing this strategy helped them learn new vocabulary words. On the other hand, the minimum is 1.92% of students marking "no." While the mean is 33.33% of students in each category, the standard deviation for this question is 35. 06. This means that the mean plus standard deviation is 68.59% and the mean minus standard deviation is –1.72%. Again, none of the statistical findings are significant.

The maximum finding for Question 3 is 57.69%, and the minimum is 5.77%. The mean for this question is 33.33%. The data concludes that the standard deviation is 26.11, and the mean plus standard deviation is 59.44% and the mean minus standard deviation is 7.22%. Consequently, the minimum is significant because it falls below 7.22%. This means that it is relevant that 5.77% of students noted that this strategy did not assist them with learning content vocabulary words.

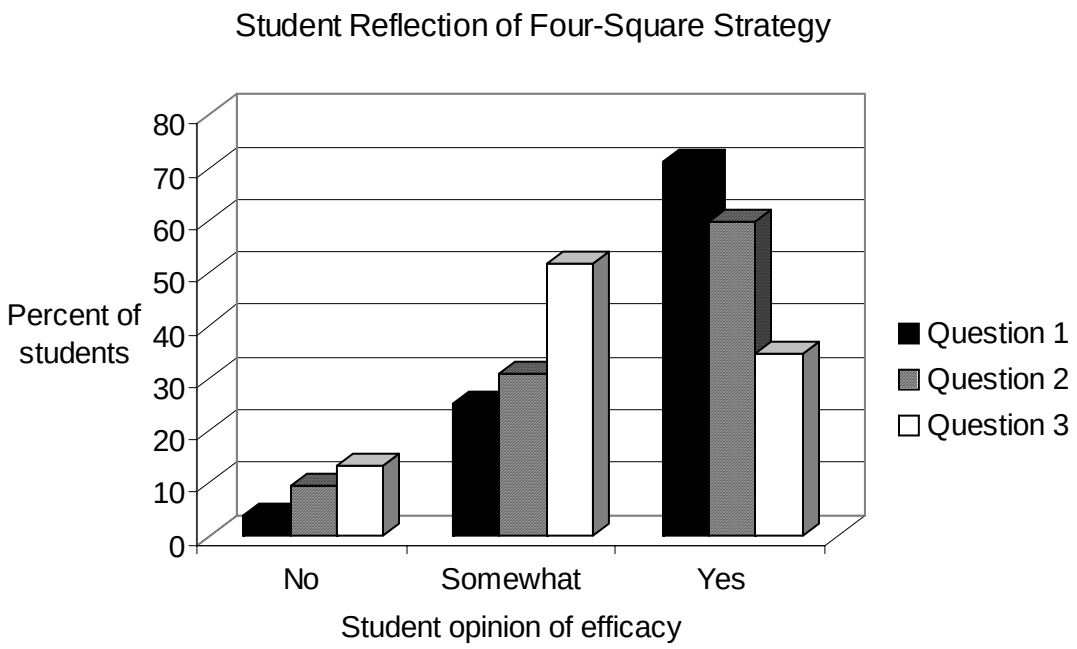

Figure 11b. Student opinion on efficacy of four-square strategy.

Figure 11b shows the results of the Four-Square Student Reflection (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during week 9 in November 2006. At Sites A and C, the reflections were administered by regular education teachers, and at Site B, the reflections were administered by a special education teacher. The teacher-researcher created instrument asked students to rate three questions "no," "somewhat," or "yes." Questions are as follows: Question 1-"Have you learned from using this strategy?," Question 2-"Has this strategy helped you learn new vocabulary words?," Question 3-"when you have to learn new vocabulary words on your own, will you use this strategy to help you?"

According to the data from Question 1, the maximum is 71.15% of students marking "yes" to learning from the four-square strategy, and the minimum is 3.85% of students marking "no" to learning from this strategy. The mean for question 1 is 33.33% of students in each

category. The standard deviation is calculated at 34.42 with a mean plus standard deviation of 67.75% and mean minus standard deviation of –1.09%. Statistically, the maximum is significant.

The information from Question 2 indicates that the maximum is 59.62% of students marking “yes” to agreeing this strategy helped them learn new vocabulary words. On the other hand, the minimum is 9.62% of students marking “no.” While the mean is 33.33% of students in each category, the standard deviation for this question is 25.10. This means that the mean plus standard deviation is 58.43% and the mean minus standard deviation is 8.23%. Again, the maximum is a significant finding.

The maximum finding for Question 3 is 51.92 and the minimum is 13.46%. The mean for this question is 33.33%. The data concludes that the standard deviation is 19.26, and the mean plus standard deviation is 52.60% and the mean minus standard deviation is 14.06%. Consequently, the minimum is significant because it falls below 13.46%. This means that it is relevant that 13.46% of students noted that this strategy did not assist them with learning content vocabulary words.

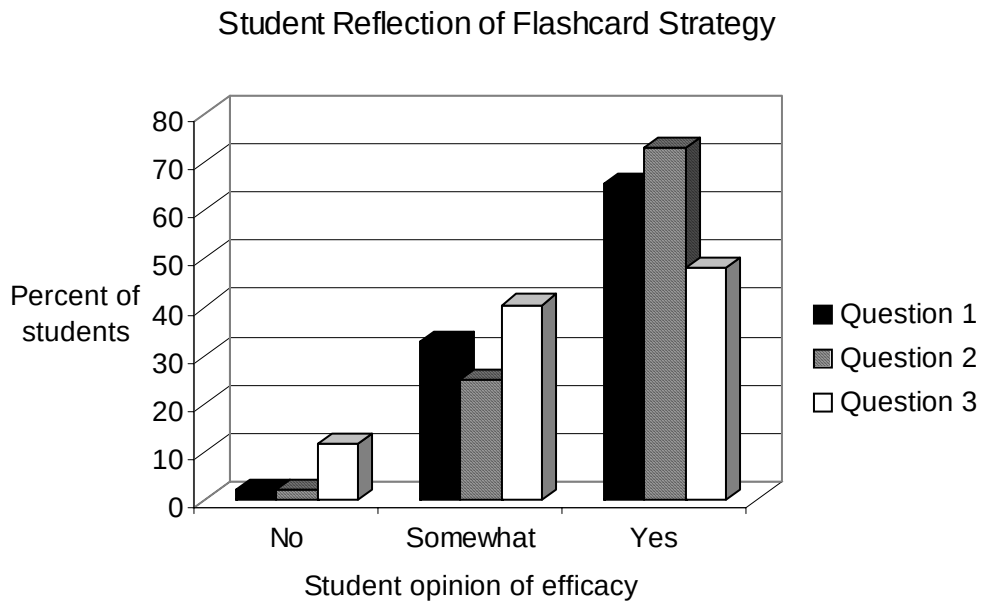

Figure 11c. Student opinion on efficacy of flashcard strategy.

