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──────────── **Abstract** ────────────

Reading fluency is the ability to read orally with speed and efficiency, including word recognition, decoding, and comprehension (Chard & Pikulski, 2005). Able readers achieve fluency as they recognize words with speed and build upon them to aid in comprehension (Pumfrey & Elliott, 1990). One way to help students achieve fluency is through the use of word walls and word wall activities (Callella, 2001). Word walls are bulletin boards that contain a collection of high-frequency or theme-related words and their activities include games that focus on using the word wall to learn sight words. This article describes an action research project designed to improve reading fluency of first grade students by investigating the use of word walls and word wall activities during station time over a four-week period. It was found that word wall activities might have been one factor that strengthened high-frequency word recognition resulting in an increase of words read per minute.

Introduction

Reading fluency is a primary element in the reading process. It is the ability to read orally with speed and efficiency, including word recognition, decoding, and comprehension (Chard & Pikulski, 2005). Able readers achieve fluency as they recognize words with speed and build upon them to aid in comprehension (Pumfrey & Elliott, 1990). Contrarily, struggling readers often have difficulty decoding unknown

words affecting their ability to comprehend text (Huebner & Bush 1970). Research has shown that one effective way to help students achieve fluency is through the use of word walls and word wall activities (Callella, 2001).

A word wall is a collection of high-frequency sight words that are age appropriate, classified into groups or categories, and is located on the wall of a classroom for children to easily see and learn (Brabham & Villaume, 2001; Copper & Kiger, 2003). High-frequency words are words that occur more times than other words in the spoken or written language (Cooper & Kiger, 2003). For example, the words "at" and "it" are considered high-frequency words. These words are mostly chosen from the Dolce List of 220 Basic Sight Words (Cooper & Kiger, 2003) which consists of over half of all the running words that children read in an elementary-level text (Huebner & Bush, 1970). The main purpose of a word wall is to help students build sight word recognition so they can recognize them at a glance (Huebner & Bush, 1970). In addition, word walls are also a visual that help students remember connections between words (Callella, 2001), retain knowledge of the word, and ultimately read them with automaticity (Ehri, 2005). Word wall activities encourage the applications of these words. Ideally, in the primary grades, about five high-frequency words are added weekly to word walls until there are between 110 and 120 words.

When observing classrooms, we frequently saw students unable to use a word wall after the initial introduction of the word as they would read a text and stumble on sight words that had been introduced and were on the word wall. Even when prompted to look at the word wall, students could not read the word. In addition, as students completed independent writing assignments, they were often directed to the word wall for help while the teacher was working with other students. Once again, they stared at the word wall and could not locate the word they needed to write. It became apparent that the word wall was not effective in helping students read because follow-up activities and reinforcements were not part of daily lessons. Consequently, structured word wall activities were created to aid in the comprehension and fluency of the sight words. These activities were taught during center time and the daily reading instructional period.

Utilizing word walls and word wall activities may help students develop a sight word vocabulary that further allows them to retain the words (Hall & Cunningham, 1999) and read text. When students are able to retrieve the words from long-term memory, they can become more fluent (Ehri, 2005) and achieve success in reading (Chard & Pikulski, 2005). Therefore, the purpose of this study was to improve read-

ing fluency by interacting with a word wall and its related activities to develop high frequency word recognition.

Literature Review

Reading Fluency

There are four stages of reading development: 1) pre-alphabetic stage, 2) partial alphabetic stage, 3) fully alphabetic stage, and 4) the consolidated alphabetic stage (Chard & Pikulski, 2005; Ehri, 2005). The pre-alphabetic stage occurs prior to any alphabetic knowledge; therefore, students have no appreciation for it (Chard & Pikulski, 2005). Identification does not involve making any letter and sound connections and, in this stage, connections are made by visual cues (Ehri, 2005). In the partial alphabetic stage, the reader has learned that letters and sounds are related (Chard & Pikulski, 2005). Readers use the beginning and ending sounds to try and pronounce words (Ehri, 2005) and as they become more familiar with the letters and the sounds, they progress into the full alphabetic stage (Chard & Pikulski, 2005). Ehri (2005) believed this was the most important stage because this is when sight word recognition develops. Finally, readers enter the consolidated alphabetic stage where they can identify whole words instantly (Chard & Pikulski, 2005) and recurring letter patterns become consolidated (Ehri, 2005). For example, the word chest is broken into ch and est, instead of ch –e-s-t, which would be the case in the full alphabetic stage (Ehri, 2005).

