

INTERACTIVE WORD WALLS AND STUDENT PERCEPTIONS OF
VOCABULARY

THESIS

Presented to the Graduate Council of
Texas State University-San Marcos
in Partial Fulfillment
of the Requirements

for the Degree

Master of ARTS

by

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San Marcos, Texas

August 2011

INTERACTIVE WORD WALLS AND STUDENT PERCEPTIONS OF
VOCABULARY

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DEDICATION

This study is dedicated to the 2010-2011 third grade students in room 16.

Thank you for all that you have taught me in this journey and for all that you will teach others. May all of your dreams come true.

ACKNOWLEDGEMENTS

I would like to take a few moments to acknowledge those who influenced this study. Without their support and guidance through this process the final product would not be what it is.

First and foremost I would like to thank God for the many blessings he bestowed upon me during this project. Without his mercy and guidance I would not have had the courage to begin and complete this endeavor. I would like to thank my husband, Mark, without your continuous support I would not have endured this journey.

Thank you to my family for always being there to review my "boring" work and encourage me to chase my dreams. Without you this adventure would have never begun. To Dr. Julie Jackson, thank you for your guidance, mentorship, and friendship. Your willingness to share your knowledge is invaluable to me. I look forward to our future endeavors.

A great many thanks to my friends and colleagues at Walker Elementary (pseudonym). The support and cooperation of the faculty and staff is much appreciated. My heartfelt gratitude goes out to the students and parents of my 2010-2011 third grade class. Thank you for sharing your wonderful students with me. Without your support my research would not have been possible. Thank you to Round Rock ISD for your cooperation with my project.

Lastly, thank you to my committee, Dr. Julie Jackson, Dr. Taylor Acee, and Dr. Gail Dickinson, for your time, dedication, and expertise in molding my research and education.

This manuscript was submitted on 22, June, 2011.

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ABSTRACT
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This qualitative study is designed to address interactive word walls and their effects on student learning and student perceptions of vocabulary. The participants of this study included 16 third grade students enrolled in a bilingual suburban Central Texas elementary school. This study used periodic open-ended question surveys, student interviews, and a collection of classroom artifacts to ascertain the student perspectives regarding interactive math and science word walls. Students revealed that both the math and science word walls were effective in content comprehension support and vocabulary comprehension support. Students also felt that the organization and development of the word walls was a critical component. The results

found that interactive word walls support effective comprehensive vocabulary programs.

Introduction

Establishing an effective comprehensive vocabulary program is a challenge. Creating a learning environment that provides students with the elements needed to successfully learn and apply vocabulary is a daunting task. Research has shown that there are four components that must be present for a vocabulary program to be considered effective and comprehensive (Carlo, August, McLaughlin, Snow, Dressler, Lippman, et al., 2004; Graves, 2006; Keiffer & Lesaux, 2007). The four components are provide rich and varied language experiences; teach well-selected words; teach word-learning strategies; and foster word consciousness. All of these components can be presented independently however, powerful learning occurs when these components are combined. Interactive word walls are instructional tools that effectively incorporate the four components of a comprehensive vocabulary program. They are student-generated expressions of academic vocabulary and content learning. They support content learning in the classroom by aiding vocabulary acquisition and providing longitudinal references to learning across time.

Students engage in rich and varied language experiences when they interact with classroom word walls and associated artifacts. Student-generated word walls are learning timelines and represent the knowledge base of a class over time. Furthermore, they provide students opportunities to interact with vocabulary in creative and imaginative ways. Artifacts are displayed in a variety of ways in order to allow students opportunities to individually express meaning while making personal connections.

Because interactive word walls showcase well-selected words, they help teachers build a foundation for student content vocabulary comprehension. They also support word-learning strategies by highlighting root words, suffixes, prefixes, and their meanings. This helps students decode meaning in text. Additionally, when students use the word wall they become more conscious of words and definitions. This supports content comprehension. It also helps students become aware of vocabulary in the world around them.

The four components of effective comprehensive vocabulary programs underpin this study. Results from this study will add to this important line of research by exploring elementary students' perceptions of rich and varied vocabulary instruction through the use of word walls. By surveying and interviewing students and collecting classroom artifacts, this study contributes an elementary perspective to the middle school word wall research of Harmon, Wood, Vintinner, & Willeford (2009).

The following study explores the effects interactive word walls have on elementary students and their perceptions of vocabulary. Study results will reveal three key elements of elementary classroom word walls: content comprehension; vocabulary comprehension; and word wall organization. Students' perceptions and their participation are key to creating successful and effective word walls that support an effective comprehensive vocabulary program.

Literature Review

There have long been discussions about vocabulary instruction and the effects it has on student achievement and comprehension. Interactive word walls are an instructional strategy designed to address the challenge of teaching vocabulary in context. Research on this emergent strategy is sparse. A thorough search of available literature identified one research study that examined word wall effectiveness in a middle school setting and several practical how-to articles that focused on building and using word walls (Brabham & Villaume, 2001; Kieff, 2003; Husty & Jackson, 2008; Warner, 2008; Coskie & Davis, 2009; Grimes, 2009). As a result, this literature review will focus on the elements of comprehensive vocabulary programs and how word walls may be used to support vocabulary instruction.

The Texas Education Agency (TEA) Reading Initiative (2002) addressed vocabulary development in children as well as hindrances and instructional activities that positively impacted vocabulary development. According to this report, there are several obstacles to vocabulary development that students and teachers must overcome to facilitate vocabulary acquisition. The main challenges include the size of the task (the number of words to learn can be very large), the differences between spoken and written English, limited sources that provide information about words, and the complexity of word knowledge. Elementary students should learn 2000-3000 words each year, an average of six to eight words per day to stay on grade level. To aide students in achieving this goal educators must address the complexity of vocabulary instruction.

Across time researchers have studied the elements needed to create an effective comprehensive vocabulary program. While studies have varied over the years there has emerged a common theme, set forth by Graves (2006), among researchers concerning the elements required for successful vocabulary programs. With minor variations, four components are common. Graves' (2006) four pillars include provide rich and varied language experiences; teach a small number of well-selected words; teach word-learning strategies; and foster word consciousness in students. With the use of these four main components researchers such as Beck & McKeown (2007) and Baumann, Ware, & Edwards (2007) elaborated the necessary elements of a comprehensive vocabulary program. While little variation occurs, Graves' (2006) four main identifiers remain the constant among all studies I reviewed.

Rich and Varied Language Experiences

Providing students with multiple vocabulary experiences is one of the key elements of an effective vocabulary program. Multiple experiences and exposures to words allow students to create important connections between words and their meanings. These connections permit students to use vocabulary effectively. There are many methods of providing experiences with vocabulary that can be successfully implemented.

As reported by Jane David (2010), there is a need for closing the vocabulary gap among different groups of students. To achieve this, students must have multiple exposures to new words and use them in a variety of contexts. A study including 5th graders that utilized a vocabulary rich intervention with multiple strategies was found to be successful. David (2010) concluded that effective strategies included utilizing semantic maps, associating with pictures, playing word games, and linking words to students' native languages.

Similarly, Baumann, Ware, & Edwards (2007) used literature to expose fifth grade students to vocabulary words and explored word usage via writing activities. Students in their study maintained a word wall of interesting words they could use for discussions, activities, and writing. As part of the word knowledge intervention, students were encouraged to look for words to share with the class. The teacher also used vocabulary activities and graphic organizers to get students involved in discovering word meanings. Baumann, Ware, & Edwards (2007) found that fifth grade students showed growth in word knowledge through the use of literature, immersion in a vocabulary rich environment, and writing activities. In fact, the results of the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997), used by Baumann, et al. (2007) to measure listening vocabulary, indicated that students with a below average vocabulary at the beginning of the intervention benefited from the program more than those with an above average vocabulary. These study results revealed that students used more sophisticated and challenging words due to the intervention. As a result, students were able to develop a greater depth and breadth of knowledge.

The TEA Reading Initiative (2002) indicated that students must experience words during repeated encounters in multiple contexts. According to TEA (2002) an effective vocabulary program encouraged wide reading and exposed students to high-quality oral language. It was shown that students learned new words by encountering them in text by reading or being read to. Multiple exposures included defining the words, writing sentences for each word, matching words with definitions, answering silly questions, and completing quizzes. According to TEA (2002), “It was revealed that twelve encounters with a word reliably improved comprehension” (pg. 18). Programs that utilize these elements were shown to be effective in increasing students’ reading comprehension. Multiple experiences help students build

background knowledge and connections creating meaningful learning and opportunities for application of new vocabulary. To achieve this, effective direct instruction must be integrated into vocabulary instruction on a daily basis.

Pamela Spycher (2009) conducted a study in which kindergarten English language learners (ELL), bilingual, and English speaking low SES students received vocabulary experiences through the use of realia, engagement strategies, and language scaffolds. The study population had the opportunity to interact with concept related items during open time in the school day therefore increasing the students' opportunities to use vocabulary appropriately. As a result of these opportunities for multiple interactions, children in the intervention group mastered more target words than those in the control.

Graves & Watts-Taffe (2008) promoted word play as another way to engage students in vocabulary. By using games and riddles students became involved in investigating and learning new vocabulary. The study revealed, "With each new encounter with a particular word, depth of knowledge increased, moving the word further along the continuum from unknown to known" (pg. 192). As a result of multiple encounters with words, students were able to begin to form associations with word meanings and make connections that allowed them to implement the learned vocabulary.

Teach Well-Selected Words

Not only have researchers been concerned with the elements of a comprehensive vocabulary program, they have also studied the types and number of words that should be taught. There is a consensus that well-selected words should be taught directly to students. Choosing which words to teach is an important topic. Some researchers recommend that only content vocabulary be direct taught. However, other

researchers believe that direct teaching should not be limited to content specific words but should include the general vocabulary terms needed to participate at an appropriate grade level and comprehend lesson expectations.

