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From Research to Practice: The Effect of Multi-Component Vocabulary Instruction on Increasing Vocabulary and Comprehension Performance in Social Studies

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Abstract

This study was designed to demonstrate the effect of implementing multi-component vocabulary strategy instruction in fourth grade social studies. Curriculum was designed for a six-week period and was intended to actively engage students and reinforce retention of word meanings in isolation and in context. Teachers were randomly chosen for assignment to the intervention and/or to the comparison group. The study included 375 fourth-grade students from 3 different districts and 5 schools. The student population consisted of 29 classes taught by 23 different teachers. Two different vocabulary and comprehension measures were administered, and results were analyzed using difference score analyses and repeated measures ANOVAs. Outcomes were consistent across both administered measures. Although student scores improved in both the group receiving the intervention and the group receiving regular classroom instruction, findings indicated that the group receiving the intervention showed greater gains and persisted longer than in the comparison classrooms.

Keywords: Vocabulary, Social studies, Comprehension, Explicit instruction, Semantic feature analysis

Introduction

The 2011 report by the National Assessment of Educational Progress (NAEP, 2011) highlights the following points: (a) Among fourth graders nationally, 33% are reading below basic level, and 24% of eighth graders are reading below basic level, which means that these students cannot perform at minimum academic expectations. (b) Equally

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distressing is the observation that the percentage of children showing proficiency in handling demanding material is only 34% at both the fourth grade and eighth grade levels. Snow, Burns, and Griffin (1998) stressed the importance of reading because it is essential to succeed in our society. Further, they stated that, "In a technological society, the demands for higher literacy are ever increasing, creating more grievous consequences for those who fall short" (p. 10). This must be addressed beginning at a very early age and continuing through school with high standards for students.

Perie, Grigg, and Donahue (2005), report an alarming number of students who do not demonstrate even partial mastery of prerequisite knowledge and skills considered fundamental for proficient work at each grade. Lyon (as cited in U.S. Government Printing Office, 2001), in a report to the Subcommittee on Education Reform, reminded us, "Thirty-eight percent of fourth graders can't read well enough to understand a basic paragraph" (p. 13). According to Armbruster, Lehr, and Osborn (2003), comprehension is described as "the reason for reading. If readers can read the words but do not understand what they are reading, they are not really reading" (p. 48). In the executive summary regarding comprehension, the National Reading Panel (NRP, 2000), described several themes that emerged when examining the research. One of the themes was that "reading comprehension is a cognitive process that integrates complex skills and cannot be understood without examining the critical role of vocabulary learning and instruction and its development" (NRP, 2000, p. 41). Increasing the number of words in a person's vocabulary was determined to be a strong predictor of students' ability to comprehend text as students must work to construct meaning through a combination of the text and the reader (Anderson & Freebody, 1981; Durkin, 1993; Yildirim, Yildiz, & Ates, 2011).

According to Phythian-Sence and Wagner (2007), "acquiring the vocabulary we use for thinking and communicating is a linguistic achievement of nearly incomprehensible importance and complexity" (p.1). Multiple studies have demonstrated effective methods for teaching vocabulary words in classroom settings (Baker et. al., 1998; Blachowicz & Fisher, 2000; Coyne, McCoach, & Kapp, 2007; Foil & Alber, 2002; Nagy & Scott, 2000; Vitale & Romance, 2008). Foil and Alber (2002) described proficient reading as dependent on the development and synthesis of a complex array of critical sub-skills, in which understanding word meanings and their connection to other concepts is a critical component. To avoid the cycle of poor reading leading to limited vocabulary knowledge, perpetuating further lack of reading and development of vocabulary knowledge, they described strategies for building vocabulary (Foil & Alber, 2002). Cunningham and Zibulsky (2009) supported the need for teachers to gain knowledge and utilize effective strategies to further literacy development for all children. Knowledge of successful instruction is important for classroom knowledge and application.

