THE EFFECTS OF USING INTERACTIVE WORD WALLS TO TEACH VOCABULARY TO MIDDLE SCHOOL STUDENTS

by

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Abstract

Teaching vocabulary to middle school students requires that educators find the most effective means of instruction to achieve this goal. The purpose of this study was to examine the effectiveness of using an interactive word wall as the tool to combine five effective, research-based teaching strategies with social interaction to teach vocabulary to middle school students.

In this study, 124 middle school students participated. The control group consisted of 67 eighth grade English students, and the intervention group was comprised of 57 seventh grade English students. The intervention was for a period of four weeks and included specific activities that embraced effective teaching strategies plus social interaction. Throughout the intervention, an interactive word wall was used as the tool that combined the teaching strategies and social interaction. The assessments included a pre-assessment, four weekly assessments, and a four-week delayed assessment. The words for the pre-assessment and the four weekly assessments were taken from each group's newly assigned words for their respective grade level. The words for the delayed assessment were randomly selected from the lists of words that each group used during the intervention phase of the study. Each assessment used the same format and contained a definition and sentence portion.

A discriminant analysis was conducted on the data from the study. Overall, the definition portion of the assessments offered a greater weight to the discriminant function than did the sentence portion. Also, the mean scores between the two groups began to

narrow as the intervention continued. On the delayed assessment, the intervention group performed almost as well as the control group, which was an unexpected result.

Given the improved overall scores on the weekly assessments, and given the narrowed gap in the means on the delayed assessment, indications are that the word wall intervention yielded success in teaching vocabulary to middle school students.

Chapter One

Introduction

Vocabulary is an integral part of reading comprehension, and using effective means of instruction should be the goal of educators. Although elementary teachers often use multiple strategies in their classrooms, middle school teachers often limit themselves to traditional instructional methods. Although reading is not the focus of students in the middle school grades, comprehension is still a vital component of learning. As students move further into the upper grades, less instruction is available to help those struggling readers. Consequently, middle school teachers need to be aware of the most effective methods available to teach various components of reading comprehension, which is pivotal to their content area.

Research has made clear that effective vocabulary instruction includes providing a print-rich environment, promoting student engagement, allowing student-created definitions, using words in context, and encouraging student associations. In addition, providing opportunity for social interaction was found to be an excellent enhancement to instruction. One teaching tool that encompasses all of these components is interactive word walls. Word walls are often used in the elementary grades for multiple purposes, and research has demonstrated the effectiveness of this tool (Baumann, Ware, & Edwards, 2007; Ganz, 2008; Hall & Cunningham, 1999; Jasmine & Schiesl, 2009; Rycik, 2002). Word walls include many of the teaching strategies researched, and elementary

teachers have found this tool to be successful in teaching various concepts to their students, including vocabulary.

However, few studies are available that have studied the effectiveness of interactive word walls as a strategy to teach middle school students. Because interactive word walls have been shown to be effective in teaching concepts to elementary students, including vocabulary, the logical progression was to examine the effectiveness of using interactive word walls to teach vocabulary to students in the middle school grades.

Background and Purpose of the Study

Researchers agree that reading comprehension is an integral part of the learning process that affects the lives of students both in the classroom and in the future (Blair, Rupley, & Nichols, 2007; Center for Improvement for Early Reading Achievement [CIERA], 2003; National Reading Panel [NRP], 2000; RAND Reading Study Group, 2002; Ruddell, 1995; Turner, Applegate, & Applegate, 2009). Lower elementary teachers usually focus more on decoding in their reading instruction, but beginning in the fourth and fifth grades, teachers target comprehension. In the middle school grades, instruction tends to require more memorization and independent learning; attention to reading comprehension is limited. However, students' comprehension still needs development.

As teachers embrace effective ways to instruct their middle school students, they have the potential to be educational leaders (Mangin & Stoelinga, 2010; Pearson, Hiebert, & Kamil, 2007; Ruddell, 1995; Taylor & Gunter, 2009; Yost, Vogel, & Rosenberg, 2009). Educators who embrace leadership not only influence their students, they also

have the potential to influence school policies, teaching and learning strategies, and communication (Copland, 2003; Danielson, 2006). Teachers have the opportunity to model effective instruction, which may influence the way other teachers teach in their classrooms. As their influence grows, changes may occur in the way in which polices are created and decisions are made within their school's administration. In addition to their influence, teachers often act as advocates, innovators, and stewards (Lieberman & Miller, 2004). As middle school educators take on the challenge of leading, their leadership can begin in the classroom as they seek to find innovative and effective instructional strategies. As their instruction begins to impact their students, the influence will naturally filter into other areas of education (Berne & Blachowicz, 2008; Burney, 2004; Copland, 2003). Colleges and universities may see the need to change the way in which they instruct teachers as those teachers prepare to enter the classroom. The power of a teacher is far-reaching, and middle school teachers need to embrace the opportunities afforded to them in an effort to enhance the learning of middle schools students.

Because reading comprehension is complex and encompasses multiple facets of instruction (International Reading Association [IRA], 2000; NRP, 2000; Pardo, 2004; RAND, 2002), teaching reading brings its own challenges. As middle school educators seek to assist their students with reading, understanding the various components of reading comprehension is integral. As a result, the identification of the components of reading comprehension that affect middle school students must occur. One vital component of reading comprehension is vocabulary, and its importance is clearly supported (Beck, McKeown, & Kucan, 2002; NRP, 2000; Pearson et al., 2007; Stahl &

Nagy, 2006; Wasik, 2006). Vocabulary is taught in many middle school classrooms, including content area and English classes. English classes often provide vocabulary that is unconnected to content and is often the most difficult to teach. Consequently, determining the most effective way to teach vocabulary is important.

Before vocabulary instruction can take place, educators must decide the level at which students must know a word. Learning vocabulary means either to know a word by sight, as in word recognition and decoding, or by meaning (Beck, McKeown, & Kucan, 2008; Chall, 1983; Yopp & Yopp, 2007). Students may learn words that they recognize as they see them in print, or students may be able to pronounce them because of their ability to decode the word. However, recognizing the word or simply pronouncing the word is not the same as knowing the word well enough to use it in a context in which the student is familiar (Beck et al., 2002; Blachowicz, Fisher, & Watts-Taft, 2005). Ultimately, deciding the level at which students must know their vocabulary words is critical.

Knowing vocabulary does not mean that students either know words or do not know words (Beck, McKeown, & Omanson, 1987, Beck et al., 2002; Blachowicz et al., 2005; Chall, 1983; CIERA, 2003), and determining a way to measure that knowledge is pivotal. According to research, students may know words in different ways. For example, students may know a word when they see it in print, or they may be able to use a word in their speaking (Blachowicz et al., 2005). Other researchers claim that word knowledge is measured in degrees, beginning with no knowledge to complete knowledge (Beck et al., 1987; CIERA, 2003). Although no uniform system exists, the issue must be

addressed by the middle school educator (Beck et al., 2002; Blachowicz, & Fisher, 2004; Irvin, 2001).

As middle school educators begin to find effective ways to teach vocabulary in their classrooms, effective strategies must first be identified. Through the literature and research review, five strategies were identified as effective teaching strategies for teaching vocabulary: providing a print-rich environment, promoting student engagement, allowing student-created definitions, using words in context, and encouraging student associations. First, a print-rich environment, which is any material or paraphernalia used in the classroom, is essential (Cambourne, 2000; Tao & Robinson, 2005). However, critical to the effectiveness of a print-rich environment is the interaction that the students and teacher have with the environment (Blachowicz, Fisher, & Ogle, 2006; Cambourne, 2000; Spencer & Guillaume, 2006; Tao & Robinson, 2005). Providing interaction with displayed vocabulary can be effective in teaching vocabulary to students.

In keeping with the interaction with a print-rich environment, student engagement is another identified effecting teaching strategy (Beck et al., 2008; Berne & Blachowicz, 2008; Blachowicz et al., 2006; Coyne, McCoach, & Kapp, 2007; Hall & Cunningham, 1999; McKeown, Beck, Omanson & Pople, 1985; Nagy, 1988; NRP, 2000). For students to learn at a deeper level, they must be a part of the learning process. Activities must be provided that allow the students to take ownership of their learning. Taking ownership of their learning allows the students to connect with the material and make it more meaningful, which is essential to learning vocabulary (Beck et al., 2008; Blachowicz et al., 2006; Hall & Cunningham, 1999; McKeown et al., 1985).

Allowing students to create their own definitions and having them write the words in sentences using context clues are also effective strategies for teaching vocabulary (Beck et al., 2002; Blachowicz et al., 2005; Blachowicz et al., 2006; Graves, 2009; Nagy, 1988). Students creating their own definitions parallels the stance of encouraging student engagement to teach vocabulary. As students take ownership of their created definition, students are then able to create sentences that are within context and are meaningful to them (Beck et al., 2002, 2008; Graves, 2009; Gunning, 2000; Irvin, 2001; Nelson & Stage, 2007).

Encouraging students to make associations with the vocabulary words they are learning is an excellent teaching strategy identified by researchers as effective (Beck et al., 2002, 2008; Cunningham, 2000; Gunning, 2000; Harmon, 1998; Nagy, 1988; Rosenbaum, 2001). Making associations is an additional way for students to own the words they are learning, connect to their own environment and background knowledge, and use multiple modalities that assist students in remembering the vocabulary words. Students may make associations through many different methods. Students may use color to connect to a word. They may use drama, music, or art to express a vocabulary word's meaning. Students may create a drawing or symbol to help them recall words (Fontana, Scruggs, & Mastropieri, 2007; Harmon, Wood, Hedrick, Vintinner, & Willeford, 2009; Pressley, Levin, & Delaney 1982; Scruggs, & Mastropieri, 1991, 2000; Terrill, Scruggs, & Mastropieri, 2004). The goal is for students to make a connection that makes sense to them as they strive to place those words in their long-term memory.

Five effective teaching strategies have been identified, but one classroom method of instruction, social interaction, has also been found effective. Social interaction is allowing students to interact within the classroom as they learn the material being taught. Based on Vygotsky's theory of social interaction, students learn more as they share their own knowledge and learn from each other (Cole, John-Steineer, Scribner, & Souberman, 1978; Vygotsky, 1926/1997). Vygotsky (1926/1997) further claimed that students learn more when they are socially interactive than when they learn independently (Gunning, 2000; Vygotsky, 1926/1997; Wink & Putney, 2002). An added benefit to enhanced student learning is that students tend to prefer learning through social interaction more than through independent learning (Ellison, Boykin, Tyler, & Dillihunt, 2005). Consequently, social interaction creates an environment that is more conducive to the learning.

Combining effective teaching strategies and social interaction provides benefit to educators. In searching for a tool that would utilize effective teaching strategies and social interaction, research led to word walls. Word walls are simply a location on a wall in the classroom on which information is placed for students to see as learning occurs within the classroom (Baumann et al., 2007; Brabham & Villaume, 2001; Bukowiecki, 2006; Fisher, Brozo, Frey, & Ivey, 2007; Hall & Cunningham, 1999; Rycik, 2002). However, for the word wall to be most effective, the students and teacher must interact with the information displayed (Cambourne, 2000; Cunningham, 2000; Ganz, 2008). All of the effective teaching strategies previously identified may be embraced using social interaction. For example, because of the visual nature of a word wall, the word wall

provides a print-rich environment. Also, student engagement is increased as students work in groups to create their own definitions and sentences in context. As students work together, associations are made through their own background knowledge and the shared knowledge of others. Given the ability of the interactive word wall to combine the effective teaching strategies and social interaction, an interactive word wall seems to be an excellent tool for teachers to teach vocabulary to their students.

One final aspect of this research is that elementary teachers tend to use this type of instruction more often than middle school teachers. Research is available that has demonstrated the successful use of word walls in the elementary school (Baumann et al., 2007; Berne & Blachowicz, 2008; Ellison et al., 2005; Hall & Cunningham, 1999; Jasmine & Schiesl, 2009; Rycik, 2002; Tao & Robinson, 2005; Wagstaff, 1999). However, limited research is available that demonstrated that middle school teachers use word walls in their classrooms (Harmon, Wood, Hedrick, et al. 2009; Harmon, Wood, & Kiser, 2009). As a result, using interactive word walls to teach vocabulary to middle school students became a study of interest. The purpose of this study was to determine the effectiveness of interactive word walls to teach vocabulary to middle school students.

Research Questions

The following research questions framed the current study:

1) Given that interactive word walls seem to be an effective strategy to teach new concepts to elementary students, will middle school students who experience interactive word walls perform differently on immediate vocabulary assessment measures?

2) Will middle school students who experience interactive word walls perform differently on delayed vocabulary assessment measures?

Rationale for the Study

Determining the most effective pedagogical methods of teaching is pivotal to the academic success of students. The literature is clear that teaching reading is a complex process and is comprised of multiple components. One of those components is the vocabulary that a student possesses. Students' vocabularies play a vital role in their ability to comprehend (CIERA, 2003; NRP, 2000; Stahl & Nagy, 2006). Because of the connection between vocabulary and reading comprehension, the issue for educators must be to find the most effective way to teach vocabulary.

As described in the literature, various ways to teach vocabulary are identified. The teaching strategies identified were providing a print-rich environment, promoting student engagement, allowing student-created definitions and words in context, and encouraging student associations. Coupled with these effective teaching strategies, social interaction was also offered as an effective enhancement for instruction (Cole et al., 1978; Vygotsky, 1926/1997). As teachers seek to find ways to reach their students academically, combining teaching strategies seems to be a wise effort. As a result, this study set out to discover whether or not a tool existed that encompassed these components.

In the search for an appropriate tool to combine strategies to teach vocabulary, interactive word walls surfaced. Interactive word walls are visual reminders of the material that is being learned and are an excellent tool to embrace the effective teaching

strategies identified and social interaction (Cunningham, 2000). Unfortunately, the research also demonstrated that elementary classroom teachers have embraced this tool more often than have middle school teachers. In fact, little research could be found that supported middle school teachers' use of interactive word walls at any level in their classrooms.

Although success has been demonstrated in using interactive word walls in the elementary classroom setting, the question became whether or not using interactive word walls to teach vocabulary to middle school students would also be effective. As a result, this current study researched the effectiveness of using interaction with a word wall as the tool to combine the five identified effective teaching strategies plus social interaction to teach vocabulary words to middle school students. The design and methodology of the study are discussed briefly in the following sections.

Methodological Design

For this study, a quantitative analysis was conducted on the effectiveness of interactive word walls as a tool to teach vocabulary to middle school students. One group of 57 seventh grade students and one group of 67 eighth grade students participated in the study. The participants were students in English classes at a large private school in Northeast Florida. Teachers at this particular school taught all of the students in an assigned grade, and those students attended classes in those teachers' classrooms. Because of the visual component of word walls, two teachers were required for this study. The teacher of the control group taught all of the eighth grade students, and the

intervention group of seventh grade students was taught by the second participating teacher.

Throughout the study, the control group teacher provided her regular instruction, and she did not use a word wall as part of her teaching. Only the intervention teacher used the identified effective teaching strategies, social interaction, and the word wall tool during the intervention. The first portion of this study began by the teachers administering a pre-assessment to the participants in both the control and intervention groups. The words used were from each group's vocabulary words that they were assigned for that week. The control group used eighth grade words from their designated vocabulary books, and the intervention group used their seventh grade words. The format used for this was the same as the one that was used in the weekly assessments. Following the initial assessment, the four-week intervention began. The intervention began on the first day of a given week. On the first day of each week, both teachers introduced the new vocabulary words, but the intervention teacher used activities that were designed for the students to create their own definition of each word. During the next three days, the intervention teacher used activities that included effective teaching strategies and social interaction. All creations made by the students were placed on the word wall. On the last day of the week of instruction, the students in both groups were given an assessment on the new vocabulary words they were assigned for that week. The assessment required the students to write their own definition of the vocabulary words, and they wrote a sentence to demonstrate the level of knowledge of each word. This process continued for four weeks. At the end of each of the four weekly assessments, the

students' scores were rated by middle school teachers from another educational institute who had been trained prior to the beginning of the study. Four weeks following the fourth weekly assessment, a delayed vocabulary assessment was administered to the students in both groups to determine students' retention of their vocabulary words. The assessment was in the same format as each of the weekly assessments used during the intervention phase. After the collection of all of the data, a discriminant analysis was conducted to determine the effect of the intervention and to create a predictive model for future success.

Setting

This current study was conducted in the middle school grades of a large K-12 private school in Northeast Florida. One hundred forty three students attended the seventh and eighth grades of the school. The particular setting chosen for this study was appropriate because of the middle school context, the cooperation of the administrators and teachers to conduct this study, and the easy accessibility I had to the facility.

Significance of the Study

This study was designed to determine the effectiveness of using interactive word walls, a teaching tool that may enhance the way in which middle school teachers teach vocabulary. A natural outcome of these findings may be that students who are exposed to interactive word walls may learn vocabulary better than those who are not exposed to interactive word walls. This study may also encourage middle school teachers to embrace the various components of the complete study. For example, teachers may begin using effective teaching strategies more often, or they may choose to allow more

social interaction among their students. As teachers begin to embrace these teaching strategies, their example may lead others to follow. As the practice is embraced by many teachers, the effect that it may have on those in leadership may be significant. Perhaps principals and administrators may see the value of using these teaching strategies and the word wall and encourage other teachers to embrace these practices. Another possible significant outcome is that higher level educators may begin to embrace the practical use of interactive word walls to teach vocabulary in content area classrooms. A final significance is the impact that the results may make on the instruction of professors in higher education. Changes in the way in which education majors in colleges and universities are taught plays a pivotal role in the instruction that is taken into classrooms. The potential for pedagogical changes and leadership practices at various educational levels is worthy of note, and the role that this study may play in those changes could be significant.