David (2010) reported a direct tie between vocabulary knowledge and comprehension and voiced a need for direct vocabulary instruction, especially for ELLs and low SES students, who enter school with limited vocabularies. The socio-economic status of students has been shown to be directly related to the depth of vocabularies with which students enter school. Research states, “Young children of parents with jobs classified as professional can be exposed to 50% more words than are children of parents classified as working class, and twice as many words as children of parents who receive welfare support” (TEA Reading Initiative, 2002, pg. 5). These limited vocabularies inhibit the ability of ELLs and low SES students to learn in core subject areas. Students with limited vocabularies had difficulty comprehending what they read. As a result, direct vocabulary instruction was necessary. This instruction involved more than just having a list of words to draw from but included activities that supported a deeper understanding of word meaning and use. David (2010) noted that there were many ways to teach vocabulary directly and instruction must be tailored to meet the needs of individual students in order to close gaps.

Baumann, Ware, & Edwards (2007) studied the effects of a comprehensive vocabulary instructional program on student understanding and use of vocabulary. Participants included twenty 5th grade students enrolled in a low income, diverse, elementary school in a medium-sized US community. Words included in the study were selected from commercially produced books. The results of the study revealed that through immersion into a vocabulary rich environment students developed depth

and breadth of vocabulary knowledge, thus revealing that a comprehensive vocabulary program does have positive effects on students' understanding and use of vocabulary.

Beck & McKeown (2007) looked at the effectiveness of a commercial vocabulary curriculum used for direct teaching vocabulary versus a more traditional method. Their study population included kindergarten and first grade low SES children. At the beginning of the study, there was a great difference in vocabulary knowledge among learner groups from different economic backgrounds and the gap between the groups was growing. Beck & McKeown (2007) attributed this growth to the lack of attention to vocabulary instruction in classrooms. They observed that little new vocabulary was taught and the acquisition of vocabulary was not a primary concern. The study intervention utilized oral conversation and reading trade books aloud to children. Read alouds are effective tools for vocabulary instruction during the first readings however, after repeated readings of the same story the children became bored and this vocabulary acquisition strategy lost effectiveness. The students needed repeated exposures to words and vocabulary activities in alternate contexts.

While there is considerable information available about how to teach vocabulary; there is little about what words to teach. It is recommended that words be selected for direct instruction based on the nature of the word itself. Beck & McKeown (2007) believe that a strong vocabulary program should pay attention to words at all levels and their program *Rich Instruction* promoted vocabulary comprehension. *Rich Instruction* included teaching word meanings in student friendly language, presenting multiple examples and contexts, and creating appropriate uses and situations. *Rich Instruction* introduced up to 400 words per year into student vocabularies. Beck & McKeown (2007) found that students that received the *Rich Instruction* learned

significantly more vocabulary than those who did not. Furthermore, Beck & McKeown (2007) found that the students who received more in depth *Rich Instruction* learned more vocabulary than the control group. The students exposed to *Rich Instruction* were able to determine appropriate uses for words, delineate new uses, and identify why uses made sense.

One of the findings of the TEA Reading Initiative (2002) was that students who understood more words had greater reading comprehension. This supports the claim that some form of vocabulary instruction and intervention must be used to close the increasing vocabulary gap among student groups. TEA (2002) promotes explicit instruction of specific words to aid vocabulary development. Explicit instruction should be “dynamic and involve a variety of techniques such as definitional and contextual information about word meanings, involve students actively in word learning, and teach word meaning through discussion and by providing meaningful information about words” (pg. 16). It was important for students to be actively involved in word learning in order to create the needed connections to learn and retain more information.

Spycher (2009) investigated the role of implicit versus explicit vocabulary instruction, explicit focus on semantic development on scientific understanding, and the change in teachers’ literacy and science instruction perspectives as a result of the intervention performed. The focus on the implicit versus explicit teaching of vocabulary and its effects included intentions to enrich and enlarge academic vocabulary and concept understanding in ELL, bilingual, and English speaking low SES kindergarten students. The control group received implicit vocabulary instruction in the context of a science lesson and read aloud texts. The intervention added an explicit 20- to 25-minute vocabulary lesson each day over a 5-week period. During

this lesson, students were taught the meaning of words and then required to develop personal meanings and use the targeted vocabulary appropriately in sentences. At least one word was taught per day, sometimes more depending on the words and the instructional needs. Spycher (2009) used Beck & McKeown's (2007) "Three Tier" framework for selecting words. Tier 1 words represent basic words used every day, Tier 2 words are high utility academic words, and Tier 3 words are discipline focused words that conveyed content meaning. Spycher selected 20 vocabulary words from Tier 2 and Tier 3 word lists.

The overall findings indicated that the children in the intervention group had an increased learning of the target words. They also out-performed the control class in receptive vocabulary knowledge. The intervention group used the academic vocabulary more frequently when prompted and could express their understanding of science concepts more effectively. Overall, the results showed that an intentional and scaffolded model of teaching vocabulary improved the receptive and expressive vocabulary knowledge as well as potentially impacted science concept understanding of ELL and non-ELL students.

Graves & Watts-Taffe (2008) presented findings connecting word learning to word consciousness. According to this study, word learning consists of four levels of understanding: never having seen it before; knowing there is such a word but not knowing what it means; having a vague and context-bound meaning for the word; and knowing and remembering the word. These levels of word learning allowed students to create connections to facilitate the processing of vocabulary. Graves & Watts-Taffe (2008) state, "With more than 40,000 words to be learned, this sort of personal and independent interest in words is a vital part of acquiring a powerful vocabulary" (pg. 193).

Teach Word-Learning Strategies

Providing students with a variety of experiences and selecting specific words to teach are only part of the puzzle of vocabulary acquisition. Students must also be taught how to interpret unfamiliar words. Understanding how to decipher meaning and use words is critical to understanding and implementing newly learned vocabulary.

Baumann, Ware, & Edwards (2007), report that students taught specific word-learning strategies to analyze words for meaning demonstrated use of word-learning tools and strategies independently and engaged in word play. These findings support the TEA Reading Initiative (2002) which specified that students must not only understand what a word's definition is but also what to do when encountering it in text, how it relates to the words around it, and how it relates to other words that could be in its place. According to TEA (2002) an effective vocabulary program provided modelling and instruction in independent word-learning strategies. To teach with definitional information the teacher would use synonyms, antonyms, rewrite definitions in easier to understand sentences, provide example sentences showing use of the word, give non-examples, and discuss the new word and words related to it. To teach with contextual information the teacher would have students create their own sentences, create scenarios, and create silly questions. These activities have proven to be effective when teaching students word-learning strategies.

Foster Word Consciousness

A love and awareness of vocabulary is the final key in completely achieving vocabulary understanding. Students must constantly be aware of the words around them and how they interact with those words. By fostering word consciousness students begin to take ownership in acquiring new vocabulary.

Baumann, Ware, & Edwards (2007), report that when teachers fostered word consciousness among students, “students acquired an interest in words, developed an appreciation of word choice, and expanded their vocabulary” (pg.117). Students’ interest and attitudes toward vocabulary learning also increased. In order to foster word consciousness the TEA Reading Initiative (2002) called for exposure of students to high-quality oral language which can promote word consciousness. Students must hear spoken English. Effective strategies that support spoken language include read alouds, using more sophisticated vocabulary when speaking, and encouraging students to explore new words or phrases they encounter. By doing these activities, students began to seek out new words to share and developed word consciousness.

Graves & Watts-Taffe (2008) described how to foster word consciousness in students and the effects of doing so. They articulated four elements of a comprehensive vocabulary program then utilized a six category framework for fostering word consciousness. The categories were create a word-rich environment; recognize and promote adept diction; promote wordplay; foster word consciousness through writing; involve students in original investigations; and teach students about words. They suggested that to create a word rich environment teachers should look at the classroom from the students’ perspectives. Teachers should sit in their students’ seats and see what is seen when looking around the room, what is heard, and what books are available. These were all important components in creating a word rich environment for students. Graves & Watts-Taffe (2008) considered the physical space needed to post words, and suggested classroom walls as a useful space, particularly when students were involved in creating the words posted on walls. They also suggested “a small area of the room be devoted to words, word card files, wordplay and riddle books, dictionaries and thesauri, and games for word use” (pg. 187). The

authors recommended talking to students about what words they use and how to use them. This discussion facilitated word consciousness in the students.

Word Walls

Interactive word walls are an emergent instructional strategy. A review of current literature revealed one study (Harmon, Wood, Hedrick, Vintinner, & Willeford, 2009) that explored the use of word walls in two 7th grade English classes. One class, the experimental group, studied self-selected vocabulary words and participated in meaningful activities related to a word wall and their selected words. The control group used a commercial vocabulary program paired with activities found in a vocabulary workbook. Students in the experimental group indicated the word walls helped them review for tests. They also used the word walls on their own without direction. The experimental group students reported enjoying the vocabulary activities and liked being responsible for their own learning. Moreover, experimental group scores on the application section of the GRADE (AGS Group Assessments, 2011) were higher than the scores of the control group. Harmon, et al. (2009) support the use of word walls as part of a comprehensive vocabulary program.

Practitioner articles address the construction of word walls and suggest ways teachers may use them to support learning. Coskie & Davis (2009) discussed the importance of science vocabulary and how students could “develop the ability to recognize and understand the vocabulary of science” (pg. 56). They believed that word walls could be powerful teaching tools when students have continuous and frequent opportunities to interact with posted vocabulary. They also stressed the importance of utilizing word walls to support content instruction. They believed that the most successful word walls are jointly created by students and teachers during instruction. They recommended that teachers encourage students to use the

vocabulary from the walls to complete assignments, to sustain discussions, to write predictions, to explain experiments, and clarify thoughts thus supporting the four elements required for a comprehensive vocabulary program.

Warner (2008) discussed the importance of displaying environmental print in the primary grades. She suggested that teachers allow students to create captions for realia, label classroom objects, and use personal-space labels to mark cubbies and desks. Kieff (2004) described innovative word wall games that teachers could play with students. Barbham & Villaume (2001) propose that word walls be used to transform reading and writing activities. They advocated using word walls with beginning, developing, and struggling readers in order to create independent learners.