Aaron, Joshi, and Quatroche (2008) described the reciprocal relationship between vocabulary and comprehension and further noted that repetition and meaning promote the retention of vocabulary. Carreker and Birsh (2005) used extensive multisensory activities for teaching basic language skills. Included in these skills was work on specific approaches to the teaching of vocabulary. Strategies are important so that a child can recognize words and/or decode, but the goal of reading is not accomplished if students are unable to connect meaning to the words (Beck, McKeown, & Kucan, 2008). Real comprehension is described by Zimmerman and Hutchins (2003) as thinking, learning, and expanding a reader's knowledge and horizons. Many students today have a clearer understanding and are able to more accurately conceptualize the meaning of a term after repeated exposure through several means (Blachowicz & Fisher, 2002). Multi-component strategies are essential in providing repeated exposure in different contexts, and successfully keeping students engaged in the learning material (Simmons et al., 2005). The

complexity of the knowledge of a word is further explained by Nagy (2009) as "knowing a word includes knowing how it can function in a sentence, what other words it is commonly used with, how it is related in meaning and form to other words, and what styles of language for which it is appropriate" (p. 48). Neuman and Dwyer (2009) emphasize this notion that connection between vocabulary and better reading ability is that vocabulary is more than words; it represents knowledge. Nation (2008) stated that "the ability to deal with words is at the very heart of reading: If an individual fails to read words, if they are slow to read words, or if they are unable to appreciate the meanings of words, comprehension will be seriously hampered" (p. 1122).

The importance of vocabulary as a critical determinant of comprehension success is further explicated by Joshi (2005), "A well-developed meaning vocabulary is a prerequisite for fluent reading, a critical link between decoding and comprehension. However, the role of vocabulary in fluent reading has received much less attention in both research and theory than have decoding and comprehension strategies" (p. 209). Thus, a number of researchers have indicated a strong need for further study on the role of vocabulary in comprehension, particularly in the content areas (Beck & Carpenter, 1986; Beck, McKeown, & Gromoll, 1989; Beck, McKeown, Sinatra & Loxterman, 1991; Hall, 2004; Harmon & Hedrick, 2005; NRP, 2000; Williams, 2005). Therefore, the researchers sought to address two primary research questions: What is the effect of multi-component social studies vocabulary instruction on comprehension, and is that difference sustained?

Method

To address these two research questions, the authors designed this study to determine the effect of multi-component vocabulary instruction in social studies in Grade 4. Social studies was selected because content area texts for this subject contain vocabulary that must be learned to comprehend the material. The opportunity to create curriculum that met the needs of the schools, teachers, and students, while addressing a much-needed area of research, opened the door for exploration of explicit instruction and the vocabulary-comprehension connection. The findings from the literature review demonstrated the gap in research for much-needed studies to address vocabulary instruction, its effect on comprehension, and active learning within the confines of real schools and authentic settings. The focus was on direct, explicit instruction of vocabulary strategies and how it impacts comprehension. Explicit instruction was utilized because it was identified in the NRP (2000) report as one of the most important methods of teaching vocabulary and would enable teachers to focus on key words that were common and recurrent (Juel & Deffes, 2004) in their social studies materials. This type of direct, explicit instruction paves the way for students to identify words and subsequently retain their meanings through repeated application of word learning strategies.

Participants

For the purpose of this study, the authors focused on three separate districts in the southwestern part of the United States. The research was conducted on five different campuses located in five different cities within approximately 30 miles of each other. Prior to the beginning of the school year, researchers met with superintendents and school administrators to engender their support. The administrators provided the names of all fourth-grade social-studies teachers on each campus. The names were then anonymized and randomly assigned to either the treatment group or comparison group. One campus had two teachers who taught all sections of social studies. The first teacher's name drawn served as the treatment group teacher for her four sections of students and the other teacher as the comparison group for her four sections of students. There were a total of 23 teachers and 29 sections of students who participated. A total of 375 fourth-grade social

studies students participated in this study, comprising 15 treatment groups and 14 comparison groups.