Operational Definitions

For the purpose of this study, definitions are provided for the following terms.

Associations

Associations are the integration and relationships created by students as they make connections with words based on their own experiences (Gunning, 2000; Nagy, 1988).

Interactive Word Wall

An interactive word wall requires that a teacher instruct students through consistently referring to the word wall display. In addition, the teacher must teach

interactively from it, using multiple modalities for the various learners (Cunningham, 2000).

Keyword Method

The keyword method employs making associations through the use of symbols or pictures (Beck et al., 2008; Cunningham, 2000).

Print-Rich Environment

A print-rich environment is one in which any physical feature of the classroom, including wall print and instructional materials, is displayed (Cambourne, 2000; Tao & Robinson, 2005).

Student Engagement

Student engagement is the active involvement of students in the learning process Berne & Blachowicz, 2008; Hall & Cunningham, 1999).

Word Wall

A word wall is a display of words on the wall or bulletin board of a classroom that is used as a visual reminder of material that is being learned (Baumann et al., 2007; Brabham & Villaume, 2001; Bukowiecki, 2006; Fisher et al., 2007; Hall & Cunningham, 1999; Rycik, 2002).

Organization of the Study

This dissertation is divided into five chapters. Chapter One provided the introduction to and purpose of the study, the background of the problem, an overview of related research, conceptual and methodological design, setting, and significance of the study.

Chapter Two begins with a review of literature as it relates to educational leaders, and it focuses on the importance of teachers as literacy leaders. The literature then describes the necessity for literacy leaders to use effective pedagogical strategies that model to other teachers the most effective ways to teach their students. Next, the literature describes the importance of reading comprehension, the role that vocabulary plays in comprehension, and the importance of teaching vocabulary. The next section of Chapter Two reviews literature that identifies components of effective vocabulary instruction. The remainder of the chapter presents literature that describes the importance of using social interaction in instruction, the strength of using word walls to teach vocabulary, and the value of using interactive word walls to combine effective teaching strategies and social interaction to teach vocabulary to middle school students.

Chapter Three describes in detail the methodology that was used to conduct this study. Consent, confidentiality, delimitations, and limitations are also discussed. Chapter Four presents the data analysis which includes an overview of the data collection and the analyses as they are used to address each research question. The final chapter provides a summary of the methodology and design of the study, conclusions of the research findings, delimitations and limitations, recommendations for practice, and recommendations for further study.

Chapter Two: Review of the Literature

Introduction

Middle school teachers often face students who struggle with reading comprehension. Because vocabulary is a vital component of reading instruction, teachers must determine the most effective teaching strategies available to help their students learn. In lower elementary grades, teachers tend to provide a print-rich environment to enhance student learning. Effective teaching strategies and student interaction are also common components of their instruction. As students move into the middle school grades, these elements tend to disappear, in exchange for more independent learning and memorization of material, including vocabulary memorization. Middle school teachers may experience gains in their students' learning if they move away from independent learning and memorization to more effective vocabulary teaching strategies. Middle school educational leaders must be able to assess the effectiveness of vocabulary instruction in their classes where the development of specialized vocabulary is important. In an effort to meet this goal, middle school educational leaders must determine the most effective ways to teach vocabulary to their students.

The purpose of this literature review is to identify ways in which middle school educational leaders can assist middle school students in learning new vocabulary. To accomplish this goal, the role that educational leaders play in teaching reading will be discussed. Next, the importance of reading comprehension, the role that vocabulary

plays in comprehension, and the importance of vocabulary instruction will be presented. A further discussion will include literature that offers various meanings of knowing vocabulary. Following this discussion, the components of effective vocabulary instruction and the theory of social interaction will be identified. Finally, research on word walls as an effective tool that encompasses the necessary components for teaching vocabulary effectively will be offered.

Educational Leaders and Teaching Reading

Teachers are tasked daily with making decisions that affect the outcome of their students' learning. Teachers decide the seating arrangements, the activities to use for learning, the appropriate method to reach each child, and often the material to be taught. Teachers are responsible for teaching students the skills that often determine their students' success. In the elementary grades, reading is taught in every grade. In the middle school grades, teachers rarely have the responsibility of teaching reading as a subject. However, reading is an integral part of every subject taught at the middle school level. Consequently, all teachers teach reading, but the effectiveness of their teaching strategies varies significantly.

The importance of teaching reading effectively cannot be understated, and the pivotal role that a teacher plays in the reading success of their students is critical (Blair et al., 2007; Ruddell, 1995; Turner et al., 2009). Blair et al. (2007) stated that "the most pervasive conclusion of school and teacher effectiveness studies was that teachers of reading profoundly influence how much students learn" (p. 436). Further, students' learning affects their futures. Turner et al. (2009) stated that reading is "the key that

unlocks a world of equal opportunity and personal fulfillment for every child" (p. 254). Ruddell (1995) stated that influential literacy leaders make life-long impacts on students and their reading and learning. Consequently, the impact that middle school teachers can have on the success of their students is far-reaching; therefore, teaching reading is vital in the middle school classrooms.

Middle school teachers have the potential to influence other teachers as they develop their teaching reading strategies in their classrooms. Also, they often lead their schools in professional development as they share their specialized knowledge with other teachers. Pearson et al. (2007) stated that as educators lead their classrooms in learning to read, they "serve as support groups for one another in improving practice" (p. 48). The influence of teacher leaders does not end with their students and other teachers. Danielson (2006) identified three areas in which teachers have influence: school policies and programs, teaching and learning, and communications. Lieberman and Miller (2004) suggested that teacher leaders often act as advocates, innovators, and stewards. They held that teachers act as advocates when they determine the best practices for each student and passionately strive to implement those strategies which will allow each student to succeed. The authors described an innovator as a teacher who has creative ideas and follows them through to implementation. They presented a steward as one who works to enact change within the teaching profession. Middle school teachers have the opportunity to be leaders within their schools and communities, sharing their knowledge of researched strategies with other teachers and promoting the learning of all students (Taylor & Gunter, 2009). Mangin and Stoelinga (2010) stated that teachers were the

"logical leaders of changed practice" (p. 50). Danielson (2006) held that teacher leaders influence and persuade others because of their passion and commitment to enact change.

The skills and knowledge that teachers possess are invaluable assets to education. The American Association of Colleges for Teacher Education (AACTE Focus Council on Literacy, 2002) created a council on literacy to determine the literacy elements that new teachers needed to know as they entered the classroom. As the council began its research, it created several statements on which its findings were to be based. It stated the importance of teachers possessing expertise on which to base their "literacy knowledge, their ability to adapt instruction to individual students' literacy needs, and their capacity to create programs that include multiple methods of teaching literacy" (AACTE Focus Council on Literacy, 2002, p. 4). To extend this definition, middle school educators must not only possess a measure of expertise in their own fields, but they must also possess knowledge of ways to teach reading effectively.

Teaching reading in the middle school grades is significantly different than teaching reading in the elementary school grades. Consequently, middle school educational leaders must learn effective ways to assess effective reading instruction for their students, but gaining that knowledge has its challenges. In its research of best practices for reading comprehension, the RAND research group (2002) strongly supported the statements offered by the AACTE Focus Council on Literacy (2002). RAND researchers held that the expertise of teachers is critical in the achievement of students. Based on the findings of the AACTE, Gilrane, Roberts, and Russell (2008) conducted a two-year case study of 16 educational professionals to determine the

effectiveness of a professional development program that was implemented in a high-poverty rural elementary school in the southeastern portion of the United States. The program was designed to provide the support necessary for K-3 reading teachers to gain the skills required to teach reading effectively. One component central to their study was that teachers should first be viewed as professionals and given the "professional status required to make decisions in their own classrooms about which methods of teaching fit the needs of their diverse students" (Gilrane et al., 2008, p. 333). Their findings supported the statements of the AACTE Focus Council on Literacy. Teacher input into the decision-making process and autonomy in implementing a program were paramount to the success of the program. In addition, Gilrane et al. found that as teachers provided more input into teaching programs and their viewpoints were heard, they became more involved. In fact, the teachers in this study were requested by other schools in the community to share their success with others.

Phelps (2008) concurred with the findings of Gilrane et al. (2008). He claimed that as teachers realize their own influential power, they are more likely to embrace the responsibility and opportunity of being a literacy leader. The desire by leaders to share knowledge was researched by Berne and Blachowicz (2008). These researchers conducted a survey of 72 classroom and literacy educators about vocabulary practices in the classroom. The researchers provided the following conclusions from their findings. First, the teachers used vocabulary instruction practices that paralleled current research. Second, teachers wanted their practices to be shared with others to create a community of

learning. In other words, teachers wanted to share their knowledge with other educators so that student learning could be enhanced.

Many teachers have the knowledge and desire to lead, and they need to take their leadership to their classrooms and school setting. Middle school teachers need to see themselves as leaders and acknowledge the influence they have on both their own classrooms and the schools in which they teach. Their expertise is pivotal in the classroom and schools as they share their knowledge and enhance the knowledge of students. As teachers accept their role as leaders and become advocates, innovators, and stewards (Lieberman & Miller, 2004), and as they begin their influence on school policies and programs, teaching and learning, and communications (Danielson, 2006), student learning will be enhanced. This influence begins in the classroom and permeates into the school setting and the community. As teachers advocate for their students, create and implement new ideas for instruction in literacy, and strive to enact change in school policies (Danielson, 2006; Lieberman & Miller, 2004), other teachers should embrace these leaders and take advantage of their expertise.

Ultimately, the goal for teachers to be leaders and to share their knowledge and influence is for students to improve their learning. Sharing effective strategies for teaching and learning is imperative for student success. Teachers have knowledge that should be cultivated and shared with other members of their schools. Their expertise must be distributed among other educators as they collectively learn the best ways to teach students (Burney, 2004; Copland, 2003). Because reading possesses multiple components, learning specific strategies to teach each component is vital. According to

the National Reading Panel (NRP, 2000), vocabulary is a key component of teaching reading, and teachers need to know the best practices for educating students. As a result, middle school teachers must learn the most effective strategies for teaching vocabulary within their classrooms. As these strategies are determined, middle school teachers must share these strategies with other teachers, leading the way to effective change.

Reading Comprehension and Vocabulary

Given that teaching reading is a multi-faceted task, experiencing success can sometimes be a challenge. Teachers must include phonemic awareness, phonics, fluency, vocabulary, and text comprehension in their instruction, and many of these components are intertwined (CIERA, 2003). For example, an increased vocabulary enhances comprehension. Although vocabulary is only one element that affects comprehension, giving attention to the value of teaching vocabulary is important. To accomplish this goal, exploring the role that vocabulary plays in comprehension is essential.

The Role of Reading Comprehension

Educators often face upper elementary and middle school students who struggle with reading comprehension. Although many of these students performed well in reading through third grade, reading in the fourth grade and beyond brings new challenges as the material becomes more complex. Consequently, struggles with comprehension surface. As children begin reading more complex material, they are required to use more cognitive resources, which were not required in lower elementary grades, where decoding was the focus. As teachers face these struggling students, teachers must determine the most effective ways to teach reading comprehension. As leaders, these teachers must

also be prepared to share these strategies with other literacy teachers so that these students' learning can be improved.

Before strategies can be identified, comprehension must be further explored. In 1997, Congress asked that a panel be convened to identify research-based knowledge and effective teaching strategies for teaching children to read (NRP, 2000). As a result, the National Reading Panel, which included educators, parents, students, and policy experts, was created. In its findings, one key component was reading comprehension. According to the NRP, reading "comprehension is critically important to the development of children's reading skills and therefore to the ability to obtain an education" (p. 13). In 2003, the Center for the Improvement of Early Reading Achievement (CIERA, 2003) addressed the findings of the NRP and created a group of literacy experts to compile a document to assist multiple stakeholders as they effectively teach literacy skills. Within this document, *Put Reading First* (CIERA, 2003), the writers stated that "comprehension is the reason for reading" (p. 48). Clearly, reading comprehension plays a pivotal role in the success of students, but the definition of comprehension must still be provided.

The NRP (2000) stated that reading comprehension is a complex cognitive process that engages students through their interaction with a text. Pardo (2004) included prior knowledge, previous experience, and the stance of the reader in her definition. The RAND Reading Research Group (2002) conducted research on reading comprehension and offered that reading comprehension was the "process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (p. 11). In other words, comprehension is the process in which readers must think, relate,

apply, and connect to the text they are reading. Reading comprehension is a major key to success as students move to higher grades and through college where the text becomes more complex and reading instruction decreases.

The Relationship Between Reading Comprehension and Vocabulary Development

The importance of reading comprehension is clear. However, reading comprehension is complex, and the components of instruction must be explored. The authors of the report *Put Reading First* (CIERA, 2003) suggested five areas of reading instruction: phonemic awareness, phonics, fluency, vocabulary, and text comprehension. They held that each of these components must be taught to create successful readers. They further supported the claim that vocabulary is vital to reading comprehension. As students struggle to identify words they do not know, their comprehension is often affected. In their effort to determine the most effective approaches in the teaching of reading, the NRP (2000) researched multiple areas of interest. Reading comprehension was identified as one of the critical areas for teaching reading. To describe reading comprehension further, the researchers included three subparts to be explored, and vocabulary instruction was one of the three identified. The findings of the NRP suggested that vocabulary instruction enhanced reading comprehension.

The International Reading Association (IRA), an organization designed to provide a platform for a variety of opinions on literacy, offered a position statement on establishing various aspects of literacy (IRA, 2000). In their position statement, they offered 10 principles to guide educators in establishing policy and practice. One of those principles included children's right to receive reading instruction that meets their needs.

Within that right, the IRA (2000) included the need for children to have an appropriate vocabulary to enhance their reading comprehension, which concurs with the stance of the NRP (2000). Additional support is provided by Stahl and Nagy (2006) who also claimed that vocabulary and comprehension were interrelated. They further suggested that the breadth of an individual's vocabulary plays a vital role in determining that individual's success.

Researchers have consistently reported a relationship between reading comprehension and vocabulary instruction. As a result of these findings, literacy leaders must make every effort to find effective ways to teach vocabulary in their classrooms.

The Importance of Vocabulary

The importance of vocabulary cannot be overstated. Stahl and Nagy (2006) asserted, "Words are so pervasive in our life, so central to being human, that we do not often stop to reflect on their value and power" (p. 3). Further, the authors suggested that an individual's vocabulary can reveal a person's educational background. Beck et al. (2002) held a similar position. They claimed that "a large and rich vocabulary is the hallmark of an educated individual" (p. 1). Researchers further claimed that vocabulary is a powerful vehicle through which students achieve success in their education (Beck et al., 2002; Wasik, 2006). A larger, broader vocabulary allows students to describe more clearly the things they see and to think about the world in which they live (Stahl & Nagy, 2006).

Although comprehension and vocabulary are clearly linked, and vocabulary is deemed important to the success of students, teaching vocabulary is not always a priority

in education. In their study of vocabulary assessments, Pearson et al. (2007) claimed that understanding assessments and their relationship to comprehension is pivotal to effective instruction and that "vocabulary assessment is grossly undernourished" (p. 282). Although vocabulary assessment may be undernourished, the responsibility still lies within the educator to learn and teach vocabulary using the best practices possible. In other words, the teacher is the key to vocabulary learning. Wasik (2006) held that teachers play a vital role in children's vocabulary learning by providing appropriate activities for vocabulary development. Literacy leaders need to determine the most effective practices for teaching vocabulary and lead their students to a better understanding of the value of vocabulary. Given that teachers play a vital role in students' vocabulary acquisition, literacy leaders must give vocabulary instruction the attention it needs to assist students in successful vocabulary learning. According to Yopp and Yopp (2007), vocabulary knowledge and instruction "must receive focused and deliberate attention" (p. 157).

For literacy leaders to achieve this goal, they must devote the time necessary to teach vocabulary. Time commitment is not limited to each class period; it includes instruction over time. Teaching vocabulary must be a long-term commitment, not a sporadic attempt to satisfy a requirement (Graves, 2006). In reality, teaching vocabulary is a continuous effort (Biemiller, 2003; Yopp & Yopp, 2007). Literacy leaders can make a difference if they commit to teach vocabulary and dedicate the necessary time to make vocabulary a priority in their classrooms. Through their leadership, other teachers will

follow, and together they will make a significant difference in the academic lives of their students.

Knowing Vocabulary

Comprehension and vocabulary are clearly related, and the importance of vocabulary instruction cannot be ignored. Teaching vocabulary requires a commitment that leaders must be willing to make. Influential literacy teachers strive to effect change, regardless of the potential sacrifice required. But for teachers to teach effectively and influence others, vocabulary must be defined, and understanding the levels at which a student knows a word is necessary.