In combination, the studies included in this review of literature have impacted the design and focus of the present study. Vocabulary research suggests that comprehensive vocabulary programs share common elements and that targeted vocabulary should be selected with care and taught directly. However, the research regarding how word walls support vocabulary development is sparse. No research could be located that addressed this issue in an elementary classroom and to date no one has examined elementary school students' perceptions of word walls. This study will add to the knowledge base regarding these important issues. To contribute to this body of knowledge this study is designed to address the question: How do interactive word walls affect students' perceptions of word wall use in the classroom and vocabulary?

Methodology

Study Design

Vocabulary is a critical element in classroom instruction. In order for students to retain, comprehend, and internalize concepts they need a firm grasp on content vocabulary. Interactive word walls are instructional tools that can aide students in forging relationships with vocabulary. However, understanding and evaluating students' feelings regarding vocabulary is difficult to ascertain. The purpose of this study was to evaluate the relationship between interactive word walls in a third grade classroom, students' perceptions and value of vocabulary, and word wall use. The study was qualitative in design and utilized three points of data for triangulation. Data sources included paper and pencil surveys, interviews, and artifacts from the study classroom. These data points provided information regarding students' use and preferences regarding classroom word walls. The study was conducted during the 2010-2011 school year.

In May 2010 an anonymous, open-ended paper and pencil survey consisting of seven questions pertaining to the construction, design, and utilization of interactive word walls was piloted in a third grade classroom to evaluate the potential value of data collected utilizing this style of survey. After minor adjustments to the survey questions the survey was approved for use in this study. The paper and pencil survey used in the current study consisted of seven open-ended questions that focused on student use, construction, and most valued aspects of the word walls. For this study four sets of survey data were collected across 10 months. The paper and pencil

surveys were completed individually by the participants who were randomly assigned coded numbers to protect privacy and promote uninfluenced responses. Over the course of the study, data was analyzed, coded, and categorized by emergent themes. A second rater cross checked codes and themes to ensure the reliability of the data. When there was a disagreement in coding a third rater was consulted and an agreement was reached to resolve the issue. The paper and pencil survey is available in Appendix A. The results of the paper and pencil survey data can be found in the data analysis section.

The second point of data collection was an interview with four study participants. Participants were purposively selected. The interview consisted of eight open-ended questions designed to evaluate the usefulness of word walls in academic content areas, the participants' personal preferences for the word wall, the validity and impact of interactive activities, and potential changes that might improve the walls. The participants were purposively selected for the interview and agreed to participate. The primary interviewer was the researcher and the interview was conducted in the participants' third grade classroom. The interview protocol is available in Appendix B. Interview results can be found in the data analysis section.

A third point of data consisted of a collection of nine artifacts from the classroom word walls and associated activities. To facilitate the collection of artifacts four selection criteria were established. In order for an artifact to be selected for analysis it had to meet the four criteria: include the vocabulary word; include the correct definition; include a visual support such an illustration or the actual item (realia); and be suitable for publication.

The Role of the Researcher

The researcher performed data collection, data analysis, and was also the classroom teacher. The researcher had 6 years of teaching experience across multiple grade levels as well as 4 years of word wall development experience. The role of classroom teacher provided the researcher with the unique ability to obtain permissions and create a trusting relationship with the convenience sample and their parents. The threat of bias was minimized due to the nature of the questions and the method of data collection. Data collection was conducted with minimal interaction with the sample group. The responses were coded for emergent themes. Furthermore, open-ended unguided response forms were used to protect the identity of the participants and promote the unbiased responses of the subjects. The sample group was a convenience group used because they were enrolled in the researcher's class. In order to meet the requirements for human research the researcher applied for approval from the Texas State University-San Marcos Internal Review Board, the school district research review board, and parental consent and participant assent was also secured.

Data Collection

Triangulation of three sources of data was utilized during this study. An open-ended survey was the primary method of collection. The students completed the survey individually and independently. Each participant was randomly assigned a coded number to ensure confidentiality. Survey completion was not timed and all surveys were completed within 10 minutes. Students were not aided by the researcher, any other adult, or student during the completion of the questions in order to ensure valid, unbiased answers. The student created interactive word walls were posted in the

classroom during the entire data collection period to allow the participants to reference them.

Audio recorded interviews of four purposively selected participants were conducted once during the second half of the study period, January 2011 to May 2011. The interview was conducted and analyzed by the researcher and recorded for archival and analysis purposes. Interview questions consisted of eight open-ended questions designed to evaluate usefulness of word walls in academic content areas, the participant's personal preference for the word wall, the validity and impact of interactive activities, and potential changes that might improve the walls. Interview questions are available in Appendix B. Nine student created artifacts were randomly selected, utilizing predetermined criteria. Selected artifacts were photographed and analyzed to provide data and evidential support of the purpose of this study. The duration of the study, August 2010 to May 2011, provided "prolonged engagement" (Erlandson, Harris, Skipper, & Allen, 1993). This time frame facilitated the study, the collection of data, as well as allowing a comprehensive progression of responses from the sample group.

Research Setting

Walker Elementary (a pseudonym) is located in a small central Texas town that has become a suburb of a mid-size city. It is part of a large school district that covers 110 square miles, encompassing high-tech manufacturing and urban retail centers, suburban neighborhoods, and farm and ranch land. Serving approximately 45,000 students, this district has a diverse ethnic base with a student population that is approximately 9% African American, 11.2% Asian, 30.1% Hispanic, 0.5% Native American, 0.1% Pacific Islander, and 45.1% White, with more than 77 languages spoken throughout the district (TEA, 2011).

Walker Elementary has served a diverse ethnic and economic population for over 30 years. It is a small bilingual suburban school with a state accountability rating of Academically Acceptable. Table 1 contains the ethnic distribution of Walker Elementary across three years.

Table 1: Ethnic Distribution of Walker Elementary

Year	Total Enrollment	African American	Hispanic	White	Native American	Asian/Pacific Islander
2009-2010	374	4.3%	46%	43.9%	0.5%	5.3%
2008-2009	429	2.6%	44.3%	47.8%	0.2%	5.1%
2007-2008	425	2.4%	41.6%	49.9%	0.0%	6.1%

The sample for this study consisted of sixteen 8 to 9 year old third grade students from one third grade classroom. Table 2 reflects the ethnic and economic distribution of the sample group.

Table 2: Demographic Distribution of Sample Group

Total	Male	Female	Hispanic	White	Asian/Pacific Islander	Economically Disadvantaged
16	50%	50%	12%	75%	12.5%	20%

Data Analysis and Results

During the 2010-2011 school year, interactive math and science word walls were used to support instruction. These word walls were unique and displayed the vocabulary and concepts included in the district prepared third grade science and math curriculum. The word walls were updated as instruction progressed through units. When a unit was complete, the vocabulary presented would remain on the word walls for continued use and interaction and new words would be added. To ascertain student preferences regarding the effectiveness of the word walls and the effects they had on students' perceptions of vocabulary, an open-ended, seven-question survey was administered to participating students four times during the school year and four students were selected randomly for individual interviews. Sixteen students participated in the September survey. One student moved away in December. Therefore, fifteen students completed the remaining surveys. Additionally, nine classroom artifacts were collected for analysis. Survey results, interviews, and artifact analysis are presented in the following pages.

Survey Results

Survey Question 1: Which word wall did you use most this year?

Participating students were asked if they preferred the math or science word wall. Figure 1 presents the students' preferences. It illustrates that the majority of students preferred the science word wall in the fall and the math word wall in the spring. The results for September and December were almost identical. Student preferences in

September and December revealed that nine students or 56.25% preferred the science word wall and 43.75% preferred the math word wall. However, there was an interesting shift in the spring. In March, eight students or 53% preferred the math word wall and seven students or 47% preferred the science word wall. The results for May revealed that 10 students or 67% preferred the math word wall and five students or 33% preferred the science word wall. This change in preference from science in the fall to math in the spring is attributed to a shift in instruction to prepare for the state standardized math test in the spring. A longitudinal review of student responses indicates that students valued both word walls. A total of 31 responses valued the math word wall and 30 responses valued the science word wall.

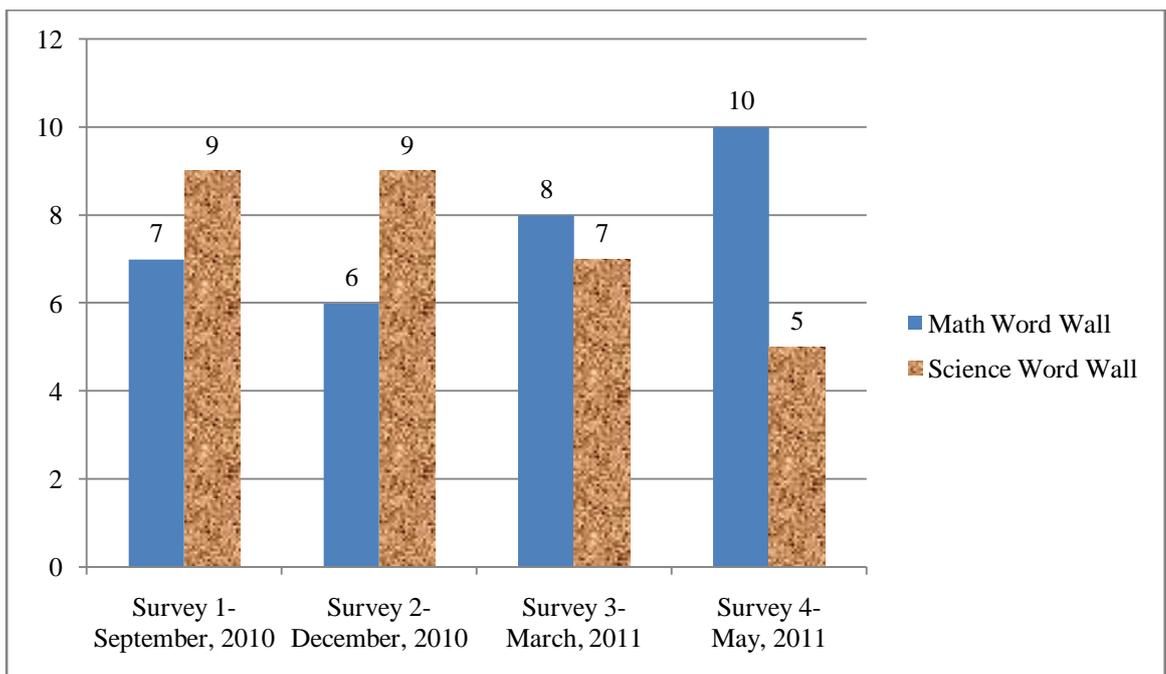


Figure 1. Number of Students Who Preferred Using the Math or Science Word Walls

Survey Question 2: Why did you use that word wall the most?