Intervention

At the time, the district's curriculum consisted of 300 minutes of language arts instruction per week, with no structured vocabulary component. The authors designed a six-week intervention in which treatment group teachers were asked to spend 90 minutes per week of language arts time focused on social studies vocabulary instruction. The teachers were asked to structure the additional instruction time in thirty-minute segments, three times per week, as classroom time and schedules permitted. The authors surveyed all teachers to obtain basic information regarding teaching experience, degrees, certification, ethnicity, and gender. Also included in the survey was information related to the current use of different instructional strategies in the classroom and the teacher's perception of his or her familiarity with different strategies. The researchers designed curriculum notebooks for the six weeks according to district curriculum and provided them for each of the teachers in the treatment group. A comprehensive set of materials were reviewed together and all of the teachers in the treatment group were trained in the expectations for vocabulary instructional methods prior to implementation. The training included the use of each of the following: explicit instruction; student study teams; active engagement in learning tasks; vocabulary maps; connections webs; semantic feature analysis. Students were actively involved in the learning process and the teacher facilitated activities such as games like Ready, Set, Go; Vocabulary Memory; or Jeopardy, in addition to their instruction. While students were expected to actively participate, there were multiple opportunities for different types of participation. These activities allowed for repetition and use of words in multiple contexts, which allowed students to grasp word meaning and required them to use them in more than one context. Therefore, students were able to expand their knowledge, apply the knowledge to the content area materials, and extend beyond the content with various activities.

Each of the multi-component vocabulary instructional strategies was included within the curriculum guides provided for all treatment group teachers. Additionally, treatment group teachers were provided with supplemental materials, games, and activities for implementation of the curriculum. The first two weeks of materials were also copied and placed in student folders for every student in their classes. Explanation of materials and their appropriate use were provided in the training sessions prior to implementation of the curriculum. The teachers in the treatment groups followed the lesson plans created for this study to implement the vocabulary strategies. The teachers were asked to spend a minimum of 90 minutes per week, preferably in a 30 minute three times per week format, if time and schedules permitted, to implement this intervention. The acquisition and maintenance of the content learned through vocabulary strategies was assessed through pretests, six-week posttests, and additional testing six weeks post-intervention. The types of materials that were utilized are described above and an example of a connections web is included in the appendix.

Researchers met with the participating teachers four times during the study. The first meeting was an overview of the study, and at the request of the school administrators, included teachers in both the treatment and comparison groups. Following a brief introduction, the comparison teachers were dismissed, and the treatment teachers were trained regarding the implementation of the vocabulary intervention strategies. No specific information regarding the actual study and/or implementation of strategies was discussed with the group as a whole. A second and third training session occurred with both the treatment and comparison groups to discuss testing procedures. The second session was for the first set of tests and the third was held before administration of

posttests. One final meeting prior to implementation was also held to review, answer questions, and ensure that all teachers were ready to begin at the inception of the second six weeks of the school year. These meetings were held separately in each of the three districts. Also, as the tests were delivered and picked up, individual visits with teachers were held as needed. Testing procedures were planned in each case so that each classroom was assigned a particular format for administration to vary the order in which tests were administered.

Fidelity of implementation

Observation of the treatment and comparison group teachers and their classrooms took place beginning the sixth week of the school year -- before, during, and after the study period. Observation was conducted by one of the authors and four trained data collectors. The data collectors had a number of years of experience in visiting classrooms. An original training session was held to explain the process and describe the research. Each data collector was provided with a notebook that included basic information about the study and the materials they would need as they entered each classroom. The forms were discussed in great detail and bi-weekly meetings were held to discuss any questions or concerns. The senior author also observed each of the four data collectors on two separate occasions. Regular contact with the data collectors through meetings, email, and phone calls ensured continuity of the data collection.

The data collectors observed each classroom a minimum of once each week during the social studies instructional period, using a checklist based from materials developed by the Teacher Quality grant (Simmons et al., 2005), containing six sections. The first section included the beginning and ending times of the observation, the name of the district and school, treatment vs. comparison group, maximum number of students in the classroom, and maximum number of adults in the classroom during the observation. In the second section, observers were asked to look for seven different comprehension strategies and note the level of implementation, i.e. whether a strategy was modeled, it was explained, or students practiced it. Thirdly, observers were asked to look for seven vocabulary strategies and tally how often they occurred during the class period.