Figure 11c shows the results of the Flashcard Student Reflection (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during week 13 in December 2006. At Sites A and C, the reflections were administered by regular education teachers, and at Site B, the reflections were administered by a special education teacher. The teacher-researcher created instrument asked students to rate three questions "no," "somewhat," or "yes." Questions are as follows: Question 1-"Have you learned from using this strategy?," Question 2-"Has this strategy helped you learn new vocabulary words?," Question 3-"when you have to learn new vocabulary words on your own, will you use this strategy to help you?"

According to the data from Question 1, the maximum is 65.38% of students marking "yes" to learning from the flashcard strategy, and the minimum is 1.92% of students marking "no" to learning from this strategy. The mean for question 1 is 33.33% of students in each

category. The standard deviation is calculated at 31.74 with a mean plus standard deviation of 65.07% and mean minus standard deviation of 1.80%. Statistically, the maximum is a significant finding.

The information from Question 2 indicates that the maximum is 73.08% of students marking "yes" to agreeing this strategy helped them learn new vocabulary words. On the other hand, the minimum is 1.92% of students marking "no." While the mean is 33.33% of students in each category, the standard deviation for this question is 35.30. This means that the mean plus standard deviation is 69.63% and the mean minus standard deviation is –2.97%. Again, the maximum is a significant figure.

The maximum finding for Question 3 is 48.08%, and the minimum is 11.54%. The mean for this question is 33.33%. The data concludes that the standard deviation is 19.26, and the mean plus standard deviation is 52.60% and the mean minus standard deviation is 14.07%. Consequently, the minimum is significant because it falls below 14.07%. This means that it is relevant that 11.54% of students noted that this strategy did not assist them with learning content vocabulary words.

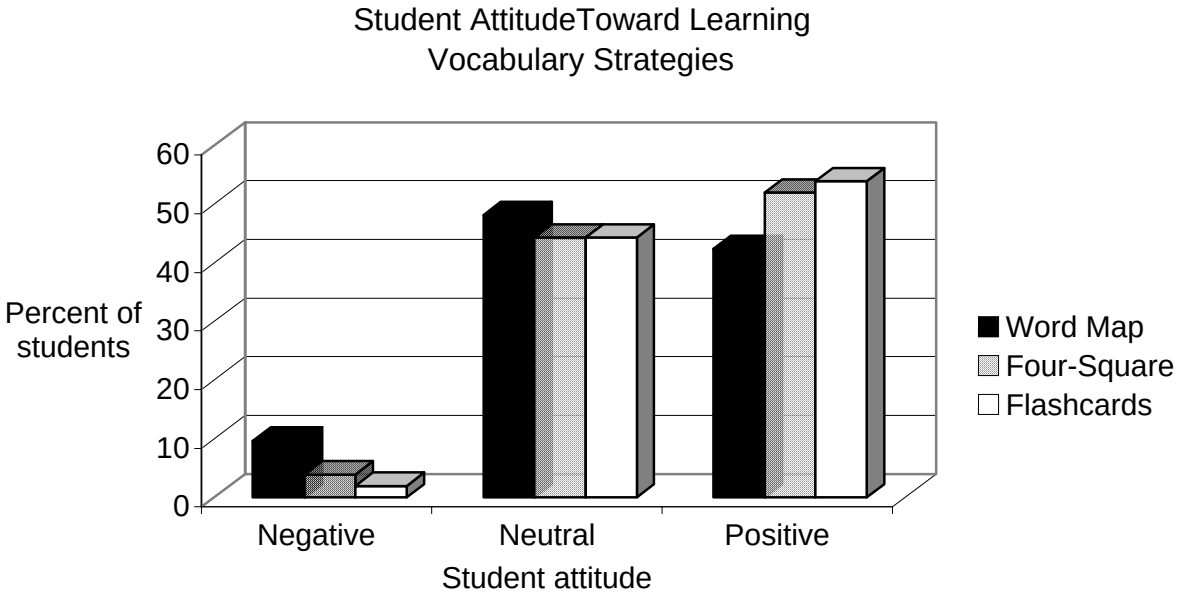

Figure 12a. Student attitude toward learning new vocabulary strategies.

Figure 12a illustrates the results of a survey that students at the three sites completed regarding their attitude about learning the new strategies taught during the 16 week implementation. Regular education teachers administered the survey for Site A and C and a special education teacher for Site B. At Site A, all 22 of the students were third graders, at Site B there were three fourth graders and two fifth graders, and at Site C all 25 of the students that completed the survey were in fifth grade. The students had to choose whether they thought learning the new vocabulary strategies was a negative experience, a positive experience or they felt neutral about it.

The word map strategy's maximum was 48.08%. This means that 48.08% of all the students for all three sites felt neutral about this strategy. The minimum for this strategy is 9.62% which indicates these students felt negative about using the strategy to learn new vocabulary words. The mean for this strategy is 33.33% and the standard deviation is 20.74.

The mean plus the standard deviation is 54.08% and the mean minus the standard deviation is 12.59%. The minimum is significant because it is below 12.59%. This means that of all the students at all three sites, 9.62% of them felt that the word map strategy was negative way to learn new vocabulary words.

Of the four-square strategy the maximum was 51.92% in the category of positive attitudes. So of all the students, 51.92% of them felt that using the four-square strategy was a positive experience. The minimum of this strategy is 3.85% for negative attitudes. The mean for the four-square was 33.33%. The standard deviation was 25.82, while the mean plus the standard deviation was 59.16% and the mean minus the standard deviation was 7.51%. Again, the minimum of 3.85% was significant because it fell below the mean minus the standard deviation.

The last strategy, flashcards, had a maximum of 53.85% for positive attitudes toward this strategy, while the minimum was 1.92% for negative attitudes. The mean for this strategy is 33.33% and the standard deviation was 27.62. The mean plus the standard deviation was 60.96%, while the mean minus the standard deviation was 5.71%. Based on this data, this means that the minimum, once again, was significant with a percent of 1.92. This means that 1.92% of the students at the three sites found the flashcards strategy to be negative. In conclusion, the minimum for each strategy was always significant because of always falling below the mean minus the standard deviation.