Generally, vocabulary comprises the words we know and use in our communication, both oral and written (CIERA, 2003). However, vocabulary can have different meanings. Learning vocabulary means either to know a word by sight, as in word recognition and decoding, or by meaning (Beck et al., 2008; Chall, 1983; Yopp & Yopp, 2007). For example, students may be able to decode words as they see them in print, but that does not mean that they know the definition of those words. In other words, decoding only implies that students can pronounce the words, not use them in writing or speaking (Beck et al., 2002). Knowing the meanings of words denotes a student's ability to use those words appropriately in their own writing or speech. Knowing word meanings also allows students to express themselves and demonstrate a greater understanding of the world in which they live (Blachowicz et al., 2005). As students gain a deeper understanding of word meanings, they not only understand more difficult texts, but they are also able to speak and write more vividly. Literacy teachers

strive to see students reach their potential, and teaching vocabulary is one way to help students reach that goal. For the purpose of this literature review, only the acquisition of word meaning will be addressed.

Although word meaning is now defined as one component of learning vocabulary, the issue of the level at which a student knows a word is still in question. For example, students may only know one meaning of a particular word that has multiple meanings, such as the word convict. Also, students may know that they have heard a particular word, but they are not able to use the word appropriately. Finally, students may know a word well enough to use it accurately and be able to explain its use. Knowing vocabulary does not mean that students either know words or do not know words (Beck et al., 1987; Beck et al., 2002; Blachowicz et al., 2005; Chall, 1983; CIERA, 2003).

Beck et al. (2002) suggested that various levels exist for students to know words. Beck et al. (1987) held that vocabulary knowledge was on a continuum, ranging from no knowledge to rich knowledge. Blachowicz et al. (2005) suggested that word knowledge is either receptive, words seen in print, or expressive, words actually used by students, and that the goal of teaching was to expand both types of word knowledge. In line with the idea of vocabulary knowledge being on a continuum (Beck et al., 1987), the authors of *Put Reading First* (CIERA, 2003) offered three degrees of word knowledge: "unknown, acquainted, and established" (p. 43). The authors further explained the three levels by stating that the acquainted degree indicates that students only vaguely know the word, and the established degree is the level at which a student accurately uses the word.

Although no uniform level of vocabulary exists, research clearly indicates that word knowledge is complex and requires attention (Beck et al., 2002; Blachowicz & Fisher, 2004; Irvin, 2001). The goal, however, is for literacy teachers to determine the level of vocabulary knowledge at which they will teach and expect their students to learn. From that decision, the teachers will decide the appropriate assessment. In other words, the assessment must match the learning expectation. (Baumann, Kame'enui, & Ash, 2003; Beck et al., 2002; Blachowicz et al., 2005). Literacy teachers have the knowledge and professional judgment to make these decisions. In making these decisions within their own classrooms, these teachers set the example for other educators who ultimately emulate leaders' practices.

Effective Vocabulary Instruction

Understanding the importance of vocabulary and realizing that vocabulary is learned at various levels is only the beginning to sound vocabulary instruction. The components of effective vocabulary instruction must be identified. Before this subject can be addressed, one important issue must be discussed. As purported by the NRP (2000), no single strategy provides the best opportunity for students to learn vocabulary (Beck et al., 2008; Graves, 2009; Spencer & Guillaume, 2006). Because of the ways in which students learn, teachers must use multiple strategies to enhance vocabulary learning. As a result, components that are most widely accepted as best practices in teaching vocabulary are presented.

Print-Rich Environment

Any educational setting needs an environment that is conducive to learning. Providing an appropriate environment for learning vocabulary includes the display of print within the classroom. Cambourne (2000) offered the findings of his observations of one second grade teacher who set up her classroom for her 27 students. The researcher combined the observations of this setting with numerous others he had conducted over a nine-year period. The author admitted that the classroom was complex, but he identified threads of knowledge that he held to be beneficial within the classroom. First, he identified the importance of what he referred to as paraphernalia, which is any physical feature of the classroom, including wall print and instructional materials. Secondly, he found that the interaction with that paraphernalia was as important as the actual paraphernalia itself. In other words, a print-rich environment is vital as teachers establish an environment that is conducive to learning.

Providing a print-rich environment is important, but this should not be confused with simply decorating a classroom. Tao and Robinson (2005) conducted qualitative research on 35 undergraduate students who observed elementary classrooms as part of their field experience during a language arts course. The authors stated that they wanted to determine the level at which these students valued the print-rich environment within the classroom. Several participants reported the way in which one teacher had used the print in the classroom as an interactive learning tool for her students. Other participants reported that some observable print was not being used to its fullest potential. In other words, the print was not in a location that benefitted student learning. However, most

observers only reported that print was visible in the classroom. The authors reported disappointment in the students' observations and their perceived value of print-rich environment. Their hope was that these undergraduate students recognized the impact that a print-rich environment had on student learning. The researchers clearly placed value on print-rich environments. Their findings were used to address the educational practices at the college with which they were associated. As demonstrated, a print-rich environment is an important component of a successful literacy classroom, not just decorations on the wall (Cambourne, 2000; Tao & Robinson, 2005).

A print-rich environment plays a pivotal role in a balanced literacy classroom; however, simply having a print-rich environment is not sufficient and does not necessarily create a successful environment. Students and teachers must learn to interact with the environment that is created in their classrooms (Cambourne, 2000; Spencer & Guillaume, 2006; Tao & Robinson, 2005). An interactive, print-rich environment creates an excellent stage for teaching vocabulary (Blachowicz et al., 2006).

Spencer and Guillaume (2006) drew parallels between the ways in which students learn science and the ways in which they learn vocabulary. They suggested that, as in science, students should experience vocabulary through observation, which included visual displays of words and manipulation of their uses. Blachowicz et al. (2006) held that a classroom environment must include the opportunities to "read, hear, use, and talk about new vocabulary" (p. 527). They further claimed that the environment should be created to pique the interest of the students. Researchers often refer to an awareness of vocabulary within the classroom as word consciousness (Blachowicz et al., 2006; Graves,

2009; Hall & Cunningham, 1999). Word consciousness includes the use of a print-rich environment as a visual to aid students in their quest for learning new vocabulary words. Additionally, displaying the vocabulary words and allowing the students to interact with the words is a critical component of word consciousness. Research is clear on the importance and value of an interactive, print-rich environment, and that environment is ideal for teaching vocabulary.

Literacy teachers are the key to creating an educational environment that creates a motivation for the students to learn. One vital component of that environment is a print-rich presentation. Teachers must immerse their students in vocabulary by creating visuals and literacy opportunities for their students to see vocabulary in action.

Student Engagement

Creating a print-rich environment is only the springboard to effective vocabulary instruction. The environment only sets the stage. Interaction in the classroom and engagement of students complete the learning experience. For vocabulary instruction to be effective, students must be actively engaged in the learning process (Beck et al., 2008; Berne & Blachowicz, 2008; Blachowicz et al., 2006; Coyne et al., 2007; Hall & Cunningham, 1999; McKeown et al., 1985; Nagy, 1988; NRP, 2000). Nagy (1988) claimed that as students become more actively engaged, more learning takes place. He also held that engagement enhances information processing, thus, deepening learning. Hall and Cunningham (1999) agreed and added that students should think about words and use words in meaningful contexts, which increases retention. Beck et al. (2008) included in their explanation of student engagement and interaction that the students'

ability to discuss multiple uses of words and the students' decision-making ability regarding appropriate contexts are also vital. In other words, students must engage in discussion and learn to determine whether or not a word is being used in the correct context.

Although active engagement facilitates learning word meanings and making connections or relationships with words, Blachowicz et al. (2006) claimed that it also encourages students to become more independent in their thinking and learning, a goal of education. Several studies support these claims. In their two studies of kindergarten students, Coyne et al. (2007) compared extended instruction, which includes active engagement, and incidental exposure within storybooks and embedded instruction respectively. The researchers reported a statistically significantly difference in all measures: expressive definition, receptive definition, and context. Their conclusions were that extended instruction provided a more complete learning experience and deeper word knowledge for the students. Additionally, an unannounced assessment was given six to eight weeks after the intervention and demonstrated that the students had maintained much of their knowledge of the words learned during the study.

Active engagement has also been found to be successful in the upper elementary grades. McKeown et al. (1985) conducted a study involving fourth grade students who were given one of three types of instruction for vocabulary learning: rich instruction, extended/rich instruction, or traditional instruction. The first type of instruction, rich instruction, included engagement with words to make connections in meaning and association and responding affectively to words. Extended/rich instruction involved

engagement but added a motivational component, and traditional instruction only required the students to make associations with the definition or synonym of a word. Two of the purposes of the study were of great interest. One purpose was to determine the type of instruction that produced the greatest gains in vocabulary knowledge, and the second was to identify the relative effectiveness of the three instructional strategies. The researchers' findings revealed that little differences existed between rich instruction and extended/rich instruction; however, a noticeable difference was evident between those modes and traditional instruction. Rich instruction and extended/rich instruction showed greater gains in learning words in context and in comprehension than the traditional instruction.

Engagement with text and vocabulary words is an important component of vocabulary instruction. As demonstrated, active engagement tends to produce greater gains in learning, a deeper understanding of word meanings, and greater retention of the word knowledge. As literacy leaders search for effective teaching strategies to use in their classrooms and to model for other teachers, active engagement must be a part of their plan.

Student Created Definitions and Context Clues

Although active engagement has been discussed, one specific characteristic that must be further enhanced is that vocabulary instruction must include both definitional and contextual instruction (Beck et al., 2002; Blachowicz et al., 2005; Blachowicz et al., 2006; Graves, 2009; Nagy, 1988). However, Beck et al. (2002) differentiated between learning a definition and creating a definition. Their stance was that students should

create their own definition and express it in their own words, not simply memorize a definition from a dictionary. The authors held that students should own the words they learn. Beck et al. (2002, 2008) referred to this practice as one of the aspects of robust instruction or rich instruction. Graves (2009) concurred with Beck et al. (2002, 2008). He embraced the practice as part of his four-part vocabulary program. He claimed that robust instruction was "designed to give students deep and lasting understanding of word meanings" (p. 60). The goal for students who create their own definition of words is to have the students engage in activities that cause the students to connect to the vocabulary words.

However, creating a definition alone is not sufficient for effective vocabulary learning. Using student-made definitions and seeing words in different contexts is critical for vocabulary instruction. Teachers should provide multiple opportunities for students to encounter new vocabulary words in order to evoke a deeper understanding of words, and these encounters should include words being encountered in context (Graves, 2007; Nagy, Anderson, & Herman, 1987; NRP, 2000). As students see words in different contexts, they begin to gain a deeper understanding of the meaning of the words. As their understanding increases, their ability to use those words should also increase. To deepen their understanding, students must be able to create sentences using their new vocabulary words in various contexts (Beck et al., 2008; Graves, 2009; Gunning, 2000; Irvin, 2001; Nelson & Stage, 2007). Consequently, teachers should allow students the opportunity to create sentences that demonstrate their knowledge of the definition and use of the words.

Although these two elements are important to teaching vocabulary, Nagy (1988) offered a warning regarding this instruction. He claimed that using only these two components could result in ineffective vocabulary instruction. Graves (2007) agreed and concisely stated, "Vocabulary instruction is most effective when it is rich, deep, and extended" (p. 14). In other words, teachers must not limit themselves to these two components of vocabulary instruction. Students creating their own definitions and engaging with words in multiple contexts are two examples of extended and rich vocabulary instruction and should be embraced as part of a balanced vocabulary program.

Although teachers often strive to use these methods in their classrooms, other methods combined with these strategies may create a more enhanced learning experience for students. The role of literacy teachers is to combine the best vocabulary strategies for use in the classroom and to create an environment that is conducive to effective teaching. Through their own example, literacy teachers impact other teachers as they present vocabulary words in multiple contexts and provide opportunities for their students to learn definitions through means other than the dictionary.

Making Associations

Although print-rich environments, student engagement, and learning vocabulary words in context and with appropriate definitions are important to learning vocabulary, students must create an association to the words in order for the words to have meaning to the students (Beck et al., 2002, 2008; Cunningham, 2000; Gunning, 2000; Harmon, 1998; Nagy, 1988; Rosenbaum, 2001). Nagy (1988) and later Gunning (2000) claimed that integration and relationships should be a main focus of vocabulary instruction and

that students should make connections with words based on their own experiences. Cunningham (2000) enhanced this position by claiming that making associations with words strengthens a student's ability to recall information long-term. Beck et al. (2008) agreed and claimed that connections not only helped students recall information, but they also enhanced comprehension. In other words, students remember better those things with which they make associations, and those connections help students understand material they have learned.

Making associations with vocabulary words can be achieved in various ways, but the main goal of association is for students to connect to vocabulary words in ways that make sense to them (Beck et al., 2008; Cunningham, 2000; Gunning, 2000; Nagy, 1988). Using color is an excellent way for students to make associations with words. Teachers often use color as an effective means to have words stand out from other visuals in the classroom (Cunningham, 2000; Ganz, 2008; McNeal, 2004; Wagstaff, 1999). Using color can also provide an emphasis on key words and can serve as a point of reference for the students (McNeal, 2004; Wagstaff, 1998).

Although color is an excellent way to draw attention to words or to make them stand out, some researchers have found other uses for color in teaching vocabulary. In their study of 44 seventh grade students, Harmon, Wood, Hedrick, et al. (2009) used color in word walls as a method for the students to make associations. For example, students were asked to write down each vocabulary word on its own note card. Students then colored each card according to their association with the word. One student colored his card gray because the word *futile* made him think of being moody or in mourning.

The researchers found that color associations were effective in enhancing vocabulary learning for middle school students. Color can be used for multiple purposes, but the goal is for the students to associate each word with a color in an effort to help the student remember the word and its meaning.

Students can also make associations through the use of symbols or pictures. Extensive research has demonstrated that the keyword method is highly effective in teaching individual vocabulary word meanings (Blachowicz & Fisher, 2004; Fontana et al., 2007; Harmon, Wood, Hedrick, et al. 2009; Pressley et al., 1982; Scruggs & Mastropieri, 1991, 2000; Terrill et al., 2004). According to the researchers, the keyword method allows students to create visual images of vocabulary words, creating a visual connection to assist learning. Wagstaff (1998) suggested using this visual method by asking students to illustrate their vocabulary words and placing them on a word wall. As a further visual emphasis, the researcher used scissors to cut along the boundaries of the words, creating a shape of the words for the students to see. Beck et al. (2008) supported the use of the keyword method because it allowed the student to use multiple modalities in learning. To enhance this method, Beck et al. (2008) encouraged teachers to ask students the reasons that they had chosen a particular drawing or symbol to attach to a word. Questioning students about their images deepens their understanding of the word's meaning.

Various studies have been conducted that demonstrate the effectiveness of using the keyword method in learning. McDaniel, Pressley, and Dunay (1987) conducted research with 42 college students using the keyword method to learn pairs of vocabulary

words. Twenty-two participants comprised the treatment group that received the keyword method intervention, and 20 participants were in the group that received instruction using context methods. The researcher reported that those participants who received the keyword instruction recalled significantly more definitions than those who received contextual instruction only. Although the researchers reported that the delayed test showed no difference in retention between the two groups, they held that students who used the keyword method put forth less effort in learning the vocabulary than those who received contextual instruction (McDaniel et al., 1987).

Not all researchers agreed with the findings of the delayed results reported by McDaniel et al. (1987). In their study of 44 middle school students, Harmon, Wood, Hedrick, et al. (2009) found the keyword method effective in their research of interactive word walls. The researchers required students in a group to create a symbol that had a specific meaning or association to each vocabulary word that was introduced to them at the beginning of each unit. The drawing was to be any symbol or picture that helped the students remember each word and its meaning. One group was responsible for drawing a symbol for the word *futile*. Members used the symbol of a math test with all of the answers marked wrong to represent the futility of last minute studying for a test. The authors further enhanced the method by requiring the groups to create an original sentence to demonstrate the association of the symbol to the vocabulary word. Using this method, the researchers reported higher scores on their vocabulary tests in a two-week delayed assessment, suggesting improved long-term learning (Harmon, Wood, Hedrick, et al. 2009).

The keyword method has been found effective in teaching more difficult categories of words such as parts of speech. Cunningham (2000) stated that associative learning through the keyword method is effective in teaching abstract words such as prepositions. Students draw pictures of phrases that include the prepositions; the phrases are written on a word strip, and the prepositions are underlined as a further visual cue. Cunningham suggested that teachers engage students by practicing word meanings using the visual cues that are thus created. Regardless of the specific visual cues used within the classroom, research has demonstrated that the keyword method is an effective learning technique and should be practiced in vocabulary instruction (Blachowicz & Fisher, 2004; Fontana et al., 2007; Harmon, Wood, Hedrick, et al. 2009; Pressley et al., 1982; Scruggs, & Mastropieri, 1991, 2000; Terrill et al., 2004).