Within these four stages, students slowly develop whole word recognition. The four stages are designed as a scaffold and build upon each other. Therefore, mastering one stage leads to the next stage with the reader ultimately recognizing whole words (Ehri, 2005). Readers at the consolidated stage of reading development can progress toward efficient fluency (Chard & Pikulski, 2005). Knowing that fluency is often dependent upon recognition of high-frequency words, word walls can be the core of many phonics and spelling programs (Bush & Huebner, 1970).

Word Walls and Word Wall Activities

High-frequency word walls are usually located on a bulletin board or wall above or below the alphabet (Cooper & Kiger, 2003) as this location allows the words to be a focal point of the classroom assisting students while reading and writing independently (Brabham & Villaume, 2001). The words are written with thick

black marker or colored paper and are placed under the initial letter of the word (Hall & Cunningham, 1999). Students practice new and old words each day by looking at them, saying them, clapping, chanting, snapping the letters, writing the words on paper, and self-correcting the words with the teacher (Hall & Cunningham, 1999). Word walls also serve to teach word analysis and to build vocabulary from units of study. Teachers may also use these words to focus on spelling rules (Brabham & Villaume, 2001). Overall, the word wall focuses on mastering high-frequency words that are in texts (Cooper & Kiger, 2003).

Word wall activities are incorporated to give students the opportunity to use these words in various ways. These words then become anchored in long-term memory allowing quick and easy access, promoting detection of patterns, and encouraging connections between words (Hall & Cunningham, 1999). Therefore, word wall activities provide interactive ways to learn high-frequency words as they build word recognition by providing a visual and active engagement with words (Callella, 2001). The word wall activities in this study are listed in Table 1. Upon practice and completion of these activities readers may begin to recognize basic sight words rapidly and independently improve fluency in reading (Almasi, 2003).

Table 1. *Word Wall Activities Used in Study*

- Be the Teacher — students make up a quiz and quiz their partners on the word wall words through a spelling test
- Guess That Word — students give hints to what word they are thinking of by describing the formation of the word
- Let's Be Creative — students write a story that consists of as many word wall words as possible
- Letters in My First Name — students write their name vertically and then match two word wall words to each letter in their name
- Letters in Words — students pick ten word wall words and then find two or more words that have the same letter as the original word
- Rainbow Writing — students write the words from the word wall in different crayons focusing on the configuration of the word while writing
- Shape of Words — students focus on letter formation (tall, small, and dropped letters) in the word wall words and write the words that are tall, small, and dropped

- Word Wall Toss — student passes a beach ball to another student and asks him or her to say and spell a word that is currently on the word wall
- Wordo — similar to Bingo, but with word wall words in the game squares
- Words in ABC Order — students pick ten words and place them in the correct alphabetic order

Related Studies

Studies on fluency development often begin with children in the third grade and with primary aged children, most assessments measure word reading accuracy (Speece & Ritchey, 2005) thus, fluency studies are limited. Speece and Ritchey (2005) studied 276 first graders to determine the development of oral reading fluency during the initial stages of reading acquisition and identify predictors of growth throughout first grade and into second grade. This study suggested that along with an introduction to word recognition, often taught in first grade, skills related to fluency development may need to be taught concurrently. Student levels of fluency in the first grade will affect second grade reading performance; therefore, teachers need to incorporate overt instruction of fluency skills into reading instruction (Speece & Ritchey, 2005).

Harmon, Wood, Hendrick, Vintinner, and Willeford (2009) found that word walls have the potential for enhancing vocabulary learning in seventh grade students in conjunction with other instructional methods. Forty-four seventh graders participated in this study. Twenty-three students, working in small groups or as a class, self-selected words from the word wall and were engaged in specific word learning activities. The second group consisted of 21 students engaged in word learning activities from a vocabulary book. Harmon, et al. (2009) found that students who self-selected words enjoyed that process and were more likely to complete activities because they were working collaboratively. Finally, students in the self-selected word group appeared to have a deeper level of understanding of vocabulary meaning as measured on a vocabulary assessment portion of a standardized test (Harmon, et al., 2009).