Use of math and science word walls varied across the school year. The data suggest that students who indicated a preference for the math word wall did so because they felt that they were lacking in math skills and the walls supported their learning, it helped remind them of things they forgot, and it helped them complete the

weekly spiral math reviews. One student said, “Because I am not good at math so I use the math word wall.” Another student stated, “I needed to improve in math and I did.” Other students used the math word wall because it helped them to remember content and complete the weekly spiral review assignments. One student wrote, “Because when I have trouble on math the word wall gives me a hint.”

Students who preferred the science word wall did so because they felt that it was more often the focus of classroom activities. They valued the science word wall because it provided information regarding specific content, academic vocabulary words, and interesting artifacts. During the fall students indicated that the majority of classroom activities and questions focused more on science content. One student stated, “usually most questions ask about science.” Another wrote, “Because we always do science work.” Students were drawn to the science word wall by content specific vocabulary and artifacts. One student stated, “Because we learned a lot about matter...” Another student used the science word wall because “it has a lot of facts.” One student wrote, “So I can learn more words and have fun.” Another student commented, “Because science has A LOT of words.”

Survey Question 3: What did you like most about the word walls?

Due to the number of common responses, the results to question three were combined into one analysis. Analysis of students’ responses regarding the elements of the word walls that they liked are listed in Figure 2. Emergent common themes included content comprehension supports and being able to make personal contributions. The most prevalent theme was content comprehension supports. This theme included reference to word strips containing academic vocabulary definitions as well as real world examples (realia). Sixty-nine percent or 42 responses support this theme. Students stated that the word walls “told you what the words meant” and

“it shows examples of the words”. One student felt “they have information I need.”

Another stated, “They help me on stuff I didn’t know or if I forgot.” Students also

liked to see their own work on the word wall. Fifteen responses, 25%, stated that they

liked word walls to include student created vocabulary illustrations and definitions.

Students appreciated making the solar system and states of matter 3-D visual supports

included on the science word wall and place value and money items placed on the

math wall. One student stated, “You get to make an example while learning a fact.”

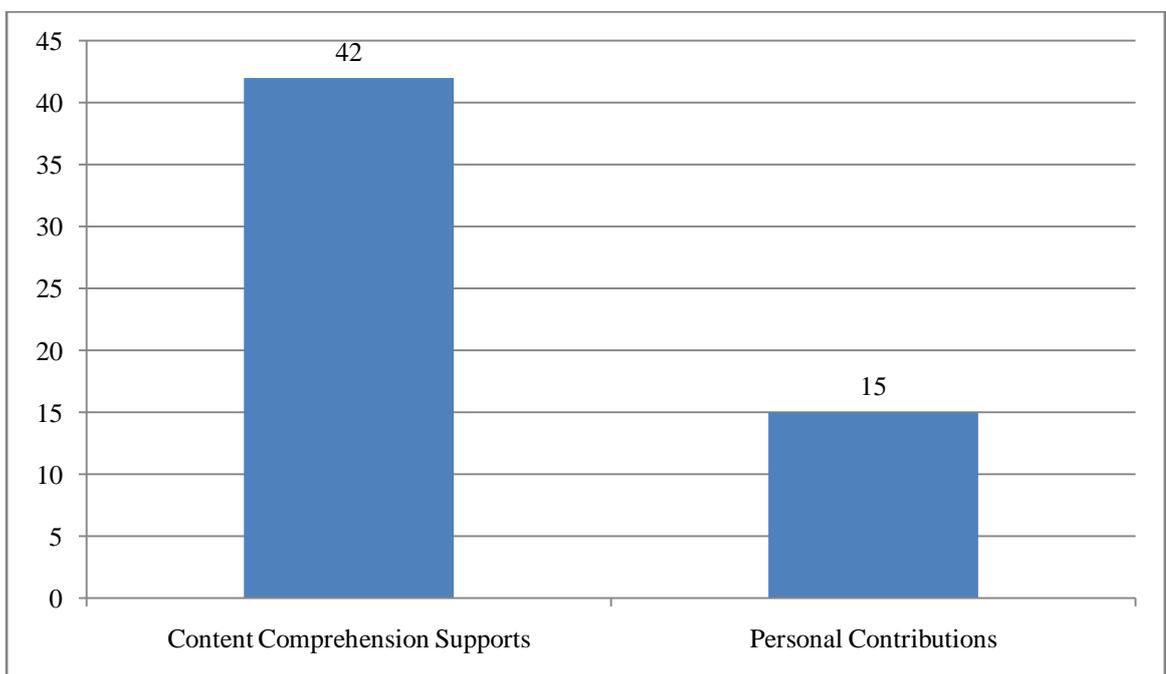


Figure 2. Number of Student Responses Regarding Pleasing Word Wall Elements

Survey Question 4: What did you like least about the word walls?

Survey question four asked students to list elements of the word walls that they did

not like. Because student responses were very similar, the results to this question were

combined. Data analysis revealed three common themes. While most students stated

nothing needed to change, some students did not like all of the comprehension

supports, and the word wall organization (see Figure 3). Forty-three percent or 26

responses, indicated that the content comprehension supports, including references to

word strips containing academic vocabulary definitions as well as real world

examples (realia) included on the word walls lost interest over time. One student stated, “Some of the things are boring.” Another student indicated, “That most of the stuff is the same.” Students also noticed that the word walls were not always tightly aligned with classroom instruction. Sometimes the word wall “doesn’t have the information.” Another student noted, “They sometimes don’t have the info I need.” Twenty percent or 12 responses referenced the organization of the word walls. These responses were direct and meaningful. Concerns such as “it is hard to concentrate on what you’re looking at because the things are crowded” and “they took up too much space” are suggestions to consider when considering how to organize classroom word walls. The final theme that emerged in the responses was that 21 responses or 34% were content with the walls as they were. These results revealed that there were elements of the word walls that students did not like. The students who indicated displeasure preferred new content to mastered content and neat walls that mirrored daily instruction.

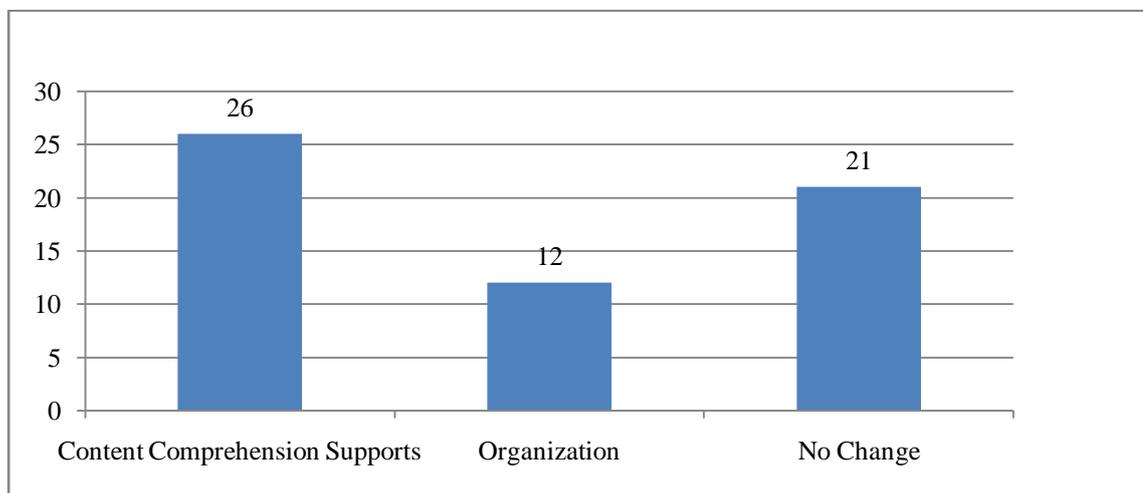


Figure 3. Number of Student Responses Regarding Undesirable Word Wall Elements

Survey Question 5: What do you wish was different about the word walls?

Survey question five asked students to suggest how the classroom word walls should be changed. Survey responses were combined into one analysis which revealed

three common themes. They included change the vocabulary and content supports, change the word wall organization, and no change (see Figure 4). Many of the students responded that the vocabulary and content supports should be changed. A total of 54 % or 33 responses called for the addition of more content, change in the difficulty of the words presented, as well as the addition of more real elements (realia). One student stated they wished “they had stuff that I don’t know.” Another student stated that they wished the walls “had more information.”

Students also believed that the vocabulary posted on the word walls become too easy as the school year progressed. This is a result of the students becoming familiar with the word meanings through the use of the walls and associated classroom activities. One student stated that they wished “that there were more difficult words.” Students also requested increased visual support. One student wished “the words had pictures on the bottom.”

The second theme addressed the organization of the word walls. Twenty-three percent or 14 responses indicated a need to address the method of organizing the artifacts that were posted on the word walls. One student stated, “I wish things on the word wall were a little bigger so people can see the words.” Another student commented, “I think there is too much stuff covering/distracting me from the shapes.” Due to the feedback received from the first surveys the organization of the word walls was adjusted mid-year.