Social Interaction

Although effective vocabulary teaching practices have been presented, combining those strategies with additional methods of teaching may provide a powerful learning opportunity. In addition to effective vocabulary instruction, social interaction with other students has been effective in enhancing students' learning of vocabulary. In his theory of social interaction, Lev Vygotsky (1926/1997) suggested that social interaction played a pivotal role in cognitive development. He held that development occurred first through social interaction, but then internal development transpired within students as they put meaning to new material (Mahn, 1999). Vygotsky (1926/1997), however, did not discount the role that the teacher played in learning. He stated that the educational process is "an active one on three levels: the student is active, the teacher is active, and

the environment created between them is an active one" (p. 54). Ironically, the components of rich instruction parallel Vygotsky's theory. For example, word associations are based on students' background, an element of Vygotsky's theory. Also, student engagement and a print-rich environment involve students' being active and provide an environment that is conducive to active learning. Vygotsky (Cole et al., 1978) expanded his position on peer collaboration by claiming that activity among students enhanced student learning beyond the material students learned on their own (Gunning, 2000; Vygotsky, 1926/1997; Wink & Putney, 2002). As result of Vygotsky's position, researchers have suggested that students gain a better understanding of words when they work together to learn new vocabulary words (Gunning, 2000; Harmon, Wood, Hedrick, et al. 2009). Gunning (2000) offered the example of students learning the word *compliment.* He stated that as students work together, they often offer compliments to each other as they solidify their understanding of the word's meaning. Through this social process, students often want to expand their interaction to include things they have learned. Wink and Putney (2002) held that Vygotsky's theory explained the reasons individuals usually want to share their knowledge of a book they have just read. As individuals share their book with others, the listeners share their own perspectives, providing new knowledge for all involved.

In addition to the educational benefits of social learning, social interaction is also appealing to students. Ellison et al. (2005) conducted research with 138 fifth and sixth grade students to determine their preferences among cooperative, competitive, or individual learning. The researchers reported that cooperative learning was preferred

most often among all the students who answered the questionnaire. As a result of the research, the authors encouraged the use of cooperative learning in classrooms to enhance learning.

It is clear that social interaction is an effective learning tool in the classroom and that the teacher plays a vital role in the learning process. Social learning is interactive and requires responses from those involved (Gindis, 1999). However, as teachers lead their classrooms, they provide the guidance necessary to make social, interactive learning successful. As Vygostsky (1997) stated:

> The teacher fashions, takes apart and puts together, shreds, and carves out elements of the environment, and combines them together in the most diverse ways in order to reach whatever goal he has to reach. This is the educational process an active one on three levels: the student is active, the teacher is active, and the environment created between them in an active one. The educational process, therefore, may least of all be considered a benignly indifferent and straightforward process. On the contrary, the psychological nature of the educational process discloses itself as a complicated struggle in which thousands of highly developed and heterogenous forces join battle, as a dynamic, deliberate, and dialectical process that recalls not the slow, evolutionary process of growth, but a wavering and revolutionary process of unceasing combat between man and the world. (p. 54)

The Use and Value of Word Walls

Research has demonstrated that a print-rich environment, student engagement with learning, learning vocabulary through context clues, using definitions that are student created, and making associations are effective strategies for teaching vocabulary. These strategies coupled with social interaction strengthen the power of learning within the classroom. However, using these strategies and social interaction independent of each other may not produce the effects that combining them may yield. Consequently, identifying a tool that encompasses all of these components is advantageous. Based on

research, interactive word walls seem to provide opportunity to include all of these components. To discuss the research further, word walls must first be defined. Simply stated, a word wall is a display of words on the wall or bulletin board of a classroom that is used as a visual reminder of material that is being learned (Baumann et al., 2007; Brabham & Villaume, 2001; Bukowiecki, 2006; Fisher et al., 2007; Hall & Cunningham, 1999; Rycik, 2002). In reality, any words placed on the wall of a classroom are considered a word wall.

Although a visual reminder is an important aspect of the word wall, other aspects are important, as well. Word walls can also create a positive vocabulary learning environment (Blachowicz, 2005; Handy, 2004; McNeal, 2004; Rasinski & Padak, 2000). Rasinski and Padak (2000) suggested that simply displaying a word wall piques the interest of students as they enter the classroom, and it sends a message that words are important and should be valued. Also, the word wall display often adds color, design, and art work that draws the attention of the students to the material being learned (Dudley, 2004; McNeal, 2004; Yates, Cuthrell, & Rose, 2011). For example, categories of words can be in different colors to ease their location on the wall. Some students may draw pictures that help connect them to words, and these being displayed can assist students as they recall information. At times, students may place words on a shaped sheet of paper that helps them remember the word's meaning. One example is that a student places the word pentagon on a five-sided sheet of paper to trigger the idea that the pentagon has five sides. Regardless of the method students may use for display, the goal is for students to access the word wall to enhance their learning. A colorful and creative

learning environment piques the interest of students and enhances their learning.

Another benefit of word walls is that they provide a reference tool for the students (Bukowiecki, 2006; Cunningham, 2000; Dykes & Thomas, 2010; Jasmine & Schiesl, 2009; McNeal, 2004; Rycik, 2002). Word walls can be used to display words that are excellent for students to use in their writing. As students are writing, looking at a word wall of summary verbs or creative verbs can expand their vocabulary and enhance their writing. High-frequency words found in reading material may be displayed by categories, and math formulas found on word walls make reference quick and easy. In content areas, vocabulary can be overwhelming; consequently, displaying those vocabulary words in categories on a word wall allows students to make quick reference while learning the new material. Word walls can be used for historical timelines by displaying key events and dates, allowing students to visualize an overview of the events while working to fill in the gaps between dates. Because of the visual repetition of the word wall, the goal is for students to be exposed to material more often than if the word wall were not in place. As students reference the material, they are making further attempts to help them remember and recall the material being learned. Consequently, student learning is enhanced.

Word walls are excellent tools for creating an atmosphere that is conducive to learning, and the visual reminders that are inherent to word walls are beneficial. However, word walls provide much more than a visual reminder of information learned; they provide an opportunity for student interaction (Cunningham, 2000; Ganz, 2008; Harmon, Wood, Hedrick, et al. 2009). Cunningham (2000) stated that teachers must not

simply display words on the wall and instruct students to them. Instead, she suggested that teachers and students must "do" a word wall. She held that teachers must consistently refer to the word wall and teach interactively from it, using multiple modalities for the various learners. Cambourne (2000) held a slightly stronger stance and suggested that possessing artifacts, including word walls, was not as important as interacting with them. As previously stated, words that are written in a particular color can be placed on the wall, but having the students decide the color creates an interaction that is more beneficial. A further enhancement is for students to make the word strips to be placed on the word wall, not the teacher (Handy, 2004; Harmon, Wood, Hedrick, et al. 2009; McNeal, 2004; Wagstaff, 1999). Researchers further claim the importance of students creating various visuals to make connections with the words that can be placed on the word wall (Blachowicz & Fisher, 2004; Cunningham, 2000; Fontana et al., 2007; Ganz, 2008; Handy, 2004; Harmon, Wood, Hedrick, et al. 2009; Terrill et al., 2004; Wagstaff, 1999). Finally, a word wall is conducive to teacher-student interaction, which further strengthens learning (Cunningham, 2000; Harmon, Wood, Hedrick, et al. 2009; Harmon, Wood, & Kiser, 2009; Rycik, 2002; Wagstaff, 1999). As research has demonstrated, displaying a word wall is not as effective as interacting with it. Consequently, interactive word walls provide the opportunity to combine the use of effective vocabulary instruction strategies.

Word Wall Research

Research indicates that elementary teachers often use word walls in their classrooms to teach a variety of concepts (Baumann et al., 2007; Berne & Blachowicz,

2008; Ellison et al., 2005; Hall & Cunningham, 1999; Jasmine & Schiesl, 2009; Rycik, 2002; Tao & Robinson, 2005; Wagstaff, 1999). One area in which word walls are used is language arts, which includes all components of reading and writing. Fluency, high-frequency words, word morphology, vocabulary, frequently misspelled words, phonics, and writing conventions are all concepts that have been taught using word walls in the elementary classroom (Baumann et al., 2007; Ganz, 2008; Hall & Cunningham, 1999; Hedrick & Pearish, 1999; Jasmine & Schiesl, 2009; Wagstaff, 1999). One example of an effective use of word walls in the lower elementary grades was supported by Rycik (2002) who observed 18 primary grade teachers and found that word walls were used for high frequency words, content area and theme words, and ways to chunk, or group, words together. She reported that the teachers were successful in engaging the students and teaching them to become independent readers through the use of the interactive word walls.

In another study that involved lower elementary grade teachers using word walls, Jasmine and Schiesl (2009) observed multiple first grade classrooms and the teachers' use of word walls as they worked to teach fluency. As they observed, they found that students were not using the word walls that were provided in the class. The researchers consistently heard teachers send struggling students to the word wall to use it as a reference, but, repeatedly, the students were unable to make the connection that the word wall could provide the answers for which they were searching. The teachers had failed to make a connection between the word wall and the students' learning. As a result, Jasmine and Schiesl conducted an action research case study of 21 first grade students as

they interacted with word walls in their literacy stations. After a four-week intervention, the researchers concluded that interaction with word walls was a contributing factor in the students learning new words and increasing their fluency. This study not only supports the use of word walls, it also identifies the interactive portion as an integral part of using word walls in the classroom.

Upper elementary grade teachers have also found word walls to be effective in their classrooms (Baumann et al., 2007; Ganz, 2008; Hall & Cunningham, 1999). Word walls are often used to teach various aspects of writing and vocabulary (Finch, 2010; Ganz, 2008; Hall & Cunningham, 1999). Using the errors in their students' own writing, teachers often create a word wall to display the correct spelling of often misspelled words. The word wall is used throughout the year for the students to reference and from which the teacher teaches. From this strategy, teachers claimed that their students' spelling within their writing improved steadily throughout the school year (Hall & Cunningham, 1999). In addition to improving spelling in writing, vocabulary use can be enhanced. Word walls may be used to display words that student share as "juicy words" to strengthen their writing (Finch, 2010). Word walls are also used to teach word morphology. As part of a vocabulary program, Ganz (2008) reported that she provided her fifth grade students with colored 3 x 5 index cards on which students wrote a student-friendly definition. Prefixes and suffixes were colored-coded on the card, and the card was then displayed on the word wall. The author stated that the students' scores on the vocabulary portion of their annual achievement test were unusually high for the three

years that the program had been implemented. The implication is that the interactive word wall had a role in this success of the program.

Another area in which word walls seem to have some success in the upper elementary is vocabulary. In their study of 20 fifth grade students, Baumann et al. (2007) explored the use of a vocabulary program which included the use of word walls. Using a pretest in August and posttest in May, the researchers compared results to determine the growth of the students' knowledge and use of vocabulary. Indications are that word knowledge had grown more than expected, which was a welcome finding. They also found that the students used more vocabulary words in their writing after the intervention, and the words used were not high-frequency words.

Whether interactive word walls are implemented in lower or upper elementary classrooms, indications are that they are successful in teaching multiple concepts. Middle school teachers have the same opportunity to use word walls; however, little research shows that they do. Researchers agree that word walls can be effective in the middle school classrooms (Harmon, Wood, Hedrick, et al. 2009; Harmon, Wood, & Kiser, 2009; Routman, 2003; Yates et al., 2011).

Yates et al. (2011) claimed that interactive word walls were successful in teaching vocabulary across multiple content courses as the eighth grade hall of their school embraced the use of word walls. The authors claimed that the word wall displays began in the classrooms, but the interest caused the walls to expand into the hallways of the school. Reportedly, the students became fascinated with the word walls and continued to reference them throughout the school year. The word walls in some of the content areas

used categories of words to assist students in recalling information. Ultimately, the students began to suggest ways in which the word walls could be expanded. Clearly, student involvement was achieved, and the authors reported improved vocabulary scores for the students throughout the eighth grade.

In another study, Harmon, Wood, and Kiser (2009) studied the effects that an interactive word wall had on 44 middle school students. The researchers used rich instruction with the interactive word wall and created a two-week delayed assessment to measure long-term retention. In their study, one of the main components was students' being able to choose the words they were to learn. In addition, the researchers interviewed the students before and after the intervention to determine how the students felt about the word walls and whether or not the word walls were useful. The results showed that the long-term learning was most positively affected by the word wall intervention. For the qualitative portion of the study, the students reported enjoying interacting with the word wall, and many stated that they appreciated having control over their own learning. Although this study involved interactive word walls with middle school students, student choice was a main focus, which is not part of this literature review.

Middle school teachers are responsible for providing the best possible instruction available to their students. Interactive word walls contain multiple components of effective instruction for teaching vocabulary, but middle school teachers rarely embrace their use in the classroom. Given the support for interactive word walls, and given the

paucity of research on their use and effectiveness, especially in middle school grades, conducting a study of middle school students and interactive word walls was a necessity.

Overall Summary

This literature review began by establishing that middle school students often struggle with reading comprehension and that a connection exists between reading comprehension and learning vocabulary. The literature then established that middle school teachers often tend to use instructional strategies that focus on memorization of vocabulary words and their definitions, while elementary teachers often use a print-rich environment, rich instruction, and student interaction as standard practice in their classrooms. Next, the role of a literacy teacher was described. Scholars suggested that effective teachers must set the example by practicing the most effective methods of vocabulary instruction in the middle schools. Also discussed was the power of a teacher's influence and the responsibility they have to share their knowledge. As a final component of leadership, the literature established that the ultimate goal of a teacher is to influence others so student learning is enhanced.

The next portion of this literature review established the importance of comprehension, the role that vocabulary plays in comprehension, and the importance of vocabulary instruction. Research demonstrated the relationship between learning vocabulary and reading comprehension. The levels at which a student may know a vocabulary word were defined, and strategies that are effective in the classroom for teaching vocabulary were identified. These strategies included providing a print-rich environment for the classroom, encouraging student engagement throughout instruction,

using appropriate definitions and words in context, creating associations in the vocabulary words, and allowing social interaction among students. For each component, the literature supported the claim that each is an effective teaching strategy, although some researchers placed an emphasis on different components.

The next goal of this literature review was met as all of the identified components of effective instruction were encapsulated into an activity that would use these strategies collectively in vocabulary instruction. As a result, research supported the use of interactive word walls. Research demonstrated the value of interactive word walls and the success that many teachers have experienced while using interactive word walls. Additionally, the literature suggested that many elementary teachers use word walls in their classrooms but that middle school teachers rarely embrace this activity. It was proposed that literacy teachers must set the example by embracing interactive word walls in their middle school classrooms.

As a result of this literature review, it was necessary that interactive word walls be considered an effective tool for teaching vocabulary. The literature led to interactive word walls to teach vocabulary in middle schools. The research demonstrated that interactive word walls appear to include the use of a print-rich environment for the classroom, student engagement in instruction, the ability to teach appropriate definitions and words in context, student associations with the vocabulary words, and opportunities for social interaction among students. Thus, determining the effectiveness of word walls to teach vocabulary in middle school grades was an imperative and worthy study. Chapter 3 provides in detail the design and methodology of this study.

Chapter Three: Design and Methodology of the Study

The general purpose of this study was to identify an effective way by which literacy leaders can assist middle school students in learning new vocabulary. More specifically, this study assessed the effectiveness of interactive word walls to teach vocabulary to middle school students. The study analyzed the effectiveness of teaching vocabulary to middle school students using research-based vocabulary instructional strategies within the context of interactive word walls. The study was based on the investigations of multiple researchers who identified effective vocabulary instructional strategies (Beck et al., 1987, 2002, 2008; Blachowicz et al., 2006; Cambourne, 2000; Cunningham, 2000; Graves, 2007, 2009; Gunning, 2000; Hall & Cunningham, 1999; McKeown & Beck., 2005), the effectiveness of the theory of social interaction offered by Vygotsky (Cole et al., 1978; Vygotsky, 1926/1997), and the proposed value of using word walls to teach vocabulary in the middle school grades (Harmon, Wood, Hedrick, et al. 2009; Harmon, Wood, & Kiser, 2009). This chapter includes the background, importance, and description of the proposed study, the research questions, conceptual and methodological design of the study, method of data collection, data analysis, consent and confidentiality measures, and the delimitations and limitations of the study.

Conceptual Framework

Research has shown that learning new vocabulary words enhances reading comprehension among students. Traditionally, as students are promoted to the middle

school grades, structured reading instruction diminishes. However, effective literacy leaders seek to find the most effective strategies to help their students learn vocabulary. A print-rich environment, rich instruction, and student interaction are instructional components that elementary teachers often embrace; however, middle school teachers tend to teach using independent learning and memorization of material, including new vocabulary words. Gains in student learning may be realized if middle school teachers employ more effective teaching strategies in exchange for memorization and independent learning.

Harmon, Wood, and Kiser (2009) conducted a study in which effective vocabulary instruction, social interaction, and word walls were used to identify gains in vocabulary learning. Within the study, one of the major components of the assessment was the students' choice of words to be learned. However, not all schools have the freedom of allowing students to choose their own words to learn. Many schools require the use of an established curriculum, with little deviation. As a result, student choice was not allowed in this present study. All of the students used the same words that were prescribed within their established curriculum and grade level.

Although Harmon, Wood, and Kiser (2009) stated that social interaction, student choice of vocabulary words, and the use of interactive word walls for vocabulary learning were effective ways to increase vocabulary learning, the authors failed to state the measuring tool that was used to make this claim. Their findings and conclusions were based on the main effect of the data only. This current study employed measures that

went beyond the main effect and measured specifically the effects of using effective teaching strategies, social interaction, and interactive word walls to teach vocabulary.