Observation of the teacher providing explanations, definitions, or examples of vocabulary, and/or extension to include paraphrasing, and/or multiple meaning words and the use of visuals, facial expressions, demonstrations, the use of word learning strategies, demonstrated knowledge of words by the students with teacher responses and specific application of word learning strategies were all included. Fourthly, grouping arrangements (teacher working with: whole class, large group, small groups, pairs, individual student, no direct student contact) and text reading (supported oral reading, independent silent reading, independent oral reading, teacher reads aloud, teacher reads aloud with students following, text not used for comprehension instruction) were coded every 15 minutes during the observation. In the fifth section, observers were asked to check thirteen different possibilities of materials used during the observation, including visuals, textbooks, computers, workbook pages, chalkboards, videos, and audio tapes among others. Finally, the observers noted the implementation of intervention instruction. It was broken down into thirteen different categories, and coded as to the level of implementation being: none of the time, part of the time, or full time. The quality of implementation was rated on a 0-2 scale associated with unacceptable, acceptable, and excellent.

Teachers were cooperative about allowing visits at different times and on different days. School schedules for special days and/or activities necessitated an occasional change in observation schedules.

Measures

Three different measures were administered to all the students to address the two research questions examined in this study. The Test of Silent Contextual Reading Fluency (TOSCRF) was administered at the beginning of the study to determine students' reading ability, and assess if it was a confounding factor. To address the first research question, "What is the effect of multi-component vocabulary instruction on comprehension?," the researchers administered two tests: a Curriculum-Based Measures (CBM) test, and a Checkpoints for Content (Checkpoints) test. The CBM was strictly a vocabulary test that served as a baseline to determine if students' vocabulary performance improved during the intervention. The Checkpoints test was similar to a unit test and was designed to measure students' performance in comprehension. To address the second research question, "Is any difference sustained?," both measures were administered three times: before the intervention, at completion of the intervention, and six weeks following the conclusion of the intervention.

Test of Silent Contextual Reading Fluency (TOSCRF, 2006). According to Hammill, Wiederholt, and Allen (2006), this test: measures the speed with which students can recognize the individual words in a series of printed passages that become progressively more difficult in their content, vocabulary, and grammar. The passages that the students are given to read are adapted from passages in the Gray Oral Reading Tests-Fourth Edition (cited in Wiederholt & Bryant, 2001) and the Gray Silent Reading Tests (cited in Wiederholt & Blalock, 2000). (p. 1)

The test has a two-minute practice section, and then a three-minute exam section. The test requires knowledge of word identification, meaning, sentence structure, and comprehension. It was intended for the purposes of this study to serve as a measure of the students' reading ability. It was administered only in the beginning with the pretest measures. The TOSCRF is a timed measure in which students must recognize individual words in a series of printed passages. The passages get progressively more difficult with regard to content and vocabulary. TOSCRF was normed using a national representative sample of 1,898 individuals in 23 states and for stated purposes, it was demonstrated to be both valid and reliable.

Curriculum-Based Measure (CBM). The vocabulary matching curriculum-based measure was administered as a pretest, posttest 1 after six weeks, and posttest 2 six weeks post-intervention. The CBM was used as a fluency measure for vocabulary. The measure was timed for five minutes. It was in a matching format with 20 social studies words and their definitions. The CBM was adapted from the Teacher Quality Grant (Simmons, Rupley, Hairrell, Byrns, Vaughn, & Edmonds, 2005). It was patterned after the work of Espin, Shin, and Busch (2005), who discussed the importance of measuring change in students. Typically, measurement is at a single point in time, which is evident with achievement testing and other standardized tests measures. Curriculum-based measurement provides an ongoing data collection system that provides teachers with information on student progress, and in this case, on the progress of the intervention (Espin et al., 2005). Espin et al. (2005) completed a study to determine whether or not vocabulary-matching probes could be used as an indicator to determine student learning in social studies. Their research supported the use of these measures. The CBM created for this study was formed following their model of five-minute, group-administered, vocabulary matching probes. This measure has been supported by other researchers as well (Deno, 1985; Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1994; Fuchs & Fuchs, 1998).