Adjustments included reorganizing the layout of the artifacts so that there was very little overlapping, grouping artifacts by unit, and creating larger tags for script. As a result, the focus on word wall organization was reduced in the final two surveys (see Figure 4). Finally, 23% or 14 responses were content with the word walls. This

response supports the manner in which the walls were constructed and used throughout the school year.

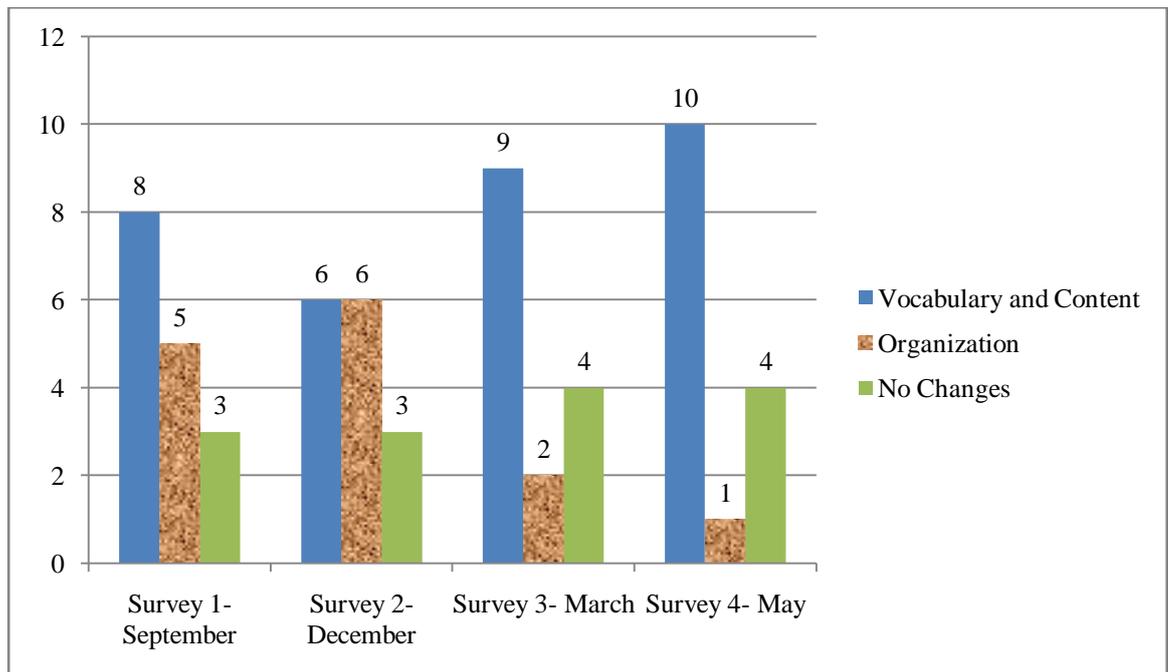


Figure 4. Number of Students Who Wished for Changes in the Classroom Word Walls

Survey Question 6: How did the word walls help you this year?

This survey question was designed to discover student perspectives regarding the helpfulness of word walls. In an effort to elicit thoughtful and original responses, it was purposefully only included in the first and last surveys. Analysis of results revealed two themes: recalling and applying content and vocabulary support (see Figure 5). The responses related to recalling and applying content indicated that artifacts specifically helped students remember content that had been taught as well as application to current learning situations. In September, 75% or 12 students found the word walls helped them recall and apply content. In May, 73% or 11 students still felt that the word walls had been helpful with content recall and application throughout the year. Clearly, the word walls maintained their importance and usefulness for the duration of the study. One student stated, “When I was stuck on something I could

look at the word wall to figure it out.” Another student stated they helped them “remember things throughout the year.” A third student wrote, “They helped me with my work and by reminding me what I learned.” The second common theme, vocabulary support, included references to word strips containing academic vocabulary definitions as well as real world examples (realia). The results indicated that the vocabulary supports were helpful during the year. In the first survey, 25% or four students thought the word walls supported vocabulary instruction. In the final survey, 13.3% or two students found the word walls to be helpful with vocabulary support. One student stated, “They told me how to spell the word.” Another student stated, “There was a picture or thing that showed what something meant.”

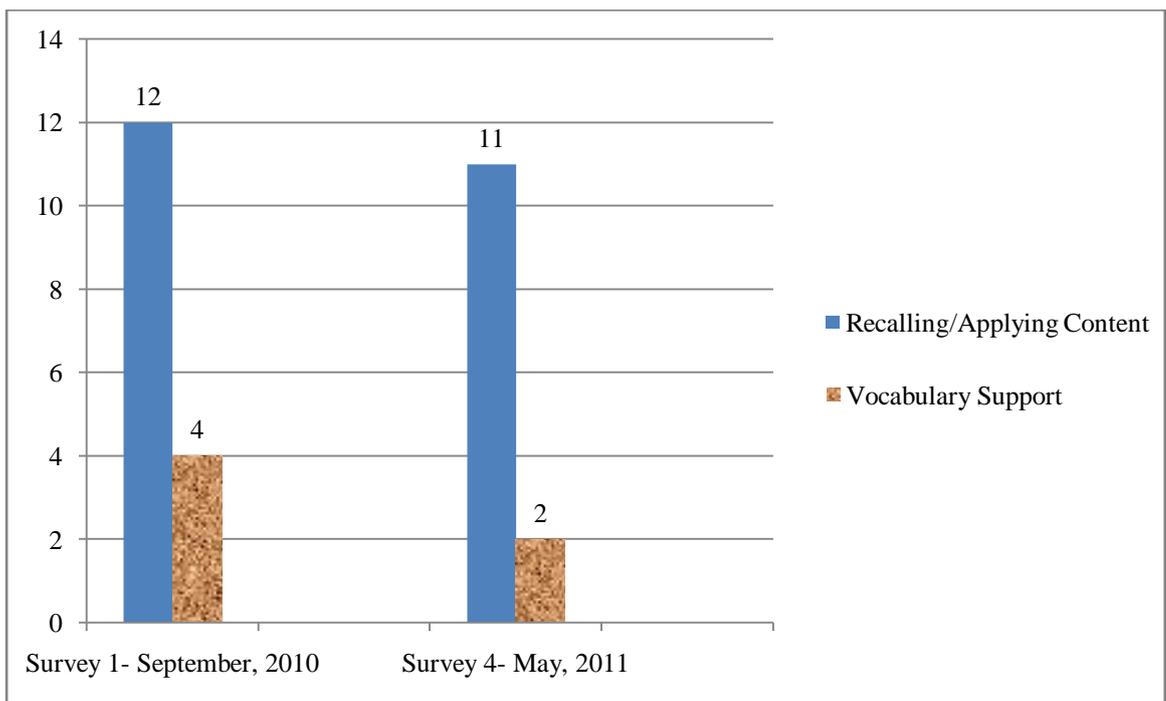


Figure 5. Number of Student Responses about How the Word Walls Helped

Survey Question 7: What else would you like tell me about the word walls?

The final question listed on the survey allowed participants to share any additional information or thoughts regarding the word walls. Three themes that were present in the responses were content comprehension support, the construction of the walls and

the elements included, and no response. Students responses were very similar across all surveys so one analysis is presented. As seen in Figure 6, the first theme that emerged was content comprehension supports, including references to word strips containing academic vocabulary definitions as well as real world examples (realia). Thirty-one percent or 19 responses indicated that word walls supported content comprehension. One student stated, “They are perfect things to help us at school”. Students described word walls as “awesome” and “cool, I love them.” Students also commented on the construction of the word walls, including being able to create them and contribute artifacts that were posted on the word walls. Furthermore, 28% or 17 responses valued helping construct of the word walls. The December spike in construction experiences could be attributed to the amount of content and variety of topics covered up to that point in the school year. Students described the word walls as colorful and easy to read as well as liking the realia that was provided to support the vocabulary on the wall. The students felt ownership of the word walls and one student said, “The class did really good on them.” Another stated, “I have to say that it is really tempting to look at because they’re all really good”. Finally, 36% or 22 responses did not have any other experiences that they felt they needed to share.

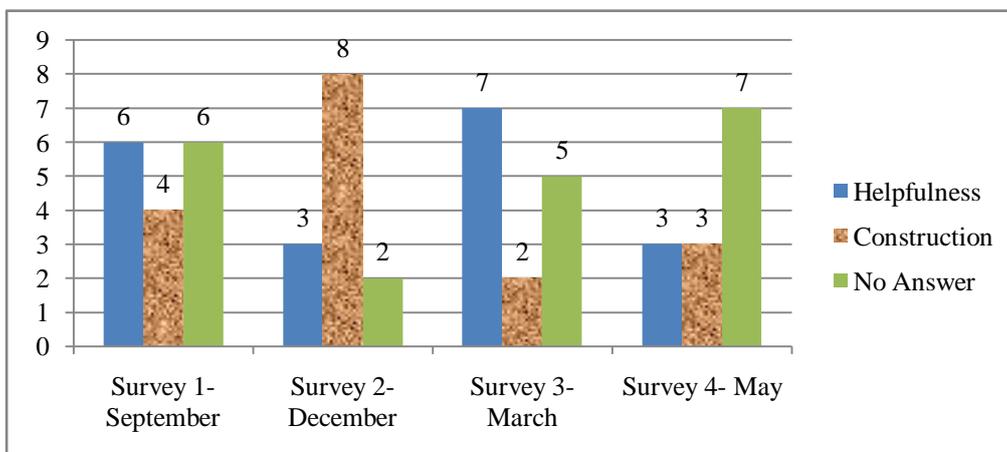


Figure 6. Number of Students Sharing Additional Word Wall Experiences

Analysis of survey responses revealed information regarding the students' preferences regarding the effectiveness of the word walls and the effects they had on students' perceptions of vocabulary. Student responses highlight three overarching themes. These recurring themes include organization (desirability or the need for more), content comprehension support, and supporting vocabulary comprehension.