In an action research project, May (2004) conducted a study designed to improve the reading of high-frequency words with first grade students. Students first practiced reading words on flash cards for three weeks and then for another three weeks, with different words, students participated in word wall activities. Upon completion of the word wall activities, students showed greater levels of growth

while reading the words, finishing sentences with the words, and taking spelling tests than they did when working with the flash cards (May, 2004). In addition, students enjoyed the word wall activities, which may have further impacted learning.

Walton (2000) conducted an action research project in which 63 first grade students in three different classes were interviewed to understand how they used word walls. This study revealed that students thought the word walls were useful as writing tools because the teachers had used them for writing activities. This suggests that teacher emphasis may affect student use of word walls (Walton, 2000).

Description of the Action Research Project

Methodology

This action research project employed a case study approach using multiple data collection strategies to establish credibility of the findings (Hendrick, 2009). Using multiple forms of data helps fill any gaps that may occur if only one data method were used (Hendrick, 2009; Mills, 2007). In addition, using triangulation to compare different data sources and to cross check data (Mills, 2007) improves the reliability and validity of the outcomes (Pine, 2009). One primary goal is to reach dialogical validity where action research may encourage reflective and critical dialogue among educators to discuss the literacy program and its use of word walls (Mills, 2007; Pine, 2009).

Two teacher researchers designed this study. One researcher was a college professor and field supervisor of student teachers who had observed ineffective use of word walls in primary classrooms. The other was a first grade teacher who experienced similar concerns and, as a result, implemented the study in her classroom. They collaboratively created the study, analyzed the data, and wrote the final report.

Twenty first grade students, 11 boys and nine girls, attending a rural public K-6 elementary school participated in this study. The students were six and seven years old with varied reading levels based upon the implementation of running records using the *Treasures* (MacMillan, 2009) reading series.

The teaching of reading in this classroom included a comprehensive literacy program that was integrative as skills and strategies were taught in context (Weaver, 2002). Stories were literature based and lessons incorporated phonics, spelling, grammar, and fluency throughout the daily reading and language arts period.

Read-alouds, shared reading, and independent reading were also regular activities. Writing was a daily activity and students were encouraged to use the word wall. In addition, center time was literacy based as students worked under teacher guidance. The teacher used whole class instruction when new concepts were introduced and small group instruction with students working collaboratively for reinforcement. The teacher also followed the process of scaffolding by providing support for learners until work could be completed independently (Weaver, 2002). Ultimately, reading and language arts skills and strategies were reinforced throughout the school day, and it is understood that each of these activities might have had some impact on reading fluency for each child.

One method of data collection used was the administration of a pre-running and post-running record. The purpose of a running record is to determine whether student reading materials are on the proper level and to obtain information about the word recognition processes students are using (Gunning, 1996). The pre- and post-running records consisted of recording miscues, self-correction rate, and words per minute. Pre- and post-tests were implemented to determine if growth could be assessed (Glanz, 2003) and were summative in nature (Hendrick, 2009). These assessments were administered to determine the fluency of individual children at a specific time. The pre-running record and post-running record used the same text and were age and grade appropriate for first graders.

The second method of data collection was teacher observation of five students completing word wall activities in the learning center. Because action research is meant to be used by practitioners during classroom instruction (Glanz, 2003), it would have been difficult to observe all students effectively, thus, the decision was made to focus on a random sample. Five student names were randomly chosen to be observed to see whether the they were engaged in the specific word wall activities. In addition, the researchers observed a word wall learning center because that was the sole focus of student activity and student engagement could be more easily identified. These observations took the form of a three-point checklist, allowing the recording of instances of a behavior, activity, or practice (Glanz, 2003; Mills 2007). This three-point checklist consisted of a score of three, mastering the word wall activity; a score of two, completing it satisfactorily, defined as making one or two mistakes but understanding the assignment; or a score of one, defined as having many errors, resulting in lack of understanding of the assignment. This kind of data can help determine why an intervention was successful and how the setting impacted the study (Hendrick, 2009). The third method of data collection was interviews with

six students to gather information from participants about their experiences with word wall activities (Glanz, 2003; Hendrick, 2009). A sample was chosen because interviewing all of the students would not have been practical within the school day. The interview process was carefully explained as first graders often have not experienced interviews and their responses would most likely be repetitive. Once again students were chosen at random. The 10-minute interviews were based on a qualitative approach as questions were open-ended, but structured allowing the interviewer to ask all participants the same questions (Glanz, 2003; Mills, 2007). Anonymity was protected throughout this project and participant names were not used on the interview questionnaire or the observation checklist as they were assigned a number to assure confidentiality.