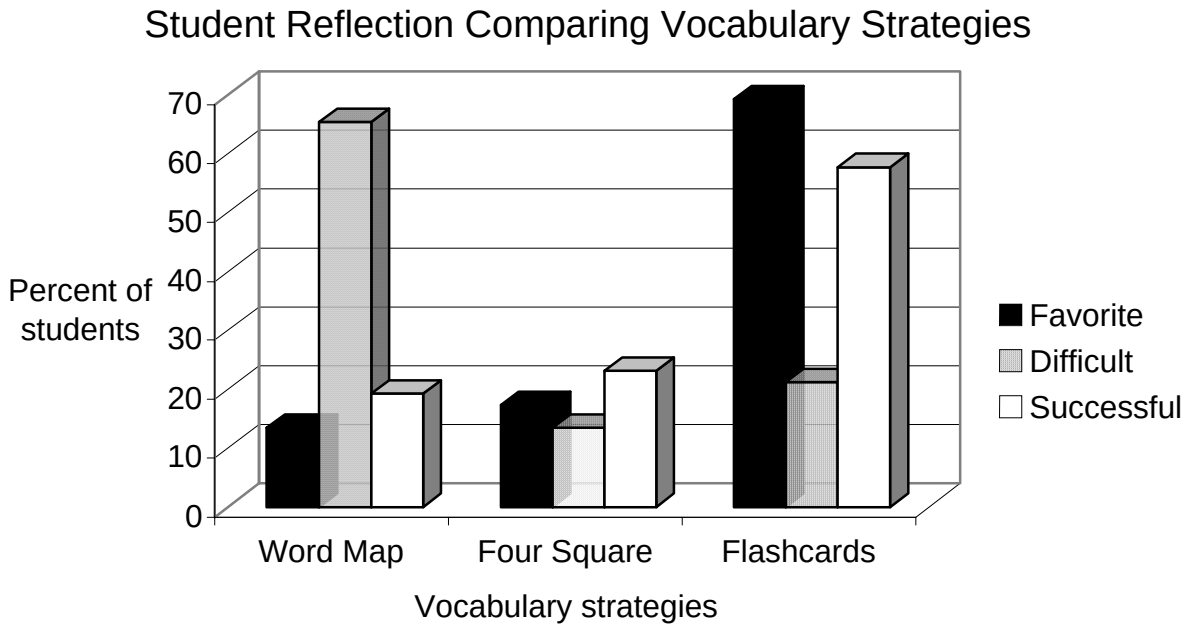

Figure 12b. Student opinion on efficacy of vocabulary strategies being favorite, difficult, and successful.

Figure 12b shows the results of the Vocabulary Strategies Student Reflection (Appendix B), administered to 22 third graders at Site A, three fourth graders and two fifth graders at Site B, and 25 fifth graders at Site C during week 5 in September 2006. At Sites A and C, the reflections were administered by regular education teachers, and at Site B, the reflections were administered by a special education teacher. The teacher-researcher created instrument asked students to rate the strategies "favorite," "difficult," "successful."

According to the data of "favorite" strategy, the maximum is 69.23% of students marked flashcards as their favorite strategy. The minimum is 13.46% of students indicated word map as their least favorite. The mean is 33.33% of students for each strategy. The standard deviation is calculated at 31.15 with a mean plus standard deviation of 64.48% and mean minus standard

deviation of 2.19%. Statistically, the maximum is significant because a higher percentage of students choose the flashcards as their favorite strategy.

The student information on the most difficult strategy shows that the maximum is 65.38% of students choosing the word map. On the other hand, the minimum is 13.46% of students marking the four-square strategy as the most difficult. While the mean is 33.33% of students in each category, the standard deviation for this question is 28.02. This means that the mean plus standard deviation is 61.36% and the mean minus standard deviation is 5.31%. These findings prove that the maximum is significant because it is higher than the mean. This shows that more students determined that the word map was more difficult than the other two strategies.

The maximum finding for the most successful strategy is 57.69% of students preferring flashcards, while the minimum is 19.23%. The mean for this question is 33.33%. The data concludes that the standard deviation is 21.18, and the mean plus standard deviation is 54.52% and the mean minus standard deviation is 12.15%. Therefore, the maximum is significant because it falls above the mean. This means that it is relevant that more students noted that the flashcard strategy was the most successful for them.

Conclusions and Recommendations

Students lack the vocabulary skills to effectively demonstrate and communicate knowledge within content areas. This becomes a greater challenge as time persists. Researchers used the following interventions to address this problem: direct instruction, guided and independent practice of word map, four-square, and flashcard strategies as well as modeling the use of student vocabulary dictionaries.

The researchers conclude that the intervention of teaching the word map, four-square, and flashcard strategies was successful in addressing the problem that students have in being able to

effectively demonstrate and communicate knowledge within content areas. There was an increase in student knowledge of vocabulary words and how to use strategies to learn new words.

In addition the researchers conclude the intervention of having students use vocabulary dictionaries to help learn new content words also addressed the problem of students having difficulty learning content vocabulary words. There was an increase in student mastery of new content vocabulary words, which the researchers attributed to the students' organization and use of the vocabulary dictionaries. The vocabulary dictionaries became a place for students to keep all their work as well as a reference to check the meaning of a word.

To those researchers who may wish to use the interventions in this research project, the researchers offer these recommendations. First, the intervention of teaching the four-square, and flashcard strategies is highly recommended. The students enjoyed learning different variations of strategies to learn new content vocabulary words. The researchers recommend with reservations, however, the use of the word map strategy with younger students. Over half the students at Site A and B reported in their reflection that they did not like or felt neutral about using the word map strategy to learn new words. This is verified in the student achievement on the content vocabulary quiz. The researchers suggest that simplifying the elements for students to complete in the word map modify this intervention.

The intervention of using student vocabulary dictionaries is also highly recommended. Students enjoyed keeping all their work in one place and therefore took more pride in their work using the strategies.

Reflections

Site A

At the conclusion of the implementation of our action research I was able to see how it had affected my classroom and students, my future teaching, and my professionalism. Beginning with my classroom and students I was able to see benefits. As I introduced each new vocabulary strategy to my students, it was interesting to me to see how they were able to use it independently or not at all. I was not sure at the beginning how they would react to learning these strategies, and it was interesting to see if I was right in the strategies I thought they would enjoy and the ones they actually did enjoy. My students definitely benefited from learning these strategies because I was able to see some of them transfer these words correctly into their everyday writing. The most challenging aspect for me was the direct teaching of the strategies because it was very time consuming. For example, the word map strategy as a full class instruction took about a half hour. I was constantly worried that I would not be able to teach the full curriculum because teaching these vocabulary strategies was taking up all my instruction time. In the end, as my students took end of the unit content tests, they performed better on the vocabulary section than fellow colleagues' classes.

Thus, this action research also impacted beyond my classroom and into my future teaching. First, as I worked with a group of teachers on designing future social studies curriculum this year, we added in directions and necessary materials for teaching the four-square and flashcard strategies to assist with teaching content vocabulary words. My students favored the flashcard strategy, but their quizzes showed the four-square strategy helped them learn the words the best. Second, I also think using the action research process on a smaller scale would be beneficial to continue. Third, keeping myself updated on results of new research is something

I would like to continue as well. That way I am consistently using research to drive my teaching methods, which will help me meet the needs of all my students. Finally, trying different teaching methods with my colleagues and discussing how the students reacted to them would also be part of the action research process I would like to use in the future. Each goal enables me to have another way to test best teaching practices within my future teaching.