Interview Results

Four students, enrolled in the researcher's third grade classroom, were randomly selected and interviewed. The interview protocol contained eight questions designed to determine how classroom word walls affected students' perceptions of vocabulary as well as to ascertain the value students placed on the interactive word walls and associated activities. The interviews were conducted by the researcher and audio taped. They occurred in May 2011 to allow the students to reflect across the entire school year.

Interview Question 1: What did you think of the word walls this year?

Interview question one asked students what they thought about the classroom word walls. All of the students reported that while both word walls helped them learn content, they found the math word wall to be particularly helpful. One student stated that it "helped with answering a lot of questions and I had no problem with testing." They also reported using it as a resource while working on weekly spiral math reviews.

Interview Question 2: What was your favorite word wall activity this year?

Students were encouraged to participate in the construction of the math and science word walls. They created vocabulary word strips, wrote definitions, illustrated vocabulary, and supplied realia as appropriate. Word wall construction provided an engaging backdrop for classroom vocabulary games and activities. Interview question

two asked students to name their favorite word wall activity. All four students quickly responded that *Bag and Tag* (Husty & Jackson, 2008) was their favorite activity. This activity played a central role in the creation of vocabulary artifacts that were later posted on the word wall. *Bag and Tag* (Husty & Jackson, 2008) is a guessing game. One student gives clues regarding an item or element hidden in a bag. The rest of the class tries to identify what the unseen item or element might be. When the item is correctly identified it is given a label (tag), placed in a Ziploc® bag, and posted on the word wall. Then a definition is written on a piece of paper and posted on the wall next to the bag.

Interview Question 3: Which word wall was most helpful to you?

The interviewees were then asked to reflect on which word wall they found most helpful during the school year. All four interviewees described the math word wall as most helpful. Three of the students stated that the math word wall was most helpful because they felt that they struggled in math and that the math word wall supported their learning. Another student referenced the weekly spiral math reviews as the reason for referring to the math word wall more frequently. The gravitation toward the math word wall might be attributed to the focus math received during the spring in preparation for the state standardized math assessment.

Interview Question 4: How did the word walls help you with vocabulary?

Interview question four asked the students to describe how the word walls impacted their learning and understanding of vocabulary. Their response revealed a unanimous belief that the word walls helped them understand word meanings. One student stated that it supported the weekly spiral math review “on my Solve It if it had two questions that asked what is a polygon? I would go up to the word wall and see what it said.” Spelling, word clarification, and easy access were all thought to positively affect

vocabulary development. The students utilized the word wall to find and clarify word meanings.

Interview Questions 5 and 6: Do you feel that the word walls helped you learn the lessons (concepts)? How?

Responses to questions five and six of the interview were combined because question five was a closed question eliciting one word answers. Question six was an elaborative question allowing students to provide specific examples. When asked if the classroom word walls helped them learn math and science content, all of the students responded that they had. When encouraged to describe how the word walls had been helpful students stated that the word walls helped them find information and remember content they had previously learned. The students often referred to the word walls when they needed help and believed that looking at the word walls helped them find the information they needed to answer questions. One student mentioned that the math word wall supported her as she prepared for the state standardized math assessment.

Interview Question 7: What would you like to see done differently with the word walls?

Interview question seven asked the students to describe what changes they would make to the word walls. Responses included adding more word-learning strategies to the math word wall as well as “more definement” which means more definitions. One student suggested placing the vocabulary in alphabetical order. The requests for more organization and more information mirror survey results.

Interview Question 8: Is there anything else you would like to tell me about your experiences with the word walls this year?

The final interview question asked students to describe their overall experiences with the math and science word walls. One student stated that the word walls were very helpful. Another student reflected, “It really helped me, it really helped me by testing, before the TAKS [Texas Assessment of Knowledge and Skills], solve word problems, vocabulary, and finding out answers that I needed.”

In conclusion, the four students who were interviewed valued the word walls and used them as instructional supports throughout the school year. Their comments confirm the major themes that emerged from the survey data, content comprehension, vocabulary comprehension, and organization.

Artifact Analysis

Word walls can be constructed in a variety of ways. Third grade students, enrolled in the researcher’s class, constructed the word walls that are the topic of the present study. The researcher established clear expectations and parameters regarding word wall construction at the beginning of the school year. These expectations required that all word wall contributions include neat, legible handwriting that was visible from a distance, a definition, and a visual support. Because the teacher only monitored three requirements, students expressed themselves and their understanding without undue adult influence. Their products were child friendly and they were generally able to understand each other’s work. Students took ownership of the word walls, were proud of their contributions, and created meaningful connections to math and science vocabulary and concepts. As the school year progressed, students gained experience creating word walls and needed minimal support and guidance from the classroom teacher.

Analysis of student-generated word wall elements is the third data point in this qualitative study. The researcher established criteria to guide artifact selection. Artifacts included in this study had to incorporate the vocabulary word, the correct definition, a visual support such an illustration or the actual item (realia), and be suitable for publication. Selected artifacts are a representative sample of the elements students produced to support vocabulary and content learning during the study period. Figure 7 contains an example of *Bag and Tag* (Husty & Jackson, 2008). Realia is an important feature of the *Bag and Tag* game. It is interesting that students included realia in word wall artifacts prepared outside of the *Bag and Tag* game. Realia became a standard part of classroom word walls. Figures 8 and 9 represent students' efforts to represent math vocabulary with real world items. Pictures of a box of disposable diapers and a box of laundry detergent as well as counting cubes were chosen as examples of cubic units. Similarly, capacity was represented by a milk box, a water bottle, and a reference to a 1-cup measuring tool.

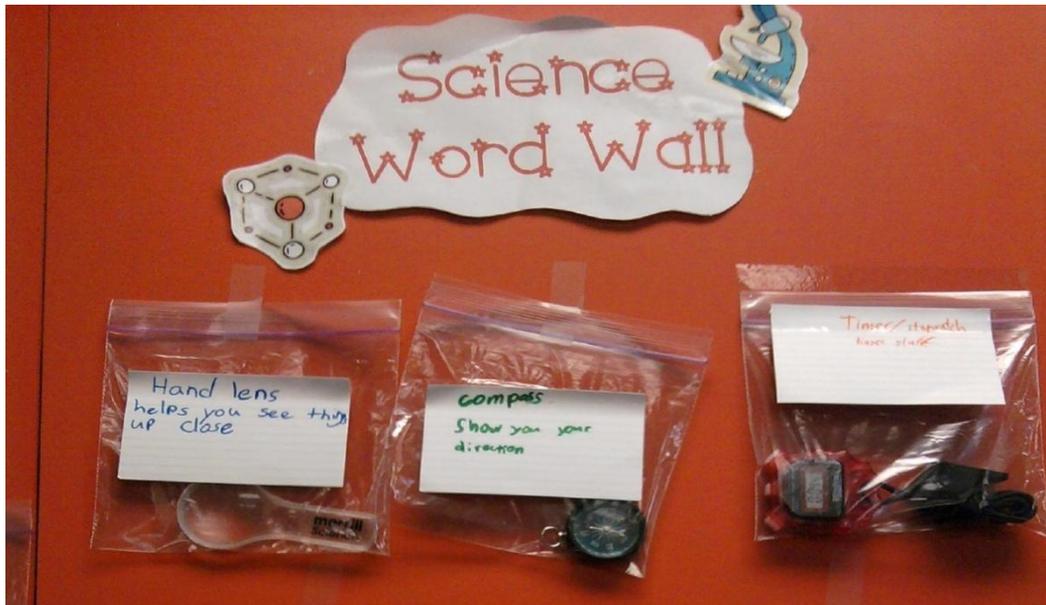


Figure 7. *Bag and Tag* Activity Artifacts

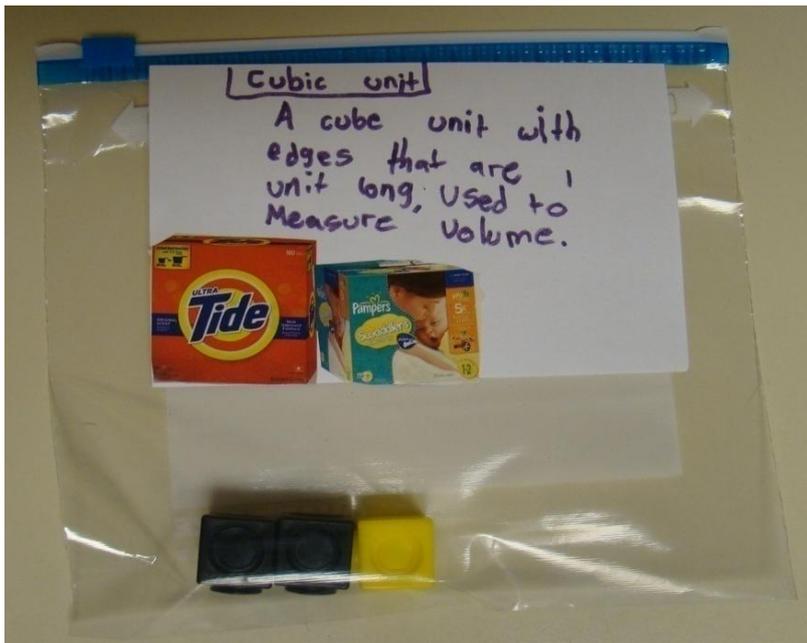


Figure 8. Realia Elements Representing Cubic Units

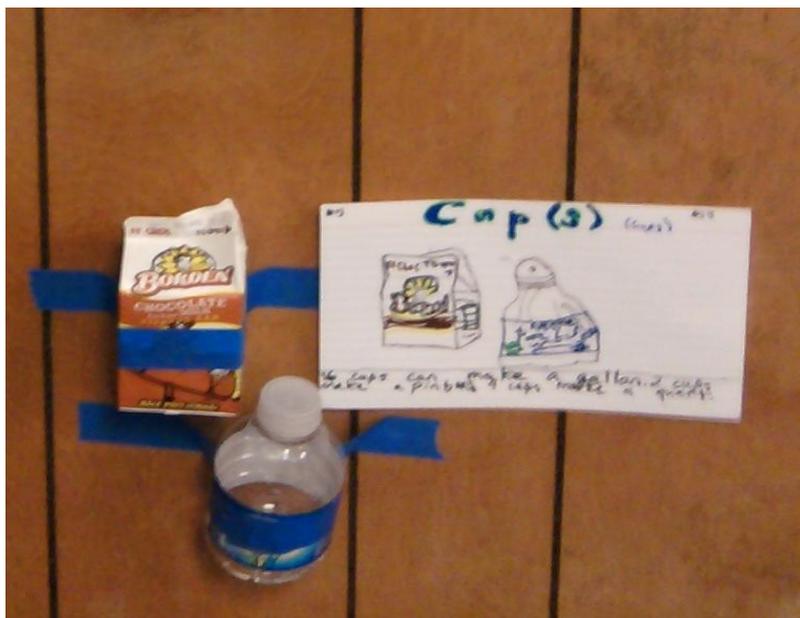


Figure 9. Realia Elements Representing Capacity

When actual items were not available to demonstrate concepts or vocabulary students used their creativity to express the vocabulary in the manner they deemed most effective. As a result, students become very creative, blending prior and new knowledge to demonstrate the meaning of vocabulary. Figure 10 is an example of how one student illustrated the meaning of earthquake. This student chose to use