This study was designed to assess the effectiveness of using interactive word walls to teach vocabulary words to middle school students. The design of the study was based on the findings of multiple researchers. Research has demonstrated that vocabulary and reading comprehension are related (CIERA, 2003; NRP, 2000; Stahl & Nagy, 2006). Also, the importance of vocabulary is clearly established (Beck et al., 2002; Stahl & Nagy, 2006; Wasik, 2006), and researchers support the need to teach vocabulary in all classrooms (Graves, 2006; Pearson et al., 2007; Wasik, 2006; Yopp & Yopp, 2007).

As a result of the connection between reading comprehension and learning vocabulary, the most effective teaching strategies must be determined for teaching vocabulary. Research revealed five of the most effective teaching strategies that may be used to teach vocabulary in the classroom (Beck et al., 2002, 2008; Blachowicz & Fisher, 2004; Blachowicz et al., 2006; Cambourne, 2000; Graves, 2009; Gunning, 2000; Harmon, 1998; McKeown et al., 1985; Nagy, 1988; Pressley et al., 1982; Tao & Robinson, 2005; Wagstaff, 1999) Those strategies are using a print-rich environment, allowing students to create their own definitions, using words in context, enhancing student engagement, and encouraging students to make associations. Collectively, these strategies provide a powerful vocabulary presentation; however, research indicates that elementary teachers use these strategies consistently, but middle school teachers tend to depend on independent learning for their students.

Another technique that has shown to be effective in instruction is social interaction (Gunning, 2000; Vygotsky, 1926/1997; Wink & Putney, 2002). Researchers have claimed that social interaction plays a pivotal role in student learning. They also claimed that students gain a better understanding of vocabulary words when they worked together and interacted socially (Gunning, 2000; Harmon, Wood, Hedrick, et al. 2009). Elementary teachers often embrace student interaction more often than do middle school teachers (Blachowicz et al., 2006; Dykes & Thomas, 2010; Harmon, Wood, Hedrick, et al. 2009). Consequently, middle school students may not be receiving the most effective methods of vocabulary instruction.

In an effort to determine the most effective ways to teach vocabulary to middle school students, combining research-based teaching strategies and social interaction seems to be an excellent opportunity for teachers. However, this task may seem overwhelming and difficult to accomplish. Consequently, finding a tool that embraced all of these strategies and was a realistic option for teaching vocabulary to middle school students was advantageous. The word wall strategy seemed to be an instructional strategy that combined research-based strategies and allowed for utilization of social interaction.

Research indicated that word walls provide a print-rich environment for a classroom as a visual reminder of the material being learned (Baumann et al., 2007; Brabham & Villaume, 2001; Bukowiecki, 2006; Fisher et al., 2007; Hall & Cunningham, 1999; Rycik, 2002). Because word walls are visual reminders of new material, it stands to reason that content clues, student-created definitions, student engagement, and student

identified associations may be applied to word walls. Research is limited in this area, and most of the available research has been conducted at the elementary level (Baumann et al., 2007; Berne & Blachowicz, 2008; Ellison et al., 2005; Hall & Cunningham, 1999; Jasmine & Schiesl, 2009; Rycik, 2002; Tao & Robinson, 2005; Wagstaff, 1999). Additionally, few studies have been conducted on the effects that word walls have had specifically on vocabulary learning.

An even lesser researched area is the effect that word walls have had on vocabulary learning of middle school students. Some research demonstrated the value that word walls may have in middle schools (Harmon, Wood, Hedrick, et al. 2009; Harmon, Wood, & Kiser, 2009). Interestingly, Harmon, Wood, Hedrick, et al. (2009) also included in their study the social interactive component proposed by Vygotsky (Cole et al., 1978; Vygotsky, 1926/1997). However, within these studies, student choice of vocabulary words was a major component, and this practice is not always feasible. Also, the strength of these studies was the qualitative portion which explored teacher and student knowledge, expectations, and responses to the word wall used in the classroom. Research has demonstrated that word walls are effective in teaching at the elementary level, and some research demonstrated their effectiveness in teaching vocabulary. Limited research is available that demonstrated the use of word walls at the middle school level, and even fewer studies have been conducted on using word walls to teach vocabulary. Even narrower is the research that has combined effective teaching strategies and social interaction through the use of word walls to teach vocabulary to middle school students. As a result, this study used word walls as the focus tool that

combined effective teaching strategies and social interaction to teach vocabulary to middle school students.

Research Questions

The purpose of this study was to identify an effective way by which teachers can assist middle school students in learning new vocabulary. The following research questions framed the current study.

1) Given that interactive word walls seem to be an effective strategy to teach new concepts to elementary students, will middle school students who experience interactive word walls perform differently on immediate vocabulary measures?
2) Will middle school students who experience interactive word walls perform differently on delayed vocabulary assessment measures?

Methodological Design

Interactive word walls seemed to be an effective teaching tool for teaching new vocabulary words to elementary school students, and measuring their effectiveness with middle school students was imperative. To accomplish this goal, a quasi-experimental research design with a clear intervention was selected. Because this study sought to measure the differences in the outcomes of a control group and an intervention group, a quantitative analysis was appropriate for this study. However, a simple group comparison was not feasible in this setting. All of the seventh grade English students were taught by the same teacher, and a different teacher taught all of the eighth grade English students. Also, the interactive word wall is by design visual; consequently, the intervention group and the control group were required to be in different classrooms.

These differences required two teachers for the study and resulted in students of different ages participating in study. As a result, a discriminant analysis was conducted on the data collected from the study. A discriminant function analysis creates a predictive model that is used when the members of a group are known. For this study, the specific population used was chosen because of the limited research available that reports data for using interactive word walls in the middle school grades. Harmon, Wood, Hedrick, et al. (2009) conducted a study in which interactive word walls were used in middle school grades; however, the strength of their study was the qualitative portion, not the quantitative portion. As a result, a void exists in the quantitative research about using interactive word walls in the middle schools.

Population and Setting

The population for this study was seventh and eighth grade middle school students. This particular population was chosen because the literature indicated a gap in the research that has been conducted on this population.

The setting chosen for this study was the middle school grades of a large K-12 private school in Northeast Florida. One hundred forty three students attended the seventh and eighth grades in the school. This specific middle school was chosen because of the middle school context, the cooperation of the school leaders, and the accessibility I had to the school. Given the nature of the study and the availability of the participants, this setting was appropriate for this research study.

Data Acquisition

During the spring of the 2010-2011 school year, a convenience sample of two groups of middle school students was recruited for this study. The control group was comprised of 67 eighth grade middle school students divided among four English classes. The intervention group consisted of 57 seventh grade middle school students divided among four English classes. The middle school classes were set up so that each teacher instructed primarily one grade level of all of the middle school students. One teacher instructed all of the eighth grade English students, and another teacher instructed all of the seventh grade English students. The teachers had their own classrooms, and the students attended class in that particular teacher's room. If only one teacher were used for the study, all of the students would have been exposed to the word wall. Given the visual component of the study, it was not feasible for only one teacher to be used in the study. As a result, two teachers were used for this study, the control group of eighth graders, and the intervention group of seventh graders.

The Intervention

Before the intervention began, it was necessary that each of the teachers involved in the study was clear about their responsibilities during the implementation of the study. First, I met with the control group teacher. I explained to her that she would continue providing instruction in the same way as she had throughout the year. Her instruction remained the same throughout the study, without the use of a word wall or any of the strategies being used by the intervention teacher.

Next, I met with the teacher of the intervention group and explained the significance of the five research-based effective teaching strategies. I also discussed the theory behind the importance of social interaction. Finally, I presented the word wall tool that combined these two components of the study. Once the foundation was in place, I described each of the activities that I wanted her to use throughout the study. I allowed her to ask questions, and I was confident that she had a clear understanding of the study and her role in its implementation. At the end of the meeting, we agreed that writing down her plan for implementation would be beneficial to both of us. Approximately two weeks following our first meeting, just before the intervention began, we met again. We reviewed the plan she had created, and we made the adjustments necessary. She asked questions for clarification, and as the meeting concluded, we were both confident that the study would be implemented with integrity.

All students in the middle school English classes were assigned 10 new vocabulary words to learn per week. The words were taken from each group's grade-level vocabulary book that was required by the school as part of the English curriculum. The control group received no word wall treatment, and the instruction remained the same as had been used throughout the school year. The intervention group received instruction based on effective teaching strategies, social interaction, and an interactive word wall.

The words the students in the intervention group were learning for each week were introduced at the beginning of each of four weeks, the length of time for the intervention. The first day's activity was a requirement for the study, but the remaining

activities for the next three days provided flexibility for the teacher. This flexibility was designed to accommodate for interruptions that occurred during the school week. All of the activities embraced the components of effective teaching strategies. Many of the activities were intertwined with more than one effective teaching strategy. Table 1 presents the relationship between the activities and the effective teaching strategies they embraced. On the final day of the weekly intervention, an assessment was given to all students.

Table 1

Relationship between effective teaching strategies and student activities

	Print-rich Environment	Student Engagement	Definition and Context	Associations	Social Interactions
Student's own definition displayed	X	X	X		X
Words written on colored sentence strips	X	X		X	X
Contextual sentence written	X	X	X	X	X
Student situational example provided	X	X	X	X	X
Picture drawn that represents the word	X	X		X	X
Oral presentation given		X			X
Students' creations shared with other groups	X	X	X	X	X

Note. All activities are conducted in small groups

Print-Rich Environment

A print-rich environment is integral to establishing an environment that is conducive to learning (Cambourne, 2000; Tao & Robinson, 2005). However, researchers have found that interaction with the print-rich environment was more effective than simply displaying print within the classroom, and student interaction with the environment enhanced vocabulary learning (Blachowicz et al., 2006; Graves, 2009; Hall

& Cunningham, 1999; Spencer & Guillaume, 2006). For this study, all of the creations made by the students were placed on the wall in the classroom so that the students could interact and reference the print as they learned their new vocabulary words. This practice satisfied the print-rich component of effective vocabulary instruction.

Active Student Engagement

For vocabulary instruction to be effective, students must be actively engaged in the learning process (Beck et al., 2008; Berne & Blachowicz, 2008; Blachowicz et al., 2006; Coyne et al., 2007; Hall & Cunningham, 1999; McKeown et al., 1985; Nagy, 1988; NRP, 2000). In this study, students actively engaged in several ways. First, all of the activities required students to write their own definitions on word strips and display them on the wall. Next, the students presented their creations to the class and explained the purpose for each. Additionally, the students talked among themselves as they determined the best definition, picture, or other graphic depiction of the words they were assigned that was to be placed on the word wall. Many students created an acrostic that used each letter of the vocabulary word to either define that word or make another word that connected them to the meaning of the word. Some students chose to present a dramatic presentation for one or more of their words. All of these activities provided opportunity for the students to be active in their learning, which allowed them to make learning more meaningful.

The goal of student engagement is to involve students in the learning process instead of the teacher simply presenting words and definitions to the students and

requiring the students to memorize them. The aforementioned activities actively engaged the students in the learning process.

Student Definitions and Vocabulary in Context

The literature review revealed the strength in allowing students to create their own definition of the words they are learning (Beck et al., 2002, 2008; Graves, 2009). In addition, working with words within appropriate contexts is a valuable tool to enhance vocabulary learning (Graves, 2007; Nagy et al., 1987; NRP, 2000). To engage students in these activities, students used the definition supplied by the publisher of their vocabulary book and the dictionary to create a working definition that made sense to them. The definitions were created collectively by the members of each group. Students then wrote their definitions on a word strip and displayed them on the word wall in the classroom. In addition, the students wrote a sentence for each word that thoroughly conveyed the meaning of the word. These sentences were written on construction paper and placed on the wall under the word strips that were placed on the wall previously. These activities met the requirements for students writing their own definitions, writing and using words in context, and it also further enhanced the print-rich environment needed for effective vocabulary instruction.

Making Associations

Researchers have repeatedly reported the need for students to make connections to the material they are learning so the material will make sense to the students (Beck et al., 2002, 2008; Cunningham, 2000; Gunning, 2000; Harmon, 1998; Nagy, 1988; Rosenbaum, 2001). Associations can be made in multiple ways, and choices were given

to the students so they could use the method that made the most sense to them. For example, the students were required to write their own created definitions for each word. These definitions were placed on colored word strips that in some way reminded them of their vocabulary word. As a variation, the students often created an acrostic using words for each letter that defined the given vocabulary word. In addition, some students decided to cut around the sentence strip into a shape that reflected the meaning of the word. Other choices students made for making an association were that they drew a picture that depicted the meaning of the word, demonstrated a play on the word, or provided an image of a situation in which the word may be used. To engage students further, the teacher often requested that students explain the purpose for the symbol or drawing they had chosen for a given word. This practice further deepened the learning of the students. The colored sentence strips and any other designs or pictures used for the vocabulary words were placed on the word wall for others to view and use as a reference.

Social Interaction

According to Vygotsky's theory of social interaction, development occurs first through interaction with others; however, that interaction is further enhanced as students make meaning of the material they are learning (Cole et al., 1978; Mahn, 1999; Vygotsky, 1926/1997). Consequently, for this study, all activities were conducted in small groups. This practice allowed students to interact with and share each other's background knowledge. It also allowed the opportunity for them to synthesize material and collectively decide the definition, drawing, color, or symbol to use. An additional social interaction opportunity was provided as students presented their creations to the

class. Students were allowed to present their work in any format they chose. Their presentations may have included drama, or they may have explained a situation or experience in which a particular vocabulary word connected with the students' prior knowledge. Another option available to the teacher and students was to allow students to visit other students so they could share their creations with others. All of these interactive activities embrace Vygotsky's theory of social interaction.

Word Walls as a Tool

A word wall is a display of words on the wall or bulletin board of a classroom that is used as a visual reminder of material that is being learned (Baumann et al., 2007; Brabham & Villaume, 2001; Bukowiecki, 2006; Fisher et al., 2007; Hall & Cunningham, 1999; Rycik, 2002). However, simply displaying the new vocabulary words on the word wall is not sufficient; students must interact with the word wall (Cambourne, 2000; Cunningham, 2000; Ganz, 2008). A word wall with which students interact encompasses all of the components of effective teaching strategies and social interaction. In this study, the word wall is the tool that ties together effective teaching strategies and social interaction. As the students created their own definitions, wrote their own contextual sentences, used color, created a picture or symbol, designed a dramatic presentation, worked in small groups, made presentations, and placed their work on the word wall, all components of effective vocabulary instruction and social interaction were fulfilled. The word wall simply tied the effective teaching strategies to the interactive visual component.

Assessments

For this study, six assessments, all in the same format, were administered to the students: one pre-assessment, four weekly assessments, and one delayed assessment. All assessments followed the same format throughout the study, and the words used were from each group's respective grade-level vocabulary books. Each week, 10 new words were assigned. One week before the intervention began, the pre-assessment was administered to the students in both the control and intervention groups. The words used were the 10 new words that the students were learning for that week, and the words were taken from each grade level's respective vocabulary book. The second assessment was a repeated measure that was administered weekly following each week of intervention for a total of four weekly assessments. The 10 words used for each weekly assessment were taken from each group's respective grade-level vocabulary books, and the words were newly assigned each week. The final assessment was a delayed assessment that was administered four weeks following the final weekly assessment. Words for the delayed assessment were selected from each group's vocabulary lists that they had used for the prior four weeks of the intervention stage. In other words, 10 words were randomly selected from the 40 words that had been assigned over the prior four weeks during the intervention. The control group's delayed assessment was comprised of eighth grade words, and the intervention group's words were seventh grade words.

The format for all of the assessments was two-fold and embraced a definition and sentence portion. The definition and sentence portions were worth 20 points each, for a total of 40 possible points on the complete assessment. First, students wrote their own

definition of each of the ten new vocabulary words assigned for that week. The grading of the first component was based on the actual definitions of the words, which were provided by the intervention and control group teachers. If the definition for each given word was correct, two points were awarded. If the student did not define the word, zero points were awarded. A total of 20 points were possible for this portion of the assessment.

For the sentence portion of each assessment, the students were required to write a sentence demonstrating their level of knowledge of each vocabulary word. The grading of the second component was based on research regarding the levels at which students may know vocabulary words. For students to know the meaning of a word, they must know the correct way to express themselves by using those words effectively in their own writing and speech (Blachowicz et al., 2005). Multiple researchers have offered various ways to measure the levels at which students know vocabulary words. For example, Blachowicz et al. (2005) suggested that word knowledge is either receptive or expressive, but no method of measuring word knowledge was suggested. Beck et al. (1987) offered that vocabulary knowledge was on a continuum, ranging from no knowledge to rich knowledge. Although the continuum was a logical option, it seemed to be vague and did not identify a specific way in which to measure a student's knowledge of new vocabulary words.

However, the authors of *Put Reading First* (CIERA, 2003) built upon the Beck et al. (1987) continuum and offered three degrees of word knowledge: "unknown, acquainted, and established" (p. 43). The authors further explained the three levels by

stating that the acquainted degree indicates that students only vaguely know the word, and the established degree is the level at which a student accurately uses the word. The suggested three levels or degrees of word knowledge seemed to be the most logical for this study. As a result, this study used the three levels of word knowledge as offered by the authors of *Put Reading First* as the assessment tool for the second component of the weekly vocabulary assessment.