Lastly, the action research process has impacted me as a professional. Going through this long, intensive process has helped me learn to contribute different roles in a group setting. At times each person in our research group had to be the leader, and at other times we each had to work to compromise our ideas. These skills are essential when working with colleagues, administrators, and parents. I think my partners and I all contributed skills in which we were individually strong. I was the one who was able to organize the big ideas, which helped us to focus on what individual task we needed to complete. I would advise an entering graduate student who was beginning to focus on a research topic to take their time and not feel pressured to design their research right away. My group felt that if we had known more about designing a research project and were given more time, we would have made some changes to the research we conducted because we had a lot of data to analyze based off of the assessment tools we used. If we could go back, we would have possibly used different tools or simplified the ones we designed. Overall, the action research process had many positive affects that have helped my students, my future teaching, and my professionalism.

Site B

As the process of this action research project comes to a close, I find myself reflecting on the effects this project has had on me, my partner researchers, my students, and as well as all educators. For starters, this action research proved to be an extremely long and tedious project,

and I have encountered many challenges along the way. At the same time, I have learned a lot and even found some aspects rather interesting despite the necessary work and limited time available.

I have to admit that the action research paper was by far the most challenging obstacle for me to achieve. It is not that this type of paper is not doable, but that it was so complex. Every part had to include specific components and be completed in a specific format. Actually, the narrative writing was not even the most rigorous. It was the necessary outlines, APA rules and guidelines, and appendixes that frustrated me the most. It seemed as if every time my group thought that we had a section done correctly, we had to re-do it.

However, I must confess that I did find components of the paper interesting. For example, I enjoyed learning about the statistics contrived from our data. I found the mathematical functions such as standard deviation, maximum, and minimum interesting and enjoyed analyzing the results from pre and post intervention measurements. I especially like transforming the data into graphs. I like creating graphs so I consequently enjoyed this aspect of the project. In addition, I found the comparative analysis of these same measurements satisfyingly interesting. Altogether, these components reinforced why I choose to do this specific action research project on vocabulary strategies.

When I first began to implement this project with my students, I was not certain that I was going to see any positive benefits. However, contrary to my original beliefs, I did see many beneficial effects. My students enjoyed participating in an action research project for my schooling because they thought this was cool. The positive benefit was that the students were willing to participate and learned three different strategies for learning vocabulary. Of course, the students preferred the flashcards more than the word map and four-square strategies, but the

bottom line was that all my students improved their vocabulary and showed retention of the meanings with all three strategies. It was nice to see my students present themselves with more confidence in the regular education classroom during social studies because they already knew the vocabulary words and related concepts. Finally, because the students learned an increased amount of social studies vocabulary, the students' parents, the administration, and other teachers were impressed and pleased because this vocabulary knowledge directly affected the students' comprehension of the social studies material.

Since this action research project confirmed my hypothesis that direct instruction of content vocabulary strategies benefits students, I plan to teach these strategies to my students in future school years. The strategy (i.e. word map, four-square, and flashcards) I teach my students will depend on the age and ability level of my students from year to year. For example, if I am working with students in fourth and fifth grade, as I did during this research project, I will teach the four-square and flashcard strategy. However, if I am working with high school students in the future, I will teach the four-square and flashcard strategy, as well as the word map strategy because this age and ability of students should be able to handle the complexity of this strategy.

Although I cannot say that I ever plan to do a complete action research project again, I will continue to use parts of the action research process to solve problems, for it is my opinion that troubleshooting is part of a special education teacher's job. In someway, I guess that one could look at special education goals as individual research projects because the appropriate approach is similar. Each special education goal must be supported by baseline data, researched-based material must be used to adequately address goal, and progress must be monitored on a

consistent basis. Therefore, I will apply in my job what I have learned in this action research program to review research, create graphs to demonstrate data, and analyze data.

What insights did I gain about the factors necessary to address a significant problem in school? Well, I am not sure that this project assisted me with additional insights to identify problems in schools. More or less, I think that my experience as an educator in the same school for eight years has given me the insights that I needed to identify a significant problem in my school. Problems faced in schools today seems to be the topic of most discussions and meetings held by the district officials at my school so I have to say that I feel adequately informed on where to find more information (i.e. school report card, demographics of community, achievement on state and district assessments, etc.).

Lastly, this experience allowed me the confidence I needed to feel like a master teacher. I learned how to be a teacher-researcher while managing to remain professional at my full-time job as a special educator. I may have been stressed, but I successfully completed all tasks required in this program and in my job. Most importantly, I learned how to manage my time effectively and collaborate with fellow teacher-researchers to achieve a common goal on a timely basis.

In conclusion, my advice to future graduate student's embarking on a journey in action research is to take your time and think about what you want to accomplish in your personal profession before you decide on a research topic. Once you decide on a research topic, be patient and understanding because the road that must be followed in action research is long and tedious. However, do not be discouraged, for you will find success.

Site C

While reflecting on the whole action research process that has gone on for nearly two years, I still cannot believe that I am almost done. I know I have not only gained the knowledge that my action research taught me, but I have also learned the proper process to conduct an action research project. When I think back to the beginning, I had no idea what standard deviation was or how to find it out; now, I feel that I am a professional who understands it.

The most interesting component of the action research was how well our group worked together. For as long as I can remember I have been doing projects and assignments in groups and of all those times I have never had a group work as well as the three of us did. It seemed to me that when one of us was overwhelmed with other aspects of our life that another member would step up and take the lead and vise versa when that member was overwhelmed. I could not have asked for a better group of teachers to work with over the last two years.

As I am quickly approaching the end, it is difficult to think of the most challenging aspect when all that is on my mind is graduating. Nevertheless, I believe the most challenging aspect was how everything came to be due around the same time. I feel that they were certain times of the program that were overwhelming with a great amount due in very short periods of time and then there were periods of time there would not be anything due. If I could some how change the program I would spread the due dates out more evenly, but I really do not know if that is even really possible.

Since our action research project was to increase students' vocabulary knowledge through the strategies of word map, four-square, and flashcards, I believe that this project was a success. It is through these three strategies that the students gained the knowledge of how to learn new words and the definitions of the words themselves. I know that my students enjoyed

filling out the word map, but I know the strategy they are most likely to use on their own is the flashcards strategy. Many of my students have used a variation of this strategy in other subjects. What they did learn is that they should keep the flashcards and review them at least once a week. Then, when it comes to the culminating test, the words come to them easily. They found that they do not have to study as much or as long to know the words. The flashcard strategy that we used in our action research project not only used the vocabulary word and the definition, but it included an illustration or picture. For my visual learners and my LD students this was extremely helpful to them. Overall I think the project was a success, and the students have gained the knowledge of the vocabulary words and the three different strategies.