Framework of the Study

This study occurred over four weeks. In groups of four, students participated in one 40-minute learning word wall station a week and a 20-minute whole class activity three times a week. During the first week, a 40-word pre-running record was administered to all the participants. Following the completion of the pre-running record, the entire class did a 20-minute Wordo word wall activity. Other whole class word wall activities included at this time were Word Wall Toss and Rainbow Words (see Table 1 for explanation of word wall activities). Students then rotated through one 40-minute word wall station, which included Words in ABC order, The Shape of Words, and Be the Teacher. Other activities in this rotation were a reading station, a writing station, a poetry station, and a word building station.

During the second week, the students continued with their thrice weekly, 20-minute whole class instruction by playing the games Wordo, Guess That Word, and Word Wall Toss. During the one 40-minute station work, students completed Letters in Words, Letters in My First Name, and Words in ABC order.

The third week, students continued with their station work once a week and whole group instruction three times a week. They participated in Wordo and Word Wall Toss as a whole class. In the word wall station, they completed the activities of Be the Teacher, The Shape of Words, and Letters in Words. Within the third and fourth weeks, one teacher researcher observed five randomly chosen students to examine how accurately they were completing word wall activities during the 40-minute station time. In the fourth week, the participants were engaged in Wordo and Word Wall Toss as a whole class three times. For the 40-minute station work,

students completed Let's Be Creative and Words in ABC Order. At the completion of the study, students were administered the post-running record. Once again, the focus was on student miscues, self-correction, and words read per minute. At the completion of this project, six randomly chosen students were interviewed.

Data Analysis

As can be seen in Table 2, the results of the pre- and post-running records indicated that reading fluency for these students increased by the end of this project. Students increased words read per minute as the mean increased from 41.4 to 63.7; indicating that at the completion of this project, participants read more words per minute. The relatively stable standard deviations, 21.4 and 20.9 respectively, suggest that improvement with all students did occur. However, the high standard deviations also indicate that even though most students improved, some students still struggled with reading fluency and reaching the 40-word per minute expectation for first grade students. When administering the post-running record, some students still struggled because they were focusing on sounding out the sight words.

Table 2. *Results of Pre and Post Running Record*

	n =	Mean Words per Minute	Standard Deviation
Pre-Running Record	20	41.4	21.4
Post-Running Record	20	63.7	20.9

The results of the three-point observation checklist, used to record student ability to complete the assignments, were mixed (see Table 3).

Table 3. *Observation Checklist*

	n =	Mean	Standard Deviation
Words in ABC Order	5	2.2	0.84
The Shape of Words	5	2.4	0.55
Be the Teacher	5	3	0
Letter in Words	5	2.8	0.45
Letters in My First Name	5	3	0
Let's Be Creative	5	2.2	0.45

The mean scores on the activities Be the Teacher and Letters in My First Name were 3, with standard deviations of 0. Students had mastered these activities resulting in high-frequency word exposure. With the activities The Shape of Words, Letters in Words, and Let's Be Creative the means were 2.8, 2.4, and 2.2 respectively and the standard deviations were 0.45, 0.55, and 0.45 respectively. Compared with the previous scores, the lower means and higher standard deviations may suggest that some students did not master the skills presented in these activities, but most participants did complete the work on a satisfactory level, showing understanding and recognition of most word wall words.

The activity that appeared to be the most challenging was Words in ABC Order, with a mean of 2.2 and standard deviation of 0.84. This indicated that only a couple of the participants might have completed this activity with a level of mastery. Because students needed more reinforcement with this activity, teacher observations suggested that the students might not have understood the directions, thus affecting performance. Many students made the same errors when completing this particular activity and, as the words were in alphabetical order on the word wall, students seemed confused as to how to take them out of such order and then place them back in ABC order. This resulted in the participants not completing the assignment accurately. Overall, this data revealed that a few students did struggle with some of the word wall activities. However, the checklist also showed activities in which the students were actively engaged and, therefore, may have helped to increase the use of high-frequency words.