construction paper and markers to create an example of what an earthquake would look like on the Earth's surface.

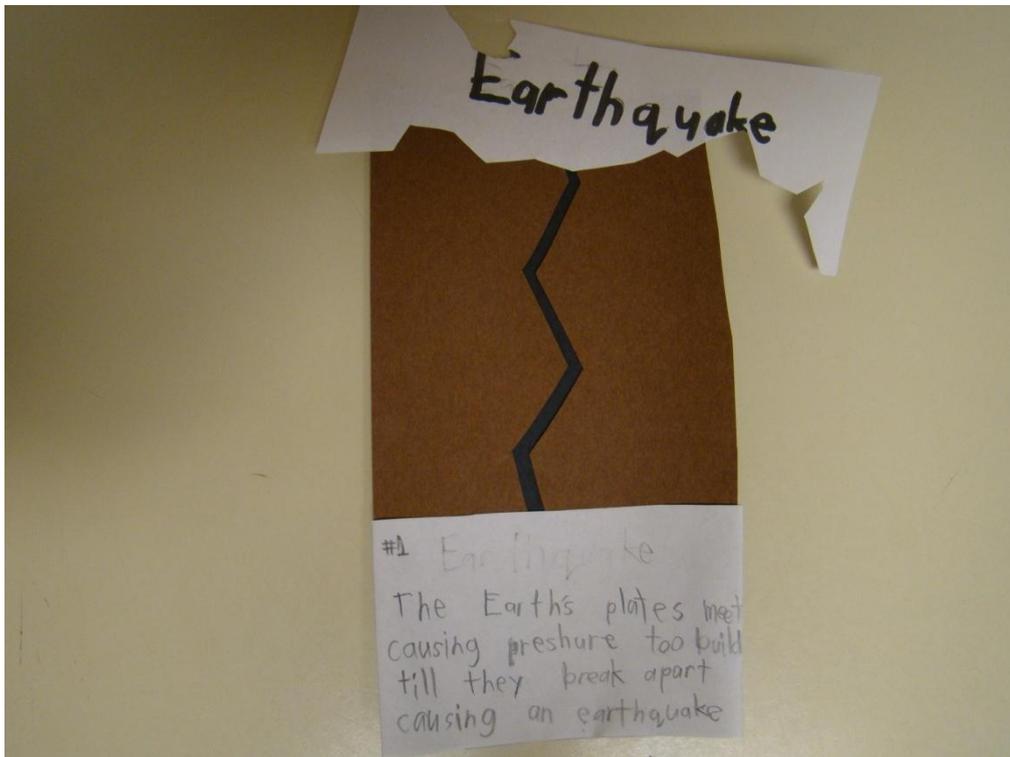


Figure 10. Student Illustration of Earthquake

Students also used Frayer model graphic organizers to create artifacts for the word wall. Frayer models usually display four aspects of a vocabulary word. They include an example of the word or concept, a non-example, use of the word in a sentence to show meaning and understanding, and an image. Figure 11 displays a typical Frayer model. The student provided two examples of decomposition, three non-examples, used decomposition in a sentence, and a picture.

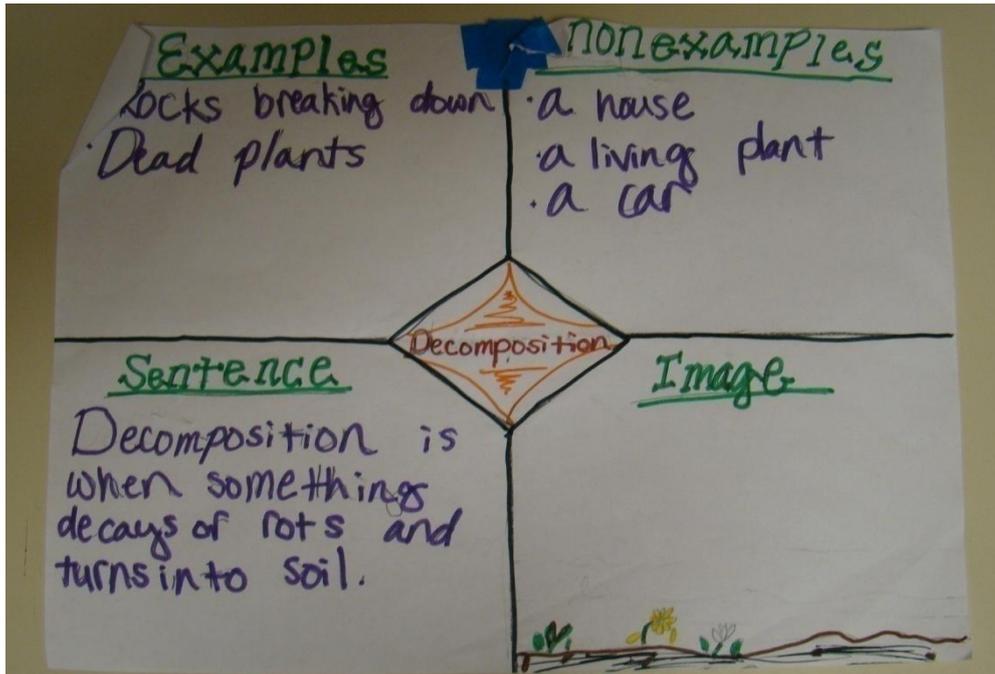


Figure 11. Frayer Model for Decomposition

Window panes are another graphic organizer that supports vocabulary instruction. A window pane is constructed on a piece of paper that has been divided into an even number of squares or panes. The window panes included in this study were divided into four squares. The first square contained the vocabulary word, the second square illustrated examples of the word, the third square illustrated the word in context, and the fourth square contained a sentence to express the meaning of the word. Figure 12 contains an example of a window pane for the word camouflage.



Figure 12. Window Pane Model of Camouflage

The classroom word walls also included student created drawings as well as illustrations found in magazines or other print resources. Student created drawings allowed the teacher to formatively assess vocabulary comprehension. Figure 13 is an example of a student drawing designed to demonstrate the meaning of the word island. This artifact includes the required definition of the word as well as an illustration. This example includes the label “Hawaii,” demonstrating that the student tried to make a real-world connection. Perimeter is defined and illustrated in Figure 14. Figure 15 contains a student interpretation the word repel.