Checkpoints for Content (Checkpoints). Checkpoints for content was a teacher and researcher created multiple choice exam similar to a unit test. The checkpoints were

adapted from the Teacher Quality Grant materials and existing measures from the individual districts. Two fourth-grade teachers from two different districts not associated with the study assisted in preparation of the questions. The intention was to measure for comprehension of specific expository text material. There were 20 multiple choice questions derived specifically from the districts' curriculum. The checkpoints were administered as pretests, posttests 1, and posttests 2.

Analysis

Demographic information was collected and tabulated for both students and teachers participating in this study. The dependent variable in this study was the student outcomes including scores on the pretests, posttest 1 measures, and posttest 2 measures. Descriptive statistics were performed on the Fluency, CBM, and Checkpoints measures. Difference score analysis was also performed on the CBM and Checkpoints measures. Additionally, results of one-way repeated-measures analyses of variance (ANOVA) were computed using the effect for group, effect for time, and effect for group by time or interaction effect on both test measures.

Results

Demographic information on the study participants and their respective campuses is presented in Table 1. Overall, the study population very closely approximated the reference population in terms of ethnic and socioeconomic characteristics. No significant differences were observed for gender or ethnicity between the experimental and control groups.

Table 1. *Gender and ethnicity of 4th grade students in experimental and control groups.*

	Experimental (*n*= 207)		Control (*n*= 168)	
	n	*%*	*n*	*%*
Gender				
Female	118	57.0	90	53.6
Male	89	43.0	78	46.4
Ethnicity				
Asian	1	0.5	1	0.6
African-American	41	19.8	26	15.5
Hispanic	11	5.3	12	7.1
Other	2	1.0	3	1.8
White	152	73.4	126	75.0

Descriptive statistics for the Fluency measure are presented in Table 2. The experimental group scored slightly higher than the control group, but the difference was not statistically significant.

Table 2. *Results of test of silent contextual reading fluency*

Group	*n*	*M**	*sd*	*p*
Control	168	74.71	50.77	0.268
Experimental	207	79.86	39.05	

**Standardized TOSCRF scores.*

The first research question addressed in this study was, "What is the effect of multi-component vocabulary strategy on comprehension?" Two measures were used to address that question, the CBM and Checkpoints tests. Descriptive statistics for these two measures are presented in Table 3. On the Checkpoints measure, the control group had a mean of 11.00 for the pre-test and 13.38 for post-test 1. The experimental group had a

mean of 11.37 for the pre-test and 14.13 for post-test 1. On the CBM, the control group had a mean of 4.53 for the pre-test and 8.63 for post-test 1. The experimental group had a mean of 4.14 for the pre-test and 13.27 for post-test 1.

Table 3. *Means and standard deviations for checkpoints and CBM pre-, post-test 1, and post-test 2*.

Test Measures	Group	*n*	*M*[c]	*sd*
Checkpoints[a]				
Pretest	Control	134	10.99	3.604
	Experimental	196	11.32	3.528
	Entire Sample	330	11.18	3.557
Posttest 1	Control	134	13.28	3.923
	Experimental	196	14.10	3.960
	Entire Sample	330	13.76	3.959
Posttest 2	Control	134	12.86	4.276
	Experimental	196	14.35	3.690
	Entire Sample	330	13.75	4.000
CBM[b]				
Pretest	Control	143	4.59	3.349
	Experimental	193	4.11	3.222
	Entire Sample	336	4.32	3.280
Posttest 1	Control	143	8.50	5.403
	Experimental	193	13.20	5.476
	Entire Sample	336	11.20	5.914
Posttest 2	Control	143	9.02	5.795
	Experimental	193	13.15	5.669
	Entire Sample	336	11.39	6.069

a. 34 in the control group and 11 in the experimental group excluded because of incomplete Checkpoints test scores.
b. 25 in the control group and 14 in the experimental group excluded because of incomplete CBM test scores.
c. Number of items correct on each test, out of 20 items.