Using the three degree assessment tool (CIERA, 2003), students were required to write a sentence that demonstrated the level of knowledge at which they knew each word. Students who wrote sentences that demonstrated that they did not know the meaning of a word, or if they wrote no sentence at all, were given zero points for that word. Students whose sentences suggested that they were simply acquainted with the word received one point. Two points were awarded to those students whose sentences demonstrated their established knowledge of the vocabulary word. This portion of the weekly assessment was worth a total of 20 points.

The final assessment was a four-week delayed assessment. The purpose was to analyze the students' retention of the vocabulary words for both groups in the study. The four-week timeframe seemed to be a logical choice for the delayed assessment. In their study of word walls, using student choice of words, Harmon, Wood, and Kiser (2009) conducted a two-week delayed assessment for the words the students had learned during the intervention phase of the study. Although a two-week delayed assessment was appropriate, I determined that a four-week delayed assessment may yield different results. For this delayed assessment, ten words were randomly selected from the four

vocabulary lists that the students had used throughout the intervention stage of the study. The control group was assessed on their eighth grade level words, and the intervention group was assessed on their seventh grade level words. The students wrote their own definition and a sentence to demonstrate their level of knowledge of each word, the same structure as the prior assessments. Each correct definition was worth two points, and each sentence was assessed zero to two points, using the same scoring levels as used in all prior assessments, for a total of 40 possible points. Although knowing definitions and being able to use words are one goal of learning new vocabulary, the delayed assessment helped determine the retention of the information the students had learned, the ultimate goal of teaching vocabulary.

On important component of the weekly and delayed assessments was the access to the words by the intervention group during the assessments. I understood that allowing students in the intervention group to have access to the word wall during the assessments would be advantageous. Consequently, the intervention teacher and I agreed that the students would not have access to the word wall during the assessments. Before each weekly assessment, the intervention teacher placed large bulletin board paper over the word wall to prevent student access to the words and the student creations. After each assessment, the paper was removed. This practice continued for the duration of the intervention. For the four weeks after the intervention, and before the delayed assessment, the intervention teacher continued using the strategies she had used for the intervention. As the students completed their creations for that week's words, those creations replaced the existing creations on the word wall. By the end of the four weeks

following the final intervention week's assessment, none of the creations from the intervention remained on the word wall. As a result, the delayed assessment was given without assistance from the word wall.

Although the intervention teacher continued to use the teaching strategies she had practiced during the intervention, she only used the new words that the students were assigned for each week after the intervention concluded. Given that no review of the words used during the intervention was given before the delayed assessment, I contend that this had little or no effect on the findings on the delayed assessment.

Before the study began, I discussed the assessments in detail with both the control and intervention teachers. After our discussion, we agreed that the assessments used for the study would not be a part of the students' grades. However, the teachers added their own section of an assessment that would be used for the students' grades. This assessment reflected the same format as the students had experienced throughout the school year. The assessments for the study were not graded; only the teachers' added questions counted as grades.

The weekly assessments and delayed assessment were rated by trained, experienced middle school teachers. I provided training to the five teachers which continued until the teachers and I were confident that the grading would be conducted successfully and appropriately. Using sample student-created definitions and sentences that were written by two classes of middle school students, the raters and I applied the rating levels that were used in the study. After a sufficient number of examples were provided, and the raters had experienced consistent agreement on scores, it was

determined that the rating of the assessments from the study would be administered consistently and successfully.

The control group and the intervention group were assigned two raters each throughout the study. The fifth trained rater was reserved as the final decision maker, in the event the two raters of a group disagreed on the rating of a particular definition or sentence. The purpose of using these raters was to provide consistent scoring throughout the study. Because words have multiple meanings, the teachers from the control and intervention groups provided the definitions for all of the words that were taught for each group. The definitions were from the vocabulary curriculum that was required for use at the school in which the study was conducted. Although these definitions were provided, the raters understood that the definitions on each assessment were to be written in the students' own words. The book definitions simply narrowed the focus of the definition and instruction for the week. After the two raters for each group had rated the words and definitions, I went through each assessment and highlighted the definitions and sentences on which the two raters disagreed. I then gave those assessments to the fifth rater, and she made the final decision. Throughout the study, approximately 20% of the definitions and sentences combined needed the attention of the fifth rater.

Data Analysis

While determining whether or not a difference existed in the performance of the two groups in this study was a worthy pursuit, perhaps of equal value was the predictive nature of the results. The purpose of this study was to determine the effectiveness of using interactive word walls to teach vocabulary words to middle school students.

Ultimately, the goal was to assess word wall effectiveness for future use in the classroom. To accomplish this goal, a discriminant analysis was used to analyze the data for all assessments. A discriminant analysis uses the existing data to predict into which of the two study groups the data fall (George & Mallery, 2007). Using the outcome of the predictive model, classification results are determined, and the number of cases that are classified correctly is reported.

Often, students miss school for various reasons. Additionally, some students may not complete the study for numerous reasons. For this study, the scores of any student who missed more than one weekly vocabulary assessment were not included in the study's data. In the event that a student withdrew from the study, those data were also eliminated. All missing data were reported in the final analysis.

All data collected from both groups were analyzed using the PASW (formerly SPSS) Statistics 18. All data were stored on a flash drive that was kept in a locked filing cabinet in my office.

Consent and Confidentiality

The first step to begin this study was to obtain permission from the Institutional Review Board (see Appendix A). Following receipt of IRB approval, the process continued by identifying those individuals whose permission, consent, and assent were needed. This study was conducted in the middle school of a large, private school in Northeast Florida. The organizational structure begins with a leader who oversees all of the ministries within the organization, and the K-12 school is one of those ministries. An administrator oversees both the lower and upper divisions of the entire school, which

includes the middle school. The upper division employs a principal who has charge of the middle school and high school. Because of this organizational structure, permission for this study was obtained from the organization's leader, the school administrator, and the principal of the upper division of the school. Additionally, the two teachers in whose classrooms the research was conducted were provided a form for their consent as well. Because the participants in the study were minors, consent forms were obtained from the parent of each student participant. The students in this study were legally incapable of giving their informed consent; however, they had the ability to assent or dissent. Out of respect for these students, assent forms were obtained from each student who participated.

One component that was omitted from the parental consent form and the student assent form was the information regarding the delayed assessment that occurred four weeks following the final weekly assessment. Given that the delayed assessment was designed to measure the students' retention of the vocabulary words, alerting the parents or students of the delayed assessment might have caused some students to study which would, in turn, have skewed the test results. The delayed assessment was acknowledged in the principal and teachers' consent forms, and I verbally relayed to the principal and teachers that the omission of this information had occurred.

The consent forms were personally delivered to the participating teachers by me. The parental consent forms were sent home with the students for the parents to review. These consent forms were returned to the classroom teacher and were put in a sealed envelope. I personally retrieved them from the teacher after they had been collected.

Student assent forms were provided for the students. To prevent the appearance of coercion by the teacher, I gave the student assent forms to the potential participants. I met in a general assembly with all of those being invited to participate and explained the study to the students. The students had the opportunity to ask questions, and following the explanation of the assent form and the students' questions, I invited the students to sign their assent forms. The students were requested to fold their assent forms and place them in a box that I provided. I retained both the consent forms and the assent forms in my office in a locked filing cabinet. All original consent and assent forms will be retained and kept in a locked filing cabinet in sealed envelopes for a period of three years after the study is completed.

After I received the parental consent forms and the student assent forms, I confirmed that both forms had been received from each student who was to participate in the study. From these forms, I created a master list of all participants, and the master list was given to the participating teachers. The teachers were then aware of those students who would participate in the study. Although all students were given the assessments throughout the study, this master list assured that the teachers reported data only from the students who participated. I created a spreadsheet in which the data from the study was input. All students were assigned a number by the teacher to be used throughout the study, and the teachers instructed the students to use only those numbers throughout the study. These numbers were never in my possession, and I was never privy to that information.

For all of the assessments, the students did not use their names on their papers, only the number that was assigned to them by the classroom teachers. After each weekly assessment, I retrieved the completed assessments from the teachers, which were in a sealed envelope. I made copies of the assessments for each grade level, placed them in a sealed envelope, and distributed them to the appropriate raters for review. I personally returned the originals to the classroom teachers the same day of the assessment. After the raters reviewed the assessments, the copies were placed in a sealed envelope and personally returned to me. I then checked the ratings of both raters for each group to determine if any scores needed the attention of the third rater. For example, if one rater gave a score of a one to a student and the other rater gave a two, the third rater made the final determination. Any papers given to the third rater were delivered and returned in a sealed envelope. After I calculated the final scores for each participant, the raw scores were placed in a spreadsheet. The data were kept on a flash drive and placed in a locked filing cabinet in my office. As a final component of confidentiality, all assessments were shredded after the data were analyzed. Because no names were used, neither I nor the raters had the ability to identify the participants in the study.

An additional area to address is the consent forms which were given to me after they had been signed by the parents, and the assent forms that were signed by the students. Although the names were on the consent and assent forms, no identifiers were available that associated the students' names with any academic information, assessment, or performance scores, further ensuring confidentiality.

Delimitations and Limitations of the Study

Several delimitations of this study were evident in the design. First, the study only included middle school students from a private school; no public schools were included. Additionally, this study was designed to combine multiple strategies to determine their effectiveness in teaching vocabulary to middle school students. It was not feasible to separate all of the components in this particular study for evaluation. Additionally, although teacher pedagogical style and presentation may have affected the intervention's outcome, this current study did not focus on that aspect of the process.

Three limitations set the parameters on the application of this current study. As previously stated, only students from a private school were included in this current study. Often, the population and diversity of students in a private school setting differ from those in many public school settings. As a result, generalizability of the findings of this study to the public schools may be impacted. Next, the only participants in the intervention group were seventh graders, and the control group was comprised of only eighth grade students. Additionally, the words that each group learned were taken from their respective grade level vocabulary books that were required by the school in which the study was conducted. Consequently, the control group used words from their eighth grade vocabulary books, and the intervention group used words from their seventh grade vocabulary books. Because all seventh graders were taught by the same teacher, and all eighth graders were taught by a different teacher, random selection was not possible. A final limitation was the four-week delayed assessment that followed the intervention. A longer period of time between the intervention and the delayed assessment might have

been more advantageous; however, the timeframe for the school year did not allow for more than a four-week delayed assessment.

Chapter Summary

This chapter described the methodological aspects of the research study. It included the background, importance, and description of the study, the research questions, conceptual and methodological design of the study, method of data collection, data analysis, consent and confidentiality concerns, and the delimitations and limitations of the study. Chapter Four provides an overview of the data analysis, and a detailed analysis is offered for each research question. Finally, a summary of the analyses concludes the chapter.

Chapter Four: Data Analysis

Teaching reading is a complex task that requires teachers to learn the most effective methods for teaching reading in the classroom. One component of reading instruction is vocabulary. Middle school teachers often tend to use strategies to teach vocabulary that simply require students to memorize vocabulary words; however, elementary school teachers effectively use interactive word walls to teach multiple concepts and even vocabulary to their students. The purpose of this study was to examine the effects of using interactive word walls to teach vocabulary to middle school students.

Overview of Data Collection

Before this study began, 143 middle school students were invited to participate. Eighteen of the students failed to provide a signed informed consent form from their parent, and one student chose not to assent to the study, leaving 124 participants to participate. The control group of eighth graders included 67 participants, while the intervention group was comprised of 57 seventh grade students. The number of participants for each weekly assessment varied as a result of some students being absent on the day of the assessment. As a result of one student withdrawing from school before the study ended, the student did not complete the delayed assessment.

To establish a baseline from which to measure the students' vocabulary knowledge, a pre-assessment was administered. Using the identical format as all of the

weekly assessments that were to follow, a pre-assessment was administered to all students. The assessment used the new vocabulary words the students were assigned during that week of regular instruction, and each grade level used their respective vocabulary books. This pre-assessment established the baseline of knowledge for the students on the two components of the weekly assessments, word definition and word sentence.

After the teachers in both groups administered the pre-assessment, the intervention phase of the study began. During this phase, the control group teacher continued her usual method of instruction without the use of a word wall, and the intervention teacher began instruction using the word wall tool that combined effective teaching practices with social interaction. For four consecutive weeks, the word wall intervention was administered. Following each week of intervention, an assessment was given to both the control and intervention groups. Four weeks following the final weekly assessment, a delayed assessment was given to both groups. Ten vocabulary words were chosen at random for each group's delayed assessment, and the words were selected from the words that were used in the prior four weeks of assessments. The assessments were comprised of two components, word definition and word sentence. For the word definition, students were required to write their own definition of each vocabulary word. For the word sentence portion, students wrote a sentence that demonstrated their level of knowledge for each vocabulary word. The pre-assessment, weekly assessments, and the delayed assessment were administered using the identical same format, and a total of six vocabulary assessments were administered.

Throughout the study, five middle school teachers rated the assessments. For both the control and intervention groups, each definition was valued at two points, and each definition was valued at two points. Ten words were used, so the total assessment was valued at 40 points, 20 points for the definition portion, and 20 points for the sentence portion. Two raters were assigned to the same group throughout the study. After each set of two raters reviewed the assessments, I highlighted any definitions or sentences in which the raters did not agree. At that time, the fifth rater reviewed those assessments and made the final decision. Overall, approximately 20% of the words and definitions collectively were reviewed by the fifth rater for a final scoring decision.

Data Analysis

To analyze the data gleaned through this study, a discriminant analysis was conducted in order to determine potential predictors of student performance on vocabulary knowledge under the interactive word wall intervention. According to George and Mallery (2007), discriminant analysis is "used primarily to predict membership in two or more mutually exclusive groups. The procedure for predicting membership is initially to analyze pertinent variables where the group membership is already known" (p. 278). Results for this analysis are divided in this chapter according to each research question.

Research Questions Addressed

The purpose of this study was to determine the effects that interactive word walls had on middle school students' learning of new vocabulary words. The following

research questions framed the study. Each research question will be addressed individually.

Research Question One

Given that interactive word walls seem to be an effective strategy to teach new concepts to elementary students, will middle school students who experience interactive word walls perform differently on immediate vocabulary assessment measures? To answer the first research question, a discriminant analysis was conducted on each assessment, beginning with the pre-assessment through the final weekly assessment, for a total of five analyses. Each analysis included two portions, the definition and sentence portions, which were the predictors of word walls as effective teaching strategies to improve vocabulary learning. The purpose was to determine the ability to classify cases into groups correctly when group membership was already known.

Given that two predictors were used in the discriminant analyses, descriptive statistics are provided for each predictor for each of the five assessments. Table 2 shows the group statistics for the definition portion of each of the five analyses and includes the number of participants, the means, and the standard deviations of the predictors within the two groups for each assessment.

Table 2

Group Statistics Weekly Definition Assessment

	Intervention		Control	
	n	*M* (*SD*)	*n*	*M* (*SD*)
Pre-Assessment	57	8.25 (4.86)	67	14.48 (4.28)
Week One	54	12.48 (3.15)	66	15.30 (4.01)
Week Two	53	8.75 (4.41)	63	15.97 (3.47)
Week Three	57	11.96 (4.15)	67	14.99 (4.17)
Week Four	57	10.84 (5.03)	67	17.88 (3.41)

As shown in Table 1, the means for the control group were higher for each of the five assessments. With the exception of the Week Two assessment, the means for the intervention group tended to increase appreciably over time. From the pre-assessment mean score of 8.25 to the week four assessment mean of 10.84, the intervention group scores increased by 2.59 points. However, the same can be said of the control group. In the control group, the pre-assessment mean score was 14.48, and the Week Four assessment was 17.88, an increase in the mean scores of 3.4. The standard deviations throughout all assessments remained relatively consistent between groups. The standard deviations were not consistently larger for either group throughout the assessments. In other words, the greater standard deviation alternated weekly between the two groups.

Table 3 shows the descriptive statistics for the sentence portion of the five assessments. The table includes the number of participants, the means, and the standard deviations of the predictors within the two groups for each assessment.

Table 3

Group Statistics Weekly Sentence Assessment

	Intervention		Control	
	N	*M* (*SD*)	*n*	*M* (*SD*)
Pre-Assessment	57	8.14 (4.24)	67	12.33 (3.93)
Week One	54	11.07 (3.60)	66	13.20 (4.49)
Week Two	53	6.92 (4.02)	63	12.67 (3.61)
Week Three	57	10.65 (3.99)	67	10.34 (4.44)
Week Four	57	10.23 (4.31)	67	12.82 (3.61)

The statistics in Table 3 indicate that the control group outperformed the intervention group on every assessment except for the Week Three assessment; however, the difference in the means of the Week Three assessment was small. The mean of the intervention group for the pre-assessment was 8.14, and the mean for the Week Four assessment was 10.23. This indicates an increase in the mean score of 2.09. Although the mean score of the control group also was higher on the Week Four assessment (M = 12.82, SD = 3.61) than on the Pre-Assessment (M = 12.33, SD = 3.93), it was not as noticeable as the increase in the mean scores of intervention group using the same comparison.

The discriminant analyses also yielded the Wilks' Lambda results for each of the five assessments. The Wilks' Lambda demonstrates the amount of variance for which the classification model accounts. For each of the five assessments, the Wilks' Lambda was statistically significant ($p < .05$). Table 4 illustrates the results of all five of the analyses.