Since I work extremely closely with the other fifth grade teacher, other students did benefit. The other fifth grade teacher did not do as much as I did or for as long, but she did try the three different strategies and next year hopes to implement more formal vocabulary instruction. This was her first year teaching fifth grade and she did not want to take on too much. Her students learned the three strategies, but their favorite was the four-square, whereas my students hated that strategy. Not only has the other fifth grade teacher been affected by my action research, but I included the three strategies in the school vocabulary packet that was passed out to the entire faculty. Most of the parents from my class were extremely excited to learn that I would be completing this project because they knew their students would be learning new strategies that they have not used in the past and that the vocabulary instruction would be greater than in the past too. I have a parent of one of my students who informed me early in the year that he wanted his daughter to be learning vocabulary words at the twelfth grade level. I understand that as educators we need to differentiate out instruction, but I personally do not have any way of getting my hands on high school leveled words or resources. Obviously this parent

was extremely excited to hear that I was participating in an action research, but this parent has also stopped to tell me how happy he is with the instruction I have done. He thinks that the strategies that I have used have been successful for his daughter and he no longer is requesting high school leveled vocabulary words. My administration was happy to hear that my action research project was in vocabulary instruction because it is in our School Improvement Plan. This has become a highly regarded goal for all teachers, and we have spent a great amount of time discussing and learning new ways to teach students vocabulary words that they will retain.

I honestly will use my interventions in succeeding school years. I found that the strategies help the students learn the definitions of the vocabulary words and what the words are like and what they are not like. I think that the students enjoyed the change every three weeks and the frequent change in strategy over shorter times. I think next year I will teach all three of the strategies and allow the students to pick which strategy they feel works the best for them. Since they are in fifth grade, I believe that students need to take ownership for their learning.

Throughout this process I learned that our group worked extremely well with each other and that we have a lot more in common than I first thought in terms of professionalism and work ethic. We all agreed that we would get the work done on time, if not before it was due. We also all agreed that we would use our time wisely and help each other whenever someone needs it. Many times we met together, but if there were times that we could work on our own, we would and then meet to put it together. Not only did we work well together when we met as a group, but we also always divided the work evenly. Advice I would give a graduate student beginning to think about a research topic is to thoroughly think through the topic and think about how you set it up, so they do not end up with as many graphs like we did.

References

Asselin, M. (2002, February). Vocabulary instruction. *Teacher Librarian, 29*(3), 57-59.

Barrera, M. T., & Rule, A. C. (2003, Summer). Using objects to teach vocabulary words with multiple meanings. *Montessori LIFE, 15*(3), 14-17.

Beck, I. L., McKeown, M. G., & Kucan, L. (2003). *Bringing Words to Life: Robust Vocabulary Instruction.* New York, NY: Guilford Publications, Inc.

Beckman, M. E., Edwards, J., & Munson, B. (2004, April). The interaction between vocabulary size and phonotactic probability effects on children's production accuracy and fluency in nonword repetition. *Journal of Speech, Language, and Hearing Research, 47*, 421-136.

Biemiller, A. (2003). Vocabulary: Needed if more children are to read well. *Reading Psychology, 24,* 323-335.

Blachowicz, C. L. Z., & Fisher, P. (2004, March). Vocabulary lessons. *Educational Leadership, 61*(6), 66-69.

Borgia, L., Horack, D., & Kiley, T. (2005). Terrific teaching tips. *Illinois Reading Council Journal, 33*(3), 46-49.

Brabham, E. G., & Villaume, S. K. (2002, November). Vocabulary instruction: Concerns and visions. *The Reading Teacher, 56*, 264-268.

Bromley, K. (2003, November/December). Round-the-clock vocabulary. *Scholastic Instructor, 113*(4), 29-31.

Bryant, B. R., Bryant, D. P., Goodwin, M., & Higgins, K. (2003, Spring). Vocabulary instruction for students with learning disabilities: A review of the research. *Learning Disability Quarterly, 26,* 117-128.

Busch, T. W., Espin, C. A., & Shin, J. (2005, July/August). Curriculum-based measurement in the content areas: Vocabulary matching as an indicator of progress in social studies learning. *Journal of Learning Disabilities, 38*(4), 353-363.

Carris, J. (2005, Summer). In-a-flash vocabulary. *Journal of College Admission, 188*, 30.

Coyne, M D., Kame'enui, E. J., Simmons, D. C., & Stoolmiller, M. (2004). Teaching vocabulary during shared storybook readings: An examination of differential effects. *Exceptionality, 12*(3), 145-162.

Deffes, R., & Juel, C. (2004, March). Making words stick. *Educational Leadership, 61*(6), 30-34.

Dixon-Krauss, L. (December 2001/January 2002). Using literature as a context for teaching vocabulary. *Journal of Adolescent and Adult Literacy, 45*(4), 310-318.

Findlan, C., Portman, C., & Shields, D. (2005, March). Word meanings. *Mathematics Teaching, 190,* 37-39.

Fisher, D., Frey, N. & Williams, D. (November 2002). Seven literacy strategies that work. *Educational Leadership,* 60(3), 70-73.

Greenwood, S. C. (2002, May/June). Making words matter: Vocabulary study in the content areas. *The Clearinghouse, 75*(5), 258-263.

Harley, B., Howard, J., & Roberge, E. (1996, October). Teaching vocabulary: An exploratory study of direct techniques. *Canadian Modern Language Review, 53,* 281-304.

Harmon, J. M., Hedrick, W. B., & Linarode, P. M. (2004, November/December). Teachers' beliefs and practices of vocabulary instruction with social studies textbooks in grades 4-8. *Reading Horizons, 45*(2), 103-125.

Jitendra, A. K., Edwards, L. L. S., & Gabriell Jacobson, L. A. (2004, Spring). What research says about vocabulary instruction for students with learning disabilities. *Exceptional Children, 70*(3), 299-322.

Misulis, K. (1999, Winter). Making vocabulary development manageable in content instruction. *Contemporary Education, 70*(2), 25-29.

Monroe, E. E., & Orme, M. P. (2002, Spring). Developing mathematical vocabulary. *Preventing School Failure, 46*(3), 139-142.

Monroe, E. E., & Panchyshyn, R. (1995-1996, Winter). Vocabulary considerations for teaching mathematics. *Childhood Education, 72,* 80-83.

Nilsen, A. P., & Nilsen, D. L. F. (2003, February). A new spin on teaching vocabulary: A source-based approach. *Reading Teacher, 56*(5), 436-439.

Rosenbaum, C. (2001, September). A word map for middle school: A tool for effective vocabulary instruction. *Journal of Adolescent and Adult Literacy, 45*(1), 44-49.