Difference score analysis demonstrates a significant difference between post-test 1 and pre-test for the intervention group on the CBM measure (Table 4). The mean difference on the Checkpoints measure was very similar between the two groups, and was not statistically significant.

Table 4. *Difference score analysis for pre- and post-test 1on CBM and checkpoints measures*.

Test Measure	Group	*N*	Mean Difference	*sd*	*p*
Checkpoints	Control	157	2.36	3.36	0.263
	Experimental	201	2.75	3.09	
	Total	358[a]	2.56	3.21	
CBM	Control	151	3.86	4.47	<0.001
	Experimental	196	9.03	4.38	
	Total	347[b]	6.78	5.11	

a. 11 in the control group and 6 in the experimental group excluded because of incomplete test scores.
b. 17 in the control group and 11 in the experimental group excluded because of incomplete test scores.

Research question 2

The second research question addressed in this study was, "Is any difference in comprehension sustained?" To address this question, researchers administered both the CBM and Checkpoints measures a third time, six weeks after the intervention had concluded (Table 3). Repeated measures ANOVAs were conducted on each test measure, and the results are presented in Table 5. For the Checkpoints test, the Wilks' lambda for the effect of time was 0.590, $p < 0.001$, with a partial η^2 of 0.410. The effect for group by time produced a value of 0.970, $p = 0.006$, with a partial η^2 of 0.030. For the CBM test, the Wilks' lambda for the effect of time was 0.297, $p < 0.001$, with a partial η^2 of 0.703. The effect for group by time produced a value of 0.744, $p < 0.001$, with a partial η^2 of 0.256 (Table 5).

Table 5. *Results of repeated measures ANOVAs for CBM and Checkpoints measures*.

Effect	Wilks' lambda	*p*	Partial η^2
CBM[a]			
Time	0.297	<0.001	0.703
Group*Time	0.744	<0.001	0.256
Checkpoints[b]			
Time	0.590	<0.001	0.410
Group*Time	0.970	0.006	0.030

a. 25 in the control group and 14 in the experimental group excluded because of incomplete CBM test scores.

b. 34 in the control group and 11 in the experimental group excluded because of incomplete Checkpoints test scores.

Conclusions

This study focused on the need for research in the area of vocabulary instruction. In particular, fourth grade students were selected for multi-component strategy instruction in their social studies classrooms. According to Bromley (2007), teaching vocabulary well is a key aspect of developing engaged and successful readers. Additionally, Nagy and Scott (2000) described word meanings as making up as much as 70-80% of comprehension. The importance of vocabulary was well-documented; the existence of intervention studies to support the importance of intense vocabulary instruction was not. The NRP (2000) emphasized that vocabulary learning was effective if students were actively engaged in their learning. The curriculum for this study was designed to actively engage students and to reinforce retention of word meanings in isolation as well as in context.

The first question to be addressed in this study was: "What is the effect of multi-component vocabulary instruction on fourth grade students' social studies vocabulary and comprehension performance during a six-week period?" The CBM test, consisting of 20 items (words and definitions) in a matching format, strictly measured vocabulary performance. A sample question from the CBM required students to match the term "livestock" with the definition of "animals that are kept or raised for use and profit." The Checkpoints test, however, was designed as a multiple-choice unit test covering the same material the students were learning, but sourced from a separate curriculum. A sample Checkpoints question was "If you went on a field trip to view livestock, you would probably see _____," and required the students to select from the following four options: "a. corn, wheat, grain; b. hay, fertilizer, irrigation; c. cows, sheep, turkeys; and d. tractors, barbed wire, wheel barrows."

It would be expected that the increased vocabulary instruction in the experimental group would result in improved scores on the CBM, which is a strict vocabulary measure. However, if vocabulary instruction also impacts comprehension, then scores on the Checkpoints measure should improve as well. Table 4 shows the mean difference between the pre-test and post-test 1 was greater for the experimental group in both measures than for the control group. However, the difference for the CBM was statistically significant, while the difference for the Checkpoints measure failed to achieve statistical significance.