Table 4

Wilks' Lambda

	Wilks' Lambda	Sig.	Percent
Pre-Assessment	0.68	.001	32
Week One	0.87	.001	13
Week Two	0.53	.001	47
Week Three	0.78	.001	22
Week Four	0.54	.001	46

As shown, Week Two and Week Four demonstrated the highest percentage of variation for which the classification model accounts (47% and 46%, respectively). The results from Week One showed the lowest percentage of variance for which the classification model accounted (13%). However, all of the weekly contributions to the classification model were found to be statistically significant ($p < .05$).

Analysis of the discriminant function coefficients provided evidence of the degree of contribution of each of the discriminating variables, definition and sentence, to the explained variance. Table 5 shows the results for the contribution of each variable for each of the five assessments.

Table 5

Standardized Canonical Discriminant Function Coefficients

	Function 1
Pre-Assessment	
Definition	.99
Sentence	.75
Week One	
Definition	1.04
Sentence	-.06
Week Two	
Definition	.79
Sentence	.29
Week Three	
Definition	1.35
Sentence	-.98
Week Four	
Definition	1.35
Sentence	-.61

The pre-assessment analysis illustrated that the highest contribution to the variance of the predictive equation was the definition portion of the assessment (Discriminant Function Coefficient = .99). However, the sentence portion of the pre-assessment was also appreciably high and must be noted (Discriminant Function Coefficient = .75). The weekly assessment results yielded findings that were quite different from the pre-assessment results. The results of each of the four weekly assessments demonstrated that the definition portion of each assessment provided the highest contribution to the variance of the predictive equation (Discriminant Function Coefficients = 1.04, .785, 1.35, 1.35 respectively). However, with the exception of Week Two, the findings of the sentence portion of each assessment demonstrated that the coefficients were negatively

weighted in their contribution to the discriminant function (Discriminant Function Coefficient = -0.59, -.98, -.61 respectively). Week Two demonstrated a positive contribution to the discriminant function (Discriminant Function Coefficient = .29), which was significantly smaller than the contribution of the definition portion for that weekly assessment. Overall, the variable that contributed the greatest weight to the discriminant function was the definition portion of the assessments.

The structure coefficient analysis identifies which variable contributed more to the separation of the means of the two groups and is used to predict group membership. Table 6 shows the Structure matrix for the pre-assessment and the four weekly assessments.

Table 6

Structure Matrix

	Function 1
Pre-Assessment	
Definition	.99
Sentence	.75
Week One	
Definition	.99
Sentence	.67
Week Two	
Definition	.98
Sentence	.80
Week Three	
Definition	.69
Sentence	-.07
Week Four	
Definition	.90
Sentence	.36

For all assessments, the definition portion contributed more to the difference in the means between the two groups than the sentence portion. However, with the exception of Week

Two, the contribution of the sentence variable tended to decrease over time. Notably, Week Three sentence portion reported a near-zero negative contribution (Structure Coefficient = -.07), the lowest week reported. Week Three also represents the lowest contribution of all of the assessments for the definition portion. Generally, the definition contribution was higher than the sentence contribution for each week and remained consistent over time. The sentence portion's contribution generally decreased over time.

The goal of the discriminant analysis is to create a model that will predict group membership. The discriminant classification results report the predicted group membership and percentage of those that were classified correctly. To calculate the percentage of those classified correctly, the predicted number of members for each group is divided by the actual *n* of both groups. For example, in Table 7, the predicted *n* for the intervention group was 40. The predicted *n* for the control group was 51. These numbers combined total 91. When that predicted *n* is divided by the actual *n*, 124, the total predicted classification percentage is 73.4%. This analysis is important because it compares the actual group membership to the predicted group membership created by the predictive equation. If the predictive equation is accurate, the percentages of the predicted group membership will be high. In other words, the predictive equation accurately predicted group membership of the actual groups. If the predictive equation is not accurate, the classification percentages will be low, indicating a potential unexpected result. Tables 7-11 show the results for the classification results for the pre-assessment and each of the four weekly assessments.

Table 7

Classification Results Pre-Assessment

		Predicted Group Membership			
		Intervention		Control	
Actual Group Membership	*n*	*n*	%	*n*	%
Intervention	57	40	70.2	17	29.8
Control	67	16	23.9	51	76.1

Note. 73.4% of original grouped cases correctly classified

Table 8

Classification Results Week One Assessment

		Predicted Group Membership			
		Intervention		Control	
Actual Group Membership	*n*	*n*	%	*n*	%
Intervention	54	31	57.4	23	42.6
Control	66	21	31.8	45	68.2

Note. 63.3% of original grouped cases correctly classified

Table 9

Classification Results Week Two Assessment

		Predicted Group Membership			
		Intervention		Control	
Actual Group Membership	*n*	*n*	%	*n*	%
Intervention	53	40	75.5	13	24.5
Control	63	11	17.5	52	82.5

Note. 79.3% of original grouped cases correctly classified

Table 10

Classification Results Week Three Assessment

		Predicted Group Membership			
		Intervention		Control	
Actual Group Membership	*n*	*n*	%	*n*	%
Intervention	57	41	71.9	16	28.1
Control	67	19	28.4	48	71.6

Note. 71.8% of original grouped cases correctly classified

Table 11

Classification Results Week Four Assessment

		Predicted Group Membership			
		Intervention		Control	
Actual Group Membership	*n*	*n*	%	*n*	%
Intervention	57	44	77.2	13	22.8
Control	67	7	10.4	60	89.6

Note. 83.9% of original grouped cases correctly classified

With the exception of Week One results, the predicted membership for both the control and intervention groups was 70% or higher. The grouped cases that were correctly classified for these weeks was also over 70%, with the fourth week reporting 83.9% accuracy. In Week One, 63.3% of the groups were correctly classified, which was slightly lower than the other groups.

Research Question Two

Will middle school students who experience interactive word walls perform differently on delayed vocabulary assessment measures? Learning vocabulary on a weekly basis is valuable; however, student retention of knowledge is a critical component of learning vocabulary that cannot be ignored. As previously stated, a delayed

assessment was administered to both the intervention and control groups four weeks following the last weekly vocabulary assessment of the intervention. A discriminant analysis was conducted on the results gathered from those data. This analysis created a predictive model and classified cases according to the data collected. Classification results reported the number of cases correctly classified using the known group membership.

The descriptive statistics for the delayed assessment for both groups included the number of participants, the means for the assessment, and the standard deviations for each independent variable, definition and sentence (See Table 12).

Table 12

Group Statistics Sentence and Definition Delayed Assessment

	Intervention			Control		
	N	*M*	(*SD*)	*n*	*M*	(*SD*)
Delayed Definition	57	14.28	(3.28)	66	14.33	(3.41)
Delayed Sentence	57	12.0	(3.90)	66	12.67	(4.15)

The mean scores on the delayed assessment for the control group and the intervention group were noticeably similar on both portions of the assessment. A closer look revealed an interesting result. When comparing the mean scores of the definition portion of the pre-assessment for the intervention group ($M = 8.25$, $SD = 4.86$) to the mean scores of the same portion of the delayed assessment ($M = 14.28$, $SD = 3.28$), the means were significantly higher on the delayed assessment. Similar findings were noted for the sentence portion of the assessment. The mean score for the pre-assessment ($M = 8.14$, $SD = 4.24$) was significantly lower than the mean score on the delayed assessment for the intervention group ($M = 12.0$, $SD = 3.9$). However, little difference was noted between

the means for the control group using the same pre-assessment and delayed assessment comparison. For the definition portion of the pre-assessment, the control group reported a mean score of 14.48, with a standard deviation of 4.28. The mean score for the definition portion of the delayed assessment was 14.33, and the standard deviation was 3.41, indicating a decrease in the mean score for the control group. The sentence portion of the assessment for the control group showed little increase in scores when comparing the pre-assessment to the delayed assessment. The pre-assessment mean was 12.33 (*SD* = 3.93), and the delayed mean was 12.67 (*SD* = 4.15), a negligible increase.

The remaining portion of the discriminant analysis included the Wilks' Lambda, discriminant function coefficients, the structure coefficients, and the classification results. Wilks' Lambda was .99, which means that the classification model only accounted for 1% of the overall variance. In other words, little of the explained variance can be attributed to the intervention. The statistical significance reported was .475, which did not meet the criterion ($p < .05$). The discriminant function coefficient for the definition portion of the delayed assessment was -.96, a negative weighting in its contribution to the discriminant function. The sentence portion was stronger in its contribution to the discriminant function with a reported value of 1.44. The structure coefficients for the definition portion (Structure Coefficient = .74) and the sentence portion (Structure Coefficient = .07) showed that the definition portion of the assessment contributed more to the variance in the means. Finally, the classification accuracy results yielded a predictive value of 47.4% for the intervention group, and 60.6% for the control group. The number of the original cases correctly classified was 54.5%.

Chapter Summary

Chapter Four began with an overview of the data collection process and discussed the participants, the intervention, and the classroom assessment process that was used to collect the data. Next, an overview of the data analysis was presented. Following the overview of the analysis, each research question was addressed individually by taking a detailed look at the data used to respond to each question. The discussion for each research question included the results from the discriminant analysis that was used to analyze the data from the study. Each analysis included the descriptive statistics, Wilks' Lambda values, discriminant function coefficients, structure coefficients, and the classification results for each weekly assessment administered in the study. Chapter Five examines in detail the major conclusions from the findings discussed in this chapter. In addition, limitations and delimitations of the study, recommendations for professional practice, and recommendations for further research will be addressed.

Chapter Five: Summary and Discussion

Introduction

Reading comprehension is a multi-faceted process that requires students to engage and interact with the text they are reading (CIERA, 2003; NRP, 2000; Pardo, 2004; RAND Reading Research Group, 2002). As students enter the upper elementary grades and move into the middle and high school grades, reading instruction transitions from decoding to comprehension. In addition, the reading material becomes more complex, as it is more content related than narrative driven. Consequently, students begin to struggle with reading comprehension. One of the essential components of this struggle is vocabulary, which is a critical part of reading comprehension (CIERA, 2003; IRA, 2000; NRP, 2000; Stahl & Nagy, 2006). In order for middle school students to be successful, vocabulary learning must be addressed.

The literature reviewed indicated the need to teach vocabulary using five effective teaching strategies: creating a print-rich environment, encouraging student engagement, allowing student-created definitions, using words in context, and making student associations (Beck et al., 2008; Berne & Blachowicz, 2008; Cambourne, 2000; Coyne et al., 2007; Fontana et al., 2007; Graves, 2009; Rosenbaum, 2001; Spencer & Guillaume, 2006; Tao & Robinson, 2005). In addition to the five teaching strategies identified, an effective classroom method, social interaction, continued to surface. According to Vygotsky's theory of social interaction, students learn more as they share

their own knowledge and learn from each other (Cole et al., 1978; Vygotsky, 1926/1997). Additionally, students learn more when they are socially interactive than when they learn independently (Gunning, 2000; Vygotsky, 1926/1997; Wink & Putney, 2002). In teaching vocabulary to middle school students, combining these strategies and method of teaching seemed to be advantageous.

The next step in this study was to determine a tool that combined the effective teaching strategies and social interaction to teach vocabulary. The research led to interactive word walls. Interactive word walls are simply a display of the vocabulary words being learned, and students interact with that display during instruction (Baumann et al., 2007; Brabham & Villaume, 2001; Bukowiecki, 2006; Cambourne, 2000; Cunningham, 2000; Fisher et al., 2007; Ganz, 2008; Rycik, 2002). Research suggested that interactive word walls are effective in teaching elementary students, but little research was available to determine the effectiveness of using interactive word walls in the middle school grades. As a result, the purpose of this study was to determine the effectiveness of interactive word walls to teach vocabulary to middle school students.

Summary of Methodology and Design

The research for this study was conducted in a large private school in Northeast Florida. Two groups of seventh and eighth grade middle school students participated in the study. The intervention group included 57 seventh grade English students, and the control group consisted of 67 eighth grade English students. Random selection was not feasible because the classrooms were established and could not be reconfigured. In addition, the intervention teacher only taught the seventh grade English students, and the

control group teacher only taught the eighth grade English students. The vocabulary words for the study were taken from the standard curriculum that the school required the students to use. Students were assigned 10 new vocabulary words from their respective grade level vocabulary books each week of the four weeks of intervention.

The study consisted of a pre-assessment, four weekly assessments, and a four-week delayed assessment, for a total of six assessments. For the assessments, the students were required to write their own definition of each word, and they wrote a sentence for each word that demonstrated their level of knowledge for the definition of that word. Each definition and sentence was worth two points each, for a total of 40 possible points for each assessment.

The assessments used in the study were derived from the research and were deemed to be valid. Writing one's own definition allows the student to connect to the word and make learning more meaningful (Beck et al., 2002, 2008; Graves, 2009). For assessing a sentence created by the student to demonstrate the level of word knowledge, the authors of *Put Reading First* (CIERA, 2003) offered three degrees of word knowledge: "unknown, acquainted, and established" (p. 43). Given the research, the method of assessment was valid for this study. To score the assessments, middle school teachers from another educational research institute were trained to rate the assessments. To provide reliable consistency in the scoring, two raters were assigned to each of the groups, intervention and control. A fifth rater was recruited to make any final decisions in the event that two raters disagreed on the score of a particular sentence or definition.

Because the results of this study were to be used to create a model in circumstances when group membership was known, a discriminant function analysis was used for this study. Using existing groups, a discriminant analysis creates a predictive model from the data (George & Mallery, 2007). The results of the discriminant analysis yielded overall group statistics, Wilks' Lambda, discriminant function coefficients, structure coefficients, and classification results. The conclusions of the findings follow and are addressed according to research question.

Conclusions of the Research

Research question one: Given that interactive word walls seem to be an effective strategy to teach new concepts to elementary students, will middle school students who experience interactive word walls perform differently on immediate vocabulary assessment measures? To answer this question, a discriminant analysis was conducted on the data from the pre-assessment and the four weekly assessments.

Two predictor variables, definition and sentence, were used in the discriminant analysis. For each variable, the discriminant analysis reported the descriptive statistics, Wilks' Lambda, function coefficients, structure coefficients, and the classification results. These analyses will be addressed for each variable.

The descriptive statistics reported the number of participants, means, and standard deviations for both portions of the assessments. Although some students did not participate in all of the assessments for various reasons, the number of participants remained relatively consistent throughout the study. The mean scores for both portions of the assessments were similar in their results. For the definition portion, the control

group scored higher on all five assessments. On the sentence portion, the means for the control group are higher for all of the assessments except for Week Three. Overall, the mean scores from the pre-assessment to the Week Four assessment for the control group were relatively consistent; however, the mean scores on the same assessments were somewhat erratic for the intervention group. These results conclude simply that the control group performed more consistently than the intervention group.

The Wilks' Lambda reports the percentage of variation for which the classification model accounts. Weeks two and four demonstrated that the classification model accounted for 47% and 46% of the overall variance respectively. Although the remaining percentages were statistically significant, they were noticeably smaller than weeks two and four ($p < .05$). Consequently, the data analysis revealed that the intervention was affecting the scores on the assessments, although the magnitude of that effect was somewhat inconsistent.

The discriminant function coefficients of the discriminant analysis demonstrate the weight of their contribution to the discriminant function. In other words, this analysis reveals the strength that each coefficient offers to the predictive equation. This analysis was divided into the two components of each assessment, definition and sentence. Overall, the definition portion of the assessments had the greatest weight to the discriminant function for each weekly assessment. This demonstrated that the scores on the weekly assessments were influenced more by the definition portion than the sentence portion. These findings are not surprising because the assessments for the participants had been primarily memorization prior to the study. Although the students had to put the

definition in their own words, memorizing and restating the definition was the easier of the two portions of each of the assessments. On the other hand, the sentence portion of each assessment could not be simply memorized; application was required for the students to write their own sentence for each vocabulary word. This requirement was more difficult and required more effort for the students to complete. Consequently, this analysis yielded logical findings.

Another portion of the discriminant analysis is the structure coefficient, which accounts for the difference in the means of the groups. This calculation is also used to create the model for classifying the groups correctly. The structure coefficients for all weekly assessments revealed that the definition portion of the assessments accounted for more of the differences in the means than the sentence portion. However, the sentence portion cannot be ignored. It also accounted for a large portion of the difference in most of the assessments, although not as much as the definition portion.

One vital portion of the discriminant analysis is the classification results. This analysis, in essence, tests its own model. The findings reported the number of cases that were classified into each group, and it further stated the percentage of cases that were correctly classified. The range of cases correctly classified, beginning with the pre-assessment through the fourth weekly assessment, was 63.3% to 83.9%, which was respectable. The most important component of these results is the number of cases above the 50% threshold that were classified correctly. The fourth and final weekly assessment had the highest percentage classified correctly at 83.9%, which is a relatively high percentage. The discriminant function model correctly predicted group membership for

the pre-assessment and the four weekly assessments. If the predictive model had not been accurate, the classification results would have been significantly lower. This would indicate that the students had performed differently than what was expected. However, the analysis revealed that the students performed as the model had predicted.