Schippert, P. (2005). Read alouds: A new way of teaching. *Illinois Reading Council Journal, 33*(3), 11-16.

Shin, F. (2004, January). Books, not direct instruction, are the key to vocabulary development. *Library Media Connection, 22*(4), 20-21.

Zarry, L. (1999, Winter). Vocabulary enrichment in composition: A six grade study. E*ducation, 120*(2), 267-272.

APPENDICES

APPENDIX A

Copywrited Data Collection Instruments
Records Sheet
Content Vocabulary Pre-Assessment

Copyrighted Data Collection Instruments

Pre-Assessment Tools

- District Provided Comprehension Scores
    - Guided Reading scores
    - SSAT (State Standardized Achievement Test) scores
    - Star Reading Program (published by Renaissance Learning, Inc.) scores
- District Provided Vocabulary Scores
    - SSAT scores
    - MAP (Measures of Academic Progress) scores

Post-Assessment Tools

- District Provided Comprehension Scores
    - Guided Reading scores
    - Star Reading Program scores
- Student Reflections
- Post Vocabulary Assessment

Records Sheet

September 11, 2006-January 14, 2007

Site _____

Students	District Comp. Scores (Pre)	District Comp. Scores (Post)	District Vocab. Scores (Pre)	Content Vocab. Assess. (Pre)	Content Vocab. Assess. (Post)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
34.					
25.					
26.					
27.					
28.					
29.					
30.					
31.					

Name_____

Content Vocabulary Pre-Assessment

Word	Never Seen or Heard It	Have Seen or Heard It	I know it! (If so define it)	Word Definition

APPENDIX B

Records Sheet
Vocabulary Strategies-Student Reflections
Word Map- Student Reflections
Four-square- Student Reflections
Flashcards- Student Reflections
Vocabulary Strategies-Student Reflection-Teacher Records
Post Vocabulary Assessment
Geography Vocabulary Words Quiz #1, #2, & #3

Records Sheet

September 11, 2006-January 14, 2007

Site _____

Student	Word Map Vocabulary Words Quiz	Four-square Vocabulary Words Quiz	Flashcards Vocabulary Words Quiz
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			
26.			
27.			
28.			
29.			
30.			
31.			

VOCABULARY STRATEGIES

Student Reflections
(Word Map, Four-square, Flashcards)

Circle the face that shows how you feel
about using these strategies to learn new vocabulary words.

Circle your answer:

- My favorite vocabulary strategy was the:

  word map four-square flashcards

- The most difficult vocabulary strategy was the:

  word map four-square flashcards

- The vocabulary strategy that I had the most success with was the:

  word map four-square flashcards

WORD MAP

Student Reflections
(Strategy #1)

Circle the face that shows how you feel about this strategy.

Circle the number that best applies to how you feel:

1-no 2-somewhat 3-yes

- ♦ Have you learned from using this strategy?

  1 2 3

- ➢ Has this strategy helped you learn new vocabulary words?

  1 2 3

- ❖ When you have to learn new vocabulary words on your own, will you use this strategy to help you?

  1 2 3

FOUR SQUARE

Student Reflections
(Strategy #2)

Circle the face that shows how you feel about this strategy.

Circle the number that best applies to how you feel:

1-no 2-somewhat 3-yes

- Have you learned from using this strategy?

  1 2 3

- Has this strategy helped you learn new vocabulary words?

  1 2 3

- When you have to learn new vocabulary words on your own, will you use this strategy to help you?

  1 2 3

FLASHCARDS

Student Reflections
(Strategy #3)

Circle the face that shows how you feel about this strategy.

Circle the number that best applies to how you feel:

1-no 2-somewhat 3-yes

- Have you learned from using this strategy?

  1 2 3

- Has this strategy helped you learn new vocabulary words?

  1 2 3

- When you have to learn new vocabulary words on your own, will you use this strategy to help you?

1 2 3

VOCABULARY STRATEGIES

Student Reflection-Teacher Records
(Word Map, Four-square, Flashcards)

Teacher records reactions to the vocabulary strategies using tally marks.

Feelings	**Word Map**	**4 Square**	**Flash Cards**
			
			
			

Question	**Word Map**	**Four-square**	**Flashcards**
♦ My favorite vocabulary strategy was?			
➢ The most			

difficult vocabulary strategy was?			
❖ The vocabulary strategy that I had the most success with was?			

WORD MAP

WORD MAP

Student Reflection-Teacher Records
(Strategy #1)

Teacher records reactions to the vocabulary strategies using tally marks.

Feelings	Site A	Site B	Site C
			
			
			

(1-no 2-somewhat 3-yes)

♦ Question	Site A	Site B	Site C
1			
2			
3			
➢ Question	Site A	Site B	Site C
1			
2			
3			
❖ Question	Site A	Site B	Site C
1			
2			
3			

FOUR SQUARE

FOUR SQUARE

Student Reflection-Teacher Records
(Strategy #2)

Teacher records reactions to the vocabulary strategies using tally marks.

Feelings	Site A	Site B	Site C
			
			
			

(1-no 2-somewhat 3-yes)

♦ Question	Site A	Site B	Site C
1			
2			
3			
➢ Question	Site A	Site B	Site C
1			
2			
3			
❖ Question	Site A	Site B	Site C
1			
2			
3			

FLASHCARDS
FLASHCARDS

Student Reflection-Teacher Records
(Strategy #3)

Teacher records reactions to the vocabulary strategies using tally marks.

Feelings	Site A	Site B	Site C
			
			

			

(1-no 2-somewhat 3-yes)

♦ Question	Site A	Site B	Site C
1			
2			
3			
➢ Question	Site A	Site B	Site C
1			
2			
3			
❖ Question	Site A	Site B	Site C
1			
2			
3			

Name _____

Post Vocabulary Assessment

Match the correct vocabulary term with the correct definition.

Definitions

_____ 1. To twist one's face as if in pain

_____ 2. To give advice

_____ 3. To ridicule or deride; make fun

_____ 4. Firmness in sense of purpose

_____5. A container to hold arrows

_____6. A musical composition with several different sections

_____7. To motivate someone to accomplish or feel something

_____ 8. An expression of sympathy

_____ 9. Music that is played along with another's performance

_____ 10. A state of having pride and self worth

_____ 11. The act, manner, or sound of walking

_____ 12. Long, narrow, deep depression in the earth

_____ 13. A person who plays music while another person performs

_____ 14. Overthrow of an established government by citizens

_____ 15. A kind of plant that grows in moist, shaded areas

_____ 16. To settle down, become calm

Vocabulary Terms

a. compose

b. moss

c. revolution

d. ravine

e. tread

f. dignity

g. accompaniment

h. condolences

i. inspire

j. accompanist

k. determination

l. sonata

m. quiver

n. mocking

o. counsel

p. grimaced

Name_____

Geography Vocabulary Words Quiz #1
Word Maps

Directions: Match each definition with the word by drawing a line to connect the word with the definition. Not all definitions will match up with a word. Read carefully!