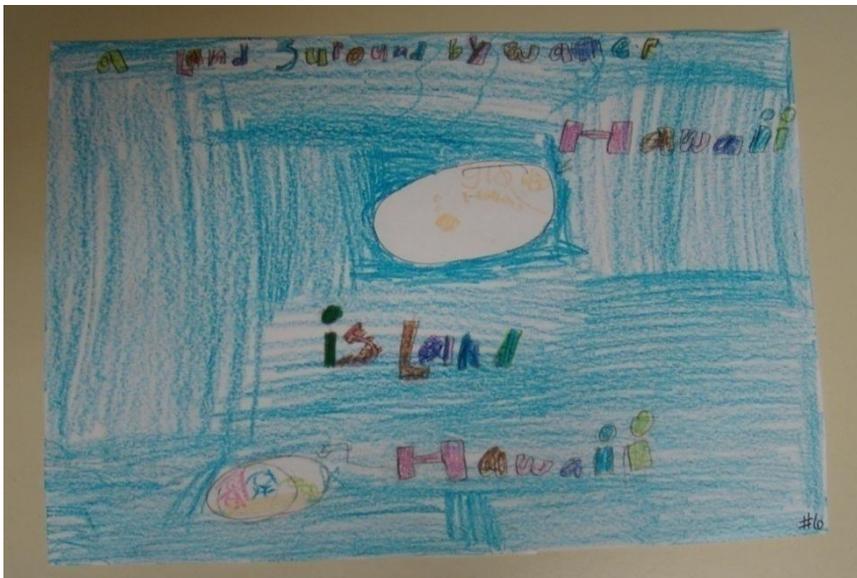


Figure 13. Student Illustration of an Island

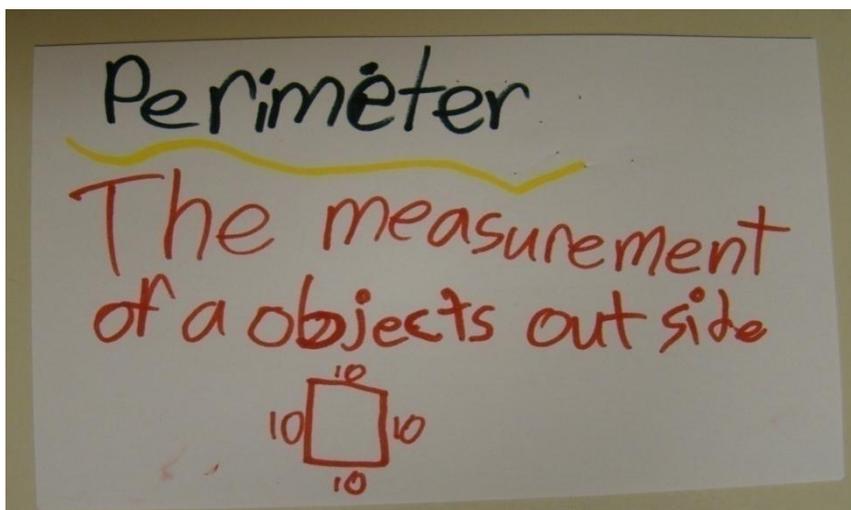


Figure 14. Student Representation of Perimeter

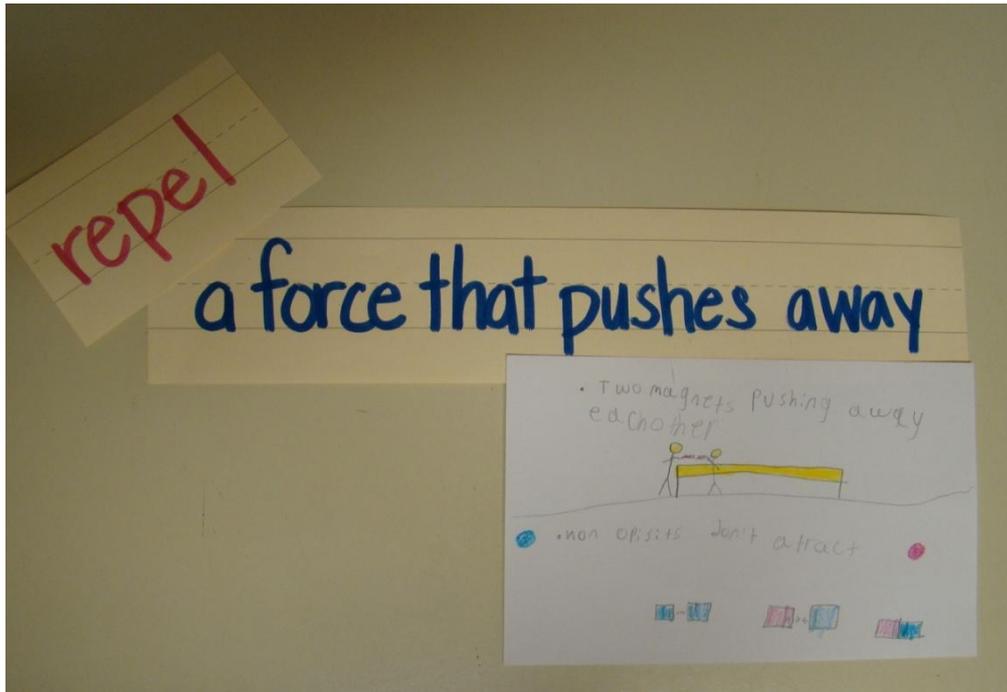


Figure 15. Student Drawing of Repel

Sometimes students used images from magazines or other print sources to represent or help explain the meaning of words. Figure 16 contains a math example. Students used a variety of images to demonstrate the word pint. An example of motion has been included in Figure 17. These printed images helped students make real world connections to vocabulary.

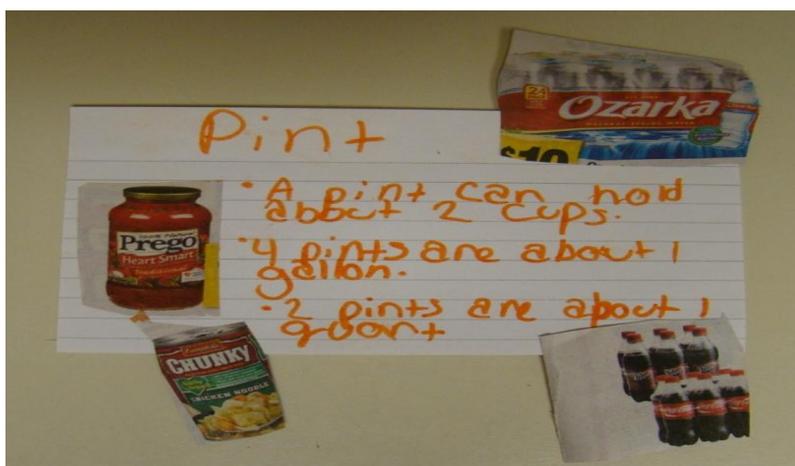


Figure 16. Magazine Images of Pint



Figure 17. Magazine Image of Motion

There are many ways to teach vocabulary. Word walls provide students with a variety of ways to create and display vocabulary definitions and illustrations. A typical interactive math word wall, from the study classroom, can be seen in Figure 18. A cumulative interactive science word wall, from the study classroom, can be seen in Figure 19. The use of realia, graphic organizers, student drawings, pictures from magazines, and other text resources support a comprehensive vocabulary program and turn word walls into student-generated art galleries.

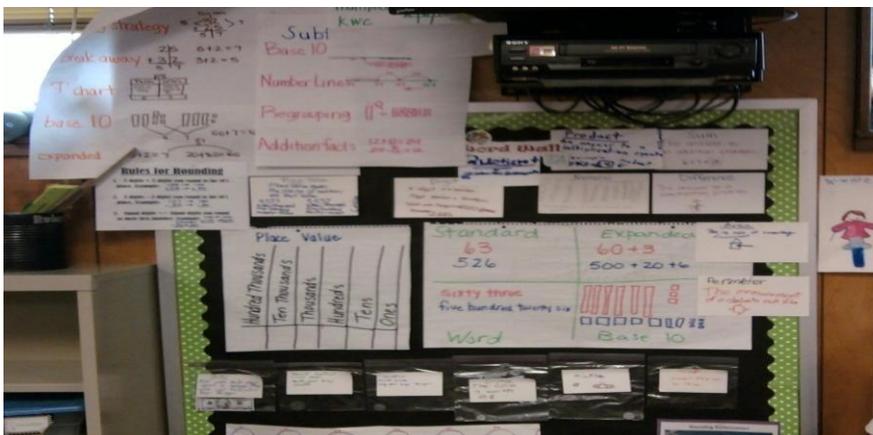


Figure 18. Interactive Word Walls- Math



Figure 19. Interactive Word Walls- Science

Discussion

Conclusions

Vocabulary acquisition is a vital piece of student success in education. To meet the goal of forging meaningful relationships with vocabulary, students must have multiple vocabulary experiences. Researchers agree that effective comprehensive vocabulary programs should address word consciousness, teach word-learning strategies, teach well-selected words, and provide rich and varied language experiences (Graves, 2006). Interactive word walls are instructional tools that help students form relationships with and learn vocabulary.

This study explored the impact of word walls on those who most directly use them, the students. Third grade students shared their perceptions of word walls via surveys and individual interviews. Furthermore, a collection of word wall artifacts highlighted methods of presentation and associated activities. Each artifact selected in the study provided a glimpse of the vast opportunities for students to engage in rich and varied language experiences.

Data collected from surveys and interviews demonstrated the value participating students placed on classroom word walls. Support for content comprehension learning was a powerful common theme. Students relied on the walls to recall past concepts and clarify new understandings. One student wrote, “That it’s the perfect thing to help us at school.” Many attributed successes on assessments and assignments to the support that they could draw from them. Another student stated, “They helped me with tests. They help me learn too.”

Students also used the word walls to support vocabulary comprehension. Students stated that they could rely on the word walls to support their understanding of academic vocabulary as well help with spelling. One student wrote, “They give a word and its definition.” Another student described using the math word wall to clarify the meaning of words used in questions. A third student stated, “It helps me to spell words correctly.”

Organization of the word walls was another key theme in the responses in this study. Most students indicated that they valued their role in creating word wall artifacts as well as helping to determine how the word walls would be organized by offering feedback. One student stated, “We get to bring stuff that would go with gas, solid, or liquid,” when referring to creating the science word wall. Students also felt strongly about how the word wall should be organized. Another student wrote, “Things are hard to see!” By allowing students to create the artifacts and offer feedback regarding organization, students felt ownership and pride in the word walls. One student stated, “They are very fun.” Another student wrote, “The class did really good on them.” Students valued the word walls and felt that they were an integral part of their learning process.

In conclusion, interactive word walls provide students with unparalleled support for vocabulary and content acquisition and application. The power of word walls lies in the regard of those who are most greatly impacted by their presence. Word walls are important tools that support students in learning and applying vocabulary and content with confidence and success.

Implications

The roles that interactive word walls could play in an effective comprehensive vocabulary program are endless. The need to provide rich and varied language

experiences can be met with unrestrained possibilities as shown in this research study. The only limits that could be set are those that are self imposed by the participants. There are, however, implications for further research. To continue with this research one must consider addressing the organization of the word wall as well as the limited classroom wall space. The second implication involves training teachers to effectively implement interactive word walls in their classrooms. The training should include how to create word walls that are student-generated, choose well-selected words, and train students to make meaningful contributions. Further research into these areas would enhance the learning opportunities and experiences that word walls can provide students.

APPENDICES

Appendix A

Word Wall Survey

1. Which word wall did you use most this year?

2. Why did you use that word wall the most?

3. What did you like most about the word walls?

4. What did you like least about the word walls?

5. What do you wish was different about the word walls?

6. How did the word walls help you this year?

7. What else would you like tell me about the word walls?

Appendix BInterview Questions

1. What did you think of the word walls this year?
2. What was your favorite word wall activity this year?
3. Which word wall was most helpful to you?
4. How did the word walls help you with vocabulary?
5. Do you feel that the word walls helped you learn the lessons (concepts)?
6. How?
7. What would you like to see done differently with the word walls?
8. Is there anything else you would like to tell me about your experiences with the word walls this year?

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