Results of the interviews indicated that all students enjoyed word wall activities because "they were fun" and they believed that the activities helped them to learn the words. Most of the participants considered Be the Teacher their favorite activity because they liked to play school and enjoyed playing the role of a teacher. Contrarily, many students indicated that their least favorite activity was Words in ABC Order. As discussed above, students were confused by this activity and thought it too challenging, and, therefore, were less engaged. However, teachers should not be deterred from using an activity because students think it too challenging. This activity may have been better suited at a later time or been more clearly instructed. Overall, the enthusiasm presented by the participants indicated that their perceptions of word wall activities did help them to learn sight words which might have increased reading fluency.

Limitations

The participants in this study were first grade students. Therefore, the age of the students along with their distractibility could have affected performance. Also, student absenteeism may have affected the continuity of word wall activities as frequent absences did not permit the students to become familiar with the directions, as possibly seen through the results of the Words in ABC Order activity. Next, the small sample size affected the ability to generalize such results. Finally, a limitation within the project was that the observation checklist only measured the six activities students completed in the work stations. It did not address the whole group activities and their impact. Data collection was restricted to students at the work station to enable the occurrence of direct observation and anecdotal record keeping. Consequently, student learning may have also been influenced by whole class word wall activities as well as daily language arts and reading lessons.

Discussion

As seen in the triangulation of this project, word wall activities might have been a factor that helped to build and strengthen high-frequency word vocabulary resulting in the increase of words read per minute. Pre- and post-running records did indicate growth. Students increased words read per minute as the mean increased from 41.4 to 63.7 and the relatively stable standard deviations, 21.4 and 20.9 respectively, suggested that improvement with all students did occur. In addition, participant enthusiasm was expressed during interviews. This enthusiasm for the word wall activities might have positively affected the post-running record scores. The activity that proved to be most successful, as seen in the interview and observation checklist, was Be the Teacher. The participants indicated that "This activity was fun." Many also said that they enjoyed this activity because, "I like to play teacher." Overall, the participants did show growth in reading fluency and word walls and word wall activities might have supported this increase. The observation checklist helped to indicate which activities were most helpful and engaging to the participants. Because reading and language arts comprise a large portion of a primary student's day, it is understood that daily lessons may have also impacted the results of this study. However, adding activities that relate to the word wall may result in positive student engagement and could be considered one more effective instructional strategy for teachers.

Results of this study suggest that word walls and word wall activities might be one strategy to help increase reading fluency. Teacher observations and running

records showed that all students read more fluently and could identify more high-frequency words. The specific activities that possibly further helped the participants to increase reading fluency were Be the Teacher and Letters in My First Name. These two activities had a mean of 3, and a standard deviation of 0, and most of the participants agreed that Be the Teacher was their favorite activity.

Although the post-running records indicated that some participants increased reading rate by only a couple of words per minute, others increased by a significant amount. This coupled with the interview and the observation checklist highly suggests that word walls and word wall activities might have influenced the increase of high-frequency word recognition. In addition, students were very enthusiastic about utilizing the word wall. Therefore, learning high-frequency words by using a word wall might have provided a context for active and ongoing learning (Callella, 2001).

The word walls and word wall activities used in this study might be effective in increasing reading fluency and this teacher will continue to utilize them as important components of the reading program. At the conclusion of this study, teacher observations revealed that students independently used the word wall without teacher prompting as an everyday tool for reading and writing. Additionally, this teacher saw improvement with student ability to recognize sight words in books, directions, and activities. For example, a student encountered a word that was on the word wall in a story and said, "I know that. It is on the word wall." The students also helped each other by indicating to their peers that a particular word was on the word wall showing that they appeared to be using the word walls as a tool for reading and writing activities.

Conclusion

This project was designed to assess the impact of a word wall and word wall activities to help build reading fluency with first grade students. Results suggest that despite student varied academic abilities, the word wall activities were one factor that might have helped to build high-frequency word vocabulary. With the development of a more extensive high-frequency word vocabulary through the use of word wall activities, students might further increase reading fluency ultimately enhancing their reading comprehension.

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