1. Refers to the country.

2. The study of the land, water, animals, and people of a place.

3. A tool that helps you figure out how far away places are from each other.

4. A tool that helps you find out the directions north, east, south, or west on a map.

5. A person who makes maps.

6. A tool that shows what different symbols and colors mean on map.

7. Refers to the city.

A. map scale

B. map key

C. urban

D. geography

E. compass rose

F. rural

Name_____

Geography Vocabulary Words Quiz #2
Four Square

Directions: Match each definition with the word by writing the letter of the word in the blank in front of the definition. Not all definitions will match up with a word so leave it blank if there is no match. Read carefully!

_____ 1. A huge slab of moving ice.

_____ 2. Very old.

_____ 3. The study of the history of the Earth.

_____ 4. No longer living on Earth.

_____ 5. It's like a small community. It includes animals, plants, and water that rely on each other to survive.

_____ 6. The print of an animal or plant left on a rock.

_____ 7. The ways humans have changed the natural land, such as building houses.

_____ 8. The material left behind by water, wind, or glaciers.

_____ 9. What you call land without any human features.

A. natural envirnoment

B. ecosystem

C. fossil

D. glacier

E. extinct

F. geology

G. ancient

H. human features

Name_____

Government/Economics Vocabulary Words Quiz #3
Flashcards

Directions: Match each definition with the word by writing the letter of the word in the blank in front of the definition. Not all definitions will match up with a word so leave it blank if there is no match. Read carefully!

_____ 1. Money collected by the government.

_____ 2. To make something such as toys.

_____ 3. How people make, buy, and sell things that they need or want.

_____ 4. To deliver goods to places.

_____ 5. Any natural resource that can not be replaced once it is used.

_____ 6. A free service provided by the government such as schools or parks.

_____ 7. Products that are made, bought, and sold.

_____ 8. A person who works for money.

_____ 9. Material found in nature that is useful to people like water or gas.

_____ 10. Any natural resource that can replenish itself such as wood.

A. distribute

B. natural resource

C. public service

D. renewable resource

E. economics

F. produce

G. goods

H. tax

I. non-renewable resource

APPENDIX C

Lesson Plans

Week O

Objective: To develop & organize materials for vocabulary intervention.

Materials: textbook and/or support materials

Procedure:

1. Teacher selects content vocabulary focus for duration of project.
2. Teacher organizes vocabulary into three sections (Word Maps, Four-squares, Flashcards) so that the teacher knows the vocabulary words used in each intervention.
3. Teacher outlines the units/lessons necessary for project.

Week 1

Objective: To develop & organize materials for vocabulary intervention.

Materials: consent forms, district provided scores, content vocabulary pre-assessment, preliminary record sheets, student vocabulary dictionary, vocabulary sheets (i.e. Word Map, Four-square)

Procedure:

1. Explain project to parents and ask permission for students to participate.
2. Distribute and collect research consent forms.
3. Collect and review district provided comprehension and vocabulary scores (i.e. Guided Reading, SSAT scores, MAP scores). Record results on Records Sheet found in Appendix A.
4. Develop content vocabulary pre-assessment of all the vocabulary words students will be learning throughout this research project. Refer to template in Appendix A.
5. Give students content vocabulary pre-assessment, collect, and review results. Record results on Records Sheet found in Appendix A.
6. Teacher organizes intervention sheets in student vocabulary dictionaries and provides direct instruction and modeling of the organization and usage of individual vocabulary dictionaries.

Week 2

Topic: Direct instruction of word map strategy

Materials: word map strategy sheets, vocabulary dictionary, enlarged example word map (i.e. transparency, chart paper), enlarged example of blank word map (i.e. transparency, transparency markers, chart paper, big markers)

Objectives: To introduce students to the word map strategy.

To use word maps to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Discuss with students the concept and purpose of a word map.
2. Ask the students what parts should be included on a word map.
3. Show an enlarged example of a word map (i.e. transparency, chart paper) and discuss its parts.
4. As a class, fill out a word map collaboratively on a word familiar to students (i.e. animal). This can be done on a blackboard, large white board, or chart paper.
5. Repeat step 4 with specific content vocabulary words.

Check for understanding: If students appear to not understand, the teacher will re-teach the strategy as needed.

Week 3-4

Topic: Guided/independent practice of word map strategy

Materials: word map strategy sheets, vocabulary dictionary, enlarged example word map (i.e. transparency, chart paper), enlarged example of blank word map (i.e. transparency, transparency markers, chart paper, big markers)

Objectives: To guide students in completing the word map strategy.
To use word maps to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Using the enlarged example of blank four-square, review the previous lesson and all the parts in the word map strategy.
2. Display an example of a completed word map.
3. Teacher and students complete a new word map.
4. Students work in pairs or small groups to discuss how to complete a word map for the next vocabulary word.
5. Class comes together to write the word map for this vocabulary word.
6. Students work in pairs or small groups to complete word maps for the remainder vocabulary words.
7. Once students are successful, they may begin to work independently.

Check for understanding: If students appear to not understand, the teacher will re-teach the strategy as needed.

Week 5

Topic: Independent practice of word map strategy

Materials: word map strategy sheets, vocabulary dictionary, enlarged example of a word map (i.e. transparency, chart paper), enlarged example of blank word map (i.e. transparency, chart paper)

Objectives: To independently use word maps to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Using the enlarged example of a blank word map, review the previous lesson and all the parts in the word map strategy.
2. Display an example of a completed word map.
3. Students will independently practice completing word maps with specific content vocabulary words.

Check for understanding: If students appear to not understand, the teacher will re-teach strategy as needed.

Topic: Assessment and reflection of word map strategy

Materials: word map vocabulary quiz, word map reflection sheets

Objectives: To assess student knowledge of content vocabulary words.
To reflect on the benefits of the word map strategy.

Procedure:

1. Develop word map vocabulary quiz. Refer to example in Appendix A.
2. Administer and collect word map vocabulary quiz and word map reflection.
3. Review and record results on Records Sheet (Appendix A) and Word Map: Student Reflection-Teacher Records (Appendix B).

Week 6

Topic: Direct instruction of four-square strategies

Materials: four-square strategy sheets, vocabulary dictionary, enlarged example of four-square, enlarged example of blank four-square (i.e. transparency, transparency markers, chart paper, big markers)

Objectives: To introduce students to the four-square strategy.