The answer to the research question must still be provided. The results of the discriminant analysis revealed that the pre-assessment and weekly assessment results were not consistent throughout the intervention of the study. The classification results were generally over 70% for each assessment, which demonstrates that the predictive model was accurate. Given the results of these analyses, no indication exists that the students who received the interactive word wall intervention performed differently on the weekly assessments.

Research question two: Will middle school students who experience interactive word walls perform differently on delayed vocabulary assessment measures? For this study, I established an intervention that continued for four consecutive weeks, and a weekly assessment was administered at the end of each week of intervention. Four weeks following the final weekly assessment, an unannounced delayed assessment was administered to the students in both the control and intervention groups. Ten vocabulary words were selected at random for each group, and the students were required to write their own definition of each word and write a sentence for each vocabulary word that demonstrated their understanding of that word. The assessment was given using the same format as the weekly assessments. A discriminant analysis was conducted on the results of that delayed assessment. At first glance, the results showed little significance. The

mean scores for the control group were higher than the mean scores of the intervention group for the definition and sentence portions of the assessments. The function coefficient indicated that the definition portion of the assessment offered a negative contribution to the discriminant function, but the sentence portion showed a strong positive contribution. The structure coefficient showed that the definition portion contributed the most to the difference in the means of the scores; the sentence portion contributed little. Wilks' Lambda did not show statistical significance, and the classification results only indicated 54.5% of the cases were classified correctly, a negligible percentage above the 50% level.

However, a closer looked revealed an interesting finding. The mean scores for the definition portion of the assessment for the intervention group began at 8.25 (*SD* = 4.86) on the pre-assessment. On the sentence portion, the mean was 8.14 (*SD* = 4.24). As the weeks continued, the means tended to increase. On the delayed assessment, the mean on the definition portion for the intervention group was 14.28 (*SD* = 3.29). The mean on the sentence portion for the intervention group was 12.0 (*SD* = 3.90). These means were higher than any other mean for the weekly assessments. This tended to indicate that the students were able to recall the information they had been taught, maintaining a higher mean score overall.

Another point of interest was the mean scores overall for the control group. For all of the weekly assessments and the delayed assessment, the mean scores tended to cluster around the same mean. Because no intervention had been given to these students, these scores were expected. However, when compared to the mean scores of the

intervention group, the mean scores of the delayed assessment were extremely close, indicating that the intervention group was closing the gap in the scores over time.

The classification results seemed to present a concern at first, but a careful analysis provided an explanation. On the weekly assessments, the control group consistently scored higher on all assessments, and the gaps in the means were appreciable. The predictive model was based on the weekly data and predicted that the delayed assessments would hold true to that pattern. However, the intervention group closed the gap in the means of the delayed assessments, and the mean scores were extremely close for both the definition and sentence portion (Control definition—M = 14.33, SD = 3.41; Intervention definition—M = 14.28, SD = 3.28; Control sentence—M = 12.67, SD = 4.15; Intervention sentence—M = 12.0, SD = 3.90). The close scores on the delayed assessment skewed the classification results. This indicated a significant finding regarding the intervention and the delayed assessment. It seemed that the intervention group's mean scores were actually stronger than the control group's mean scores on the delayed assessment, although the mean scores for the control group were higher. The mean scores for the control group on the delayed assessment paralleled their mean scores on the previous assessments. Their retention reflected their consistent scores throughout the study. The intervention group, however, showed an appreciable increase in their mean scores on the delayed assessment when compared to the mean scores of the previous assessments. It seemed that the intervention group retained more information when compared to the control group. The indication was that the word wall intervention was successful in the improved performance of students on the delayed assessment.

The word wall intervention did not seem to be successful in the weekly assessments; however, the delayed assessment portion of this study yielded results that were unexpected and promising. The intervention group performed almost as well as the control group, which was not the case on the weekly assessments. The classification results were low for the delayed assessments, which means that the predictive model failed to predict correctly group membership for the two groups. Indications were that word walls increased retention of vocabulary words for middle school students. It might be suggested that as students adjusted to the intervention, their learning increased. The findings suggest that the word wall intervention had little effect on the weekly assessments. However, the effects of the intervention seemed to be positive as demonstrated in the classification results for the delayed assessment.

Delimitations and Limitations

This study was not without its limitations. First, the only participants in the study were middle school seventh and eighth grade students. The age group was the targeted population for the study as revealed by the literature. Also, the design of the study purposely included multiple strategies in the implementation of the intervention. The study combined five researched teaching strategies plus social interaction in order to determine the effectiveness of using interactive words walls to teach vocabulary to middle school students. Separating these components was not reasonable for this research. Finally, although it is known that teachers present material differently, pedagogical style and presentation were not the focuses of this study.

The impact of this study is limited in three ways. As previously stated, only students from a private school were included in this research study. Although this particular school has a diverse population, it may not be reflective of the diversity that is found in a public school setting. Consequently, generalizability of the findings of this study to the public schools may be impacted. Another limitation to address is the students who comprised each group. Because the English classes are taught by grade, one teacher teaches all of the seventh grade English students, and another teacher teaches the eighth grade English students. Consequently, the control group only contained eighth graders, and the intervention group was comprised of only seventh graders. Additionally, because the vocabulary words were taken from the required curriculum of the school, the two groups used different words for each weekly assessment; the eighth graders used the eighth grade book, and the seventh graders used the seventh grade book. It was not possible for the words to be the same, unless the participants for the entire study had been in the same grade. Finally, a longer period of time between the intervention and the delayed assessment may have yielded different results. The timeframe was partially dictated by the school calendar, which did not allow for more than a one-month delay.

Recommendations for Professional Practice

Vocabulary is an integral part of reading comprehension, and using effective instruction should be the goal of educators. Although elementary teachers often use multiple strategies in their classrooms, middle school teachers often limit themselves to traditional instruction. The nature of this research naturally focused on an outcome that might affect future teaching and learning of the middle school population. Given that the

results of this study appeared to demonstrate that word walls have a positive impact on the vocabulary learning of middle students, the professional practice recommendation is simply that teachers use this strategy in their classrooms. By implementing the use of word walls in the classroom, teachers may realize a difference in their students' vocabulary learning. Because the strength of this study was the results of the delayed assessment, teachers may find the primary impact that word walls have to be on the retention of their students. The ultimate goal of vocabulary instruction is for students to retain their vocabulary knowledge and apply it to their reading so that their comprehension improves. Implementation of word walls may result in this level of impact.

The first recommendation offered comes with three distinct influences that classroom implementation might yield. First, as teachers begin to implement the use of word walls in their classrooms, they become a model for effective instruction. Consequently, other teachers may follow their lead and begin using this effective teaching tool in their own classrooms. Literacy teachers have a tremendous opportunity to impact the teaching of other teachers. Their leadership plays a pivotal role in the direction of instruction in classrooms. In this current study, the control group teacher was aware of the classroom instruction that was occurring in the intervention classroom. As the study came to an end, the control group teacher reported that she planned to begin using interactive word walls in her classroom. She stated that she had heard from students how much they enjoyed the activities they were experiencing in the seventh grade English class as a result of the study. She also reported that her eighth grade

students had asked if they could start doing the activities that they had heard were being conducted in the intervention classroom. The control teacher's desire to improve her teaching was a direct result of the intervention teacher using interactive word walls in her classroom. As teachers realize the impact that interactive word walls can have on vocabulary learning of middle school students, they should initiate the use of interactive word walls in their own classrooms and become models for others to emulate. As teachers begin to exemplify effective use of the interactive word wall, other teachers will see the benefits of interaction, engagement, and social learning and begin to implement this effective teaching tool in their own classrooms.

Teachers not only influence other teachers, they also impact the decision-making of their administration. Teachers must become the impetus for change in their classrooms, as well as their schools. By implementing a successful, innovative, effective teaching practice in their classrooms, teachers set the stage for change. As a result, administrators may see the value of the instruction and provide support for other teachers to learn and implement the same strategy. After this study ended, the principal of the middle school in which the study was conducted discussed the study with this me. The administrator reported that he had heard only positive remarks about the study and planned to encourage other teachers to use this tool. Also, another impact is that as administrators observe the example of literacy teachers, they may ask for these leaders to provide professional development opportunities for other teachers. Teachers who model the use of interactive word walls in their classrooms will then expand their influence through teaching other teachers. As further support, administrators may require teachers

to implement interactive word walls in their classrooms as part of their repertoire of teaching tools.

Finally, the influence of using interactive word walls in the classroom may impact colleges and universities as they seek to instruct future teachers and prepare them to enter middle school classrooms. Post high school institutions should ensure that middle school teachers are aware of the components and effectiveness of interactive word walls. In addition, institutions should instruct future educators on ways in which these strategies can be successfully implemented in their classrooms. Providing future teachers of middle school students with the knowledge of word walls may encourage them to practice this strategy in their classrooms. Consequently, this effective tool will enhance vocabulary learning of middle school students.

The next recommendation involves the assessment tool used in this study. The goal of the students being required to write their own definitions was for the students to claim ownership to the word. The definitions that the students wrote on the assessments were much more realistic, and they were written like a middle school students write, not like the writing of a curriculum book. Consequently, the assessment tool was successful. As this portion was assessed, the raters either awarded zero points for no definition or a completely wrong definition, or they awarded two points for the accurate definition. To make the assessment more accurate, I recommend that a leveled rating system be in place for the definition portion of the assessment as was used in the sentence portion of the assessment. This will allow for partial credit, instead of the definition being completely wrong simply because one segment of the definition was missing.

The sentence portion proved to be the most effective. Both teachers, especially the intervention teacher, claimed that they saw a marked improvement in the writing of their students. Although the assessment tool used in this study was effective, it was not without its challenges. The raters were trained collectively, and they were in agreement as the training ended. However, one of the issues that continued to arise during the rating portion of the study was the judgment of the raters as they reviewed the students' work. Some of the raters commented on how long the process took to rate the assessments. Other raters stated that it did not take a long time at all. After discussing this with the raters after the study ended, I discovered the degree to which judgment entered into the rating equation. Some of the raters often second-guessed their decisions; others trusted their first response. No assessment for measuring vocabulary knowledge is without its flaws; however, this assessment was the most effective for this study. If this assessment were to be used in the classroom, I am convinced that the rating tool would be more consistent because the teacher would know what has been taught, what was emphasized, and how her students think. Without this knowledge, the assessment format is more difficult. I recommend that teachers use this assessment, but they need to experiment with it to determine the best rating system for their classroom. It may be that a three-point rating system may be more effective. Each teacher must create the levels that best fit their classroom needs. Although these factors enter into the rating, the benefits of using this assessment far outweigh the concern for subjectivity and judgment in the rating.

Finally, I used a robust version of word walls in the intervention in my study. The intervention teacher reported that the beginning of the study took significantly more time than the latter portion of the study. She claimed that as the students became more acquainted with the strategies that she used, the faster they were able to complete each task. In other words, the longer they used these strategies the less time it took. I recommend that teachers begin using one or two of the strategies until the students are accustomed to the process. As the students master the process, teachers should introduce additional strategies. As the number of strategies increases, the teacher should rotate their use instead of trying to use all of them within a one-week timeframe. Also, not all of the creations must be added to the word wall. I recommend that the teacher determine which visuals are most effective for the students and place only those on the word wall. I also recommend that social interaction be an integral part of instruction. Using social interaction adds little time to the activities; yet, the effects are significant.

Recommendations for Further Research

The research in this study answered the two designed research questions, but as the study concluded, several additional questions surfaced. Data analysis revealed that as the intervention continued, the mean scores for the intervention group gradually increased on both the definition and sentence portions of the assessments. Although the gap in the mean scores between the intervention group and the control group was not completely closed, it showed a noticeable decrease by the end of the intervention. The question then must be will a longer intervention cause the gap of the mean scores of the vocabulary assessments to continue to close? Because the mean scores of the intervention group

began to increase over the four weeks of intervention, the logical conclusion is that, given more time, the mean scores will continue to improve. Research needs to be conducted to determine if the length of time for the intervention affects the outcome of the delayed assessment. Further research may reveal the need to implement interactive word walls in the classroom early in the school year to allow the most optimal timeframe for success.

A second question that surfaced as a result of the study was related to the delayed portion of the assessment. The data analysis of the four-week delayed assessment revealed that the means for the two groups were almost identical on both the definition and sentence portions of the delayed assessment. Although the results of the discriminant analysis failed to show statistical significance and the classification results were weak, the mean scores between the two groups being similar was an importance piece of the analysis. The expectation was that the gap between the mean scores of the two groups would remain intact for the delayed assessment. However, the means were strikingly similar on the delayed assessment, which explains the misclassification of the groups. These results indicated that vocabulary retention was strong for the intervention group. In fact, the retention scores were higher on both components of the delayed assessment than any of the weekly assessments. The research question that must be addressed is the effects that a longer delayed assessment may have on retention. In other words, how well do students retain information after more than one month following the intervention? The results from this research may provide invaluable information for classroom instruction and retention of vocabulary words.

A final question for researchers to explore is whether or not word walls are effective on all types of learners, including those with learning disabilities. As previously stated, this study was conducted in a large private school, and the demographics of the school may not reflect those in the public school setting. Although some of the students who participated in the studied were identified as having learning disabilities, the results of the study do not differentiate those scores. This information needs to be determined to assist teachers as they deal with various students. One of the greatest benefits of this research is the effect that interactive word walls may have on those students who have short-term and long-term memory struggles. The delayed assessment results seemed to indicate a possibly promising strategy for all learners for vocabulary retention; however, further research must be conducted to strengthen this inference. These questions are worthy of exploration as researchers search for answers that will help students learn vocabulary and increase their comprehension.

Chapter Conclusion

Chapter Five began with an introduction and a brief overview of the related literature that framed this study. Next, a summary of the methodology and design was presented. The following section provided the conclusions of the research, which included discussion for each of the two research questions. The discussion revealed that the results of the delayed assessment provided interesting results that were significant to the effectiveness of the intervention. After the discussion of data conclusions, recommendations for professional practice were addressed. This study set out to determine the effectiveness of an intervention, so the logical recommendation is for

teachers to use interactive word walls in their classrooms. However, from that recommendation, three influences are discussed. Finally, three recommendations for further research are suggested. The first recommendation suggests that the intervention timeframe be extended to determine if scores will continue to improve over a longer period of time. Next, a recommendation was made to lengthen the time between the intervention and the delayed assessment to research retention further. Finally, additional research may determine the effect that interactive word walls may have on various learners, including those with learning disabilities.

This study began by questioning the effect that interactive word walls may have on vocabulary learning for middle school students. Following a four-week intervention and a four-week delayed assessment on 124 participants, a discriminant analysis was conducted. The findings revealed that the weekly assessments were statistically significant, although the strength of the significance was weak. However, the findings from the delayed assessment revealed that the retention of the intervention group was strong. Overall, the interactive word wall intervention was successful in teaching vocabulary to middle school students. Perhaps the influence of this research will be strong enough to cause interactive word walls to become a regular part of vocabulary instruction in the middle school classroom.

Appendix A

UNF
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Equal Opportunity/Equal Access/Affirmative Action Institution

MEMORANDUM

UNF IRB Number: 11-019
Approval Date: 04-01-2011
Expiration Date: 04-01-2012
Processed on behalf of UNF's IRB KLC

DATE: April 1, 2011

TO: Ms. LeDale Southerland

VIA: Dr. Marcia Lamkin
LSCSM

FROM: Dr. Katherine Kasten, Chairperson
On behalf of the UNF Institutional Review Board

RE: Review by the UNF Institutional Review Board IRB#11-019:
"Using Interactive Word Walls to Teach Vocabulary to Middle School Students"

This is to advise you that your project, "Using Interactive Word Walls to Teach Vocabulary to Middle School Students," has undergone "expedited, category #7" review on behalf of the UNF Institutional Review Board and was approved.

This approval applies to your project in the form and content as submitted to the IRB for review. Any variations or modifications to the approved protocol and/or informed consent forms as they relate to dealing with human subjects must be cleared with the IRB prior to implementing such changes. Any unanticipated problems involving risk and any occurrence of serious harm to subjects and others shall be reported promptly to the IRB within 3 business days.

Your study has been approved for a period of 12 months. If your project continues for more than one year, you are required to provide a Continuing Status Report to the UNF IRB prior to **03/01/2012** if your study will be continuing past the 1-year anniversary of the approval date. *We suggest you submit your status report 11 months from the date of your approval date as noted above to allow time for review and processing.*

As you may know, **CITI Course Completion Reports are valid for 3 years**. Dr. Lamkin's completion report is valid through 09/16/2012 and Ms. Southerland's completion report is valid through 1/29/2013. If your completion report expires within the next 60 days, please take CITI's refresher course and contact us to let us know you have completed that training. If you need to complete the refresher course, please do so by following this link: http://www.citiprogram.org/. Based on your research interests we ask that you complete either the "Group 1 Biomedical Research Investigators and Key Personnel" CITI training or the "Group 2 Social Behavioral Researcher Investigators and Key Personnel" refresher course CITI training.

Should you have questions regarding your project or any other IRB issues, please contact Kayla Champaigne at 904-620-2312, or K.Champaigne@unf.edu.

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PRESENTATIONS

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2009	"Three Useful Methods for Detecting Problems with Collinearity in Multiple Regression," Mid-South Educational Research Association
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