To use the four-square strategy to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Using the enlarged example of a blank four-square, discuss with students the concept and purpose of the four-square vocabulary strategy.
2. Ask the students what parts should be included in this four-square strategy.
3. Show the enlarged example of the four-square strategy (i.e. transparency, chart paper) and discuss its parts.
4. As a class, fill out a four-square sheet collaboratively on a word familiar to students (i.e. teacher). This can be done on a blackboard, large white board, or chart paper.
5. Repeat step 4 with specific content vocabulary words.

Check for understanding: If students appear to not understand, the teacher will re-teach the strategy as needed.

Week 7-8

Topic: Guided/independent practice of four-square strategy

Materials: four-square strategy sheets, vocabulary dictionary, enlarged example of four-square strategy (i.e. transparency, chart paper), enlarged example of blank four-square (i.e. transparency, transparency markers, chart paper, big markers)

Objectives: To guide students in completing the four-square strategy.
To use the four-square strategy to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Using the enlarged example of a four-square, review the previous lesson and all the parts in the four-square strategy.
2. Display an example of a completed four-square (i.e. transparency, chart paper).
3. Teacher and students complete a new four-square on a new vocabulary word.
4. Students work in pairs or small groups to discuss how to complete a four-square for the next vocabulary word.
5. Class comes together to write the four-square for this vocabulary word.
6. Students work in pairs or small groups to complete four-squares for the remainder vocabulary words.
7. Once students are successful, they may begin to work independently.

Check for understanding: If students appear to not understand, the teacher will re-teach the strategy as needed.

Week 9

Topic: Independent practice of four-square strategy

Materials: four-square strategy sheets, vocabulary dictionary, enlarged example four-square (i.e. transparency, chart paper), enlarged example of blank four-square (i.e. transparency, chart paper), four-square vocabulary quiz

Objectives: To independently use the four-square strategy to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Using the enlarged example of blank four-square, review the previous lesson and all the parts in the four-square strategy.
2. Display an example of a completed four-square (i.e. transparency, chart paper).
3. Students will independently practice completing four-squares with specific content vocabulary words.

Check for understanding: If students appear to not understand, the teacher will re-teach strategy as needed.

Topic: Assessment and reflection of four-square strategy

Materials: four-square vocabulary quiz, four-square reflection sheets

Objectives: To assess student knowledge of content vocabulary words.
To reflect on the benefits of the four-square strategy.

Procedure:

1. Develop four-square vocabulary quiz. Refer to example in Appendix A.
2. Administer and collect four-square vocabulary quiz and four-square reflection.
3. Review and record results on Records Sheet (Appendix A) and Four-square: Student Reflection-Teacher Records (Appendix B).

Week 10

Topic: Direct instruction of flashcard strategy

Materials: flashcard strategy sheets, vocabulary dictionary, enlarged example flashcard (i.e. transparency, chart paper), enlarged example of blank flashcard (i.e. transparency, transparency markers, chart paper, big markers)

Objectives: To introduce students to the flashcard strategy.

To use flashcards to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Discuss with students the concept and purpose of flashcards.
2. Ask the students what parts should be included on the flashcards.
3. Show an enlarged example of a flashcard (i.e. transparency, chart paper) and discuss its parts.
4. As a class, develop a flashcard collaboratively on a word familiar to students (i.e. bird). This can be done on a blackboard, large white board, or chart paper.
5. Repeat step 4 with specific content vocabulary words.

Check for understanding: If students appear to not understand, the teacher will re-teach the strategy as needed.

Week 11-12

Topic: Guided/independent practice of flashcard strategy

Materials: flashcard strategy sheets, vocabulary dictionary, enlarged example of flashcard (i.e. transparency, chart paper), enlarged example of blank flashcard (i.e. transparency, transparency markers, chart paper, big markers)

Objectives: To guide students in completing the flashcard strategy.
To use flashcards to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Using the enlarged example of a flashcard, review the previous lesson and all the parts in the flashcard strategy.
2. Display an example of a completed flashcard (i.e. transparency, chart paper).
3. Teacher and students complete a new four-square on a new vocabulary word.
4. Students work in pairs or small groups to discuss how to create a flashcard for the next vocabulary word.
5. Class comes together to write the flashcard for this vocabulary word.
6. Students work in pairs or small groups to complete flashcards for the remainder vocabulary words.
7. Once students are successful, they may begin to work independently.

Check for understanding: If students appear to not understand, the teacher will re-teach the strategy as needed.

Week 13

Topic: Independent practice of flashcard strategy

Materials: flashcard strategy sheets, vocabulary dictionary, enlarged example of flashcard (i.e. transparency, chart paper), enlarged example of blank flashcard (i.e. transparency, chart paper), flashcard vocabulary quiz

Objectives: To independently us the flashcard strategy to learn vocabulary words.
To increase students' vocabulary knowledge in content areas.

Procedure:

1. Using the enlarged example of blank flashcard, review the previous lesson and all the parts in the flashcard strategy.
2. Display an example of a completed flashcard (i.e. transparency, chart paper).
3. Students will independently practice completing flashcards with specific content vocabulary words.
4. Administer flashcard vocabulary quiz.

Check for understanding: If students appear to not understand, the teacher will re-teach strategy as needed.

Topic: Assessment and reflection of flashcard strategy

Materials: flashcard vocabulary quiz, flashcard reflection sheets

Objectives: To assess student knowledge of content vocabulary words.
To reflect on the benefits of the flashcard strategy.

Procedure:

1. Develop flashcard vocabulary quiz. Refer to example in Appendix A.
2. Administer and collect flashcard vocabulary quiz and flashcard reflection.
3. Review and record results on Records Sheet (Appendix A) and Flashcard: Student Reflection-Teacher Records (Appendix B).

Week 14

Topic: Intervention make up and student reflection on the three strategies

Objective: To allow time to make up any lessons.
To reflect on the benefits and preferences of all three strategies.

Materials: materials from missed lessons, student reflection sheets

Procedure:

1. Facilitate make-up instruction.
2. Explain and administer student reflection sheet on all three strategies.
3. Collect, review, and record results on Records Sheet in Appendix B.

Week 15

Topic: Post-assessments

Materials: content vocabulary post-assessment, district provided reading comprehension assessment

Objectives: To assess student knowledge of content vocabulary words.

Procedure:

1. Develop content vocabulary post-assessment quiz with all the vocabulary words learned. Refer to example in Appendix B.
2. Administer and collect the assessments.
3. Review and record results on Records Sheet in Appendix A.
4. Administer district provided reading comprehension assessment.
5. Review and record results on Records Sheet in Appendix A.

Week 16

Objective: To collect, organize, and analyze student data.

Materials: word map vocabulary quiz and reflection sheet, four-square vocabulary quiz and reflection sheet, flashcard vocabulary quiz and reflection sheet, content vocabulary post-assessment, student reflection of three strategies, district provided comprehension scores, record forms

Procedure:

1. Collect student data.
2. Organize student data.
3. Analyze student data.

APPENDIX D

Revised Lesson Plans