In contrast, when looking at the results from all three pre-test, post-test 1, and post-test 2 scores to answer the second research question, if any difference is maintained, both CBM and Checkpoints measures show a statistically significant interaction for group by time. However, the partial η^2 for the CBM measure is much larger (0.256) than for the Checkpoints measure (0.030). This would indicate that the vocabulary intervention had a greater impact on the CBM measure (strict vocabulary measure), while a smaller, but still significant impact on the Checkpoints measure (comprehension measure).

It is interesting that no significant difference for the Checkpoints measure was observed in the first six weeks, but a difference did emerge at the 12-week follow-up point. This may be due to the fact that both groups scored higher initially on the Checkpoints pre-test (overall mean = 11.18 / 20) as compared to the CBM pre-test (overall mean = 4.32 / 20). The higher pre-test scores on the Checkpoints test would mean there is less room for improvement as compared to the CBM test. Additionally, after the intervention, scores on the Checkpoints measure fell slightly for the control group, while they continued to improve for the experimental group. This may indicate that the effect of vocabulary instruction on improved comprehension performance may be prolonged past the duration of the intervention. Finally, the Fluency scores for the experimental group were slightly higher than those of the control group. While the difference was not statistically significant, we would expect such a result to bias the results of the Checkpoints measure toward the null.

One of the challenges of this study design was the implementation of the vocabulary intervention. While teachers were receptive to participating in the study, they did have two primary concerns. One was associated with the lack of time to complete the instructional strategies provided, and the other concern was whether or not the focus on vocabulary was allowing them to be inclusive enough with the content in the textbook. The study was intended to combine vocabulary and content and demonstrate that teaching content with students who do not understand the vocabulary could be futile and certainly would not contribute to long-term retention of content knowledge. However, the teachers wanted more time to read and focus on the material in the text, in addition to the vocabulary focus. Therefore, time was a factor.

Additionally, no assessment was made as to the level of baseline vocabulary instruction that occurred during the study period among the control teachers. While teachers in the experimental group were asked to spend ninety minutes each week on the vocabulary strategies, it is possible that some of the control teachers were independently covering the same material as well. However, since the teachers were randomly assigned to either the control group or experimental group, we would not expect any difference in teaching methodology between the two groups. Furthermore, if the control teachers were independently using similar vocabulary strategies, we would expect the results to be biased towards the null.

One of the strengths of this study was the positive reception from the teachers involved. On a post-study survey, almost all of teachers agreed that their personal instructional practices had changed as a result of participating. Additionally, they also

agreed that their students were gaining knowledge as a result of the intervention. Teachers in the classroom face many varied demands for their time and attention. Implementing an intervention that not only demonstrated statistically significant improvement in comprehension, but also was of practical significance and value to the teachers themselves increases the potential benefit to other teachers. Finally, the instruments used in this study were demonstrated to have high levels of internal reliability. Reliability analyses of the Checkpoints and CBM measures were conducted, with both measures revealing an alpha greater than 0.7, the standard for internal consistency set out by Pallant (2005).

The teachers from this study initially self-reported that they were unable to spend the time on vocabulary. However, careful instruction requires that in order to convey content, students must have an understanding of the vocabulary (Anderson & Freebody, 1981; Durkin, 1993; Yildirim, Yildiz, & Ates, 2011). Experimenting with practices to determine their effectiveness is critical for improving our classroom instruction (Cunningham and Zibulsky, 2009). As demonstrated in this study, multi-component vocabulary instruction in 4th grade social studies improved performance in both vocabulary and comprehension areas. Retention of that improvement was demonstrated as well. While addressing vocabulary can be a time-consuming process, its contribution to success in comprehension of content cannot be underestimated, particularly in helping those who might otherwise fall into the group of those who fall short in terms of literacy development (Nation, 2008). Further research studies should be conducted in classrooms over other content areas to broaden our understanding of vocabulary instruction and the resulting effect on comprehension for all students. Several teachers and administrators also noted that this instruction would be beneficial in ESL classrooms. Regardless of the setting or content area, literacy development is crucial, and multi-component vocabulary strategies have been shown to be a key part of that process (Simmons et al., 2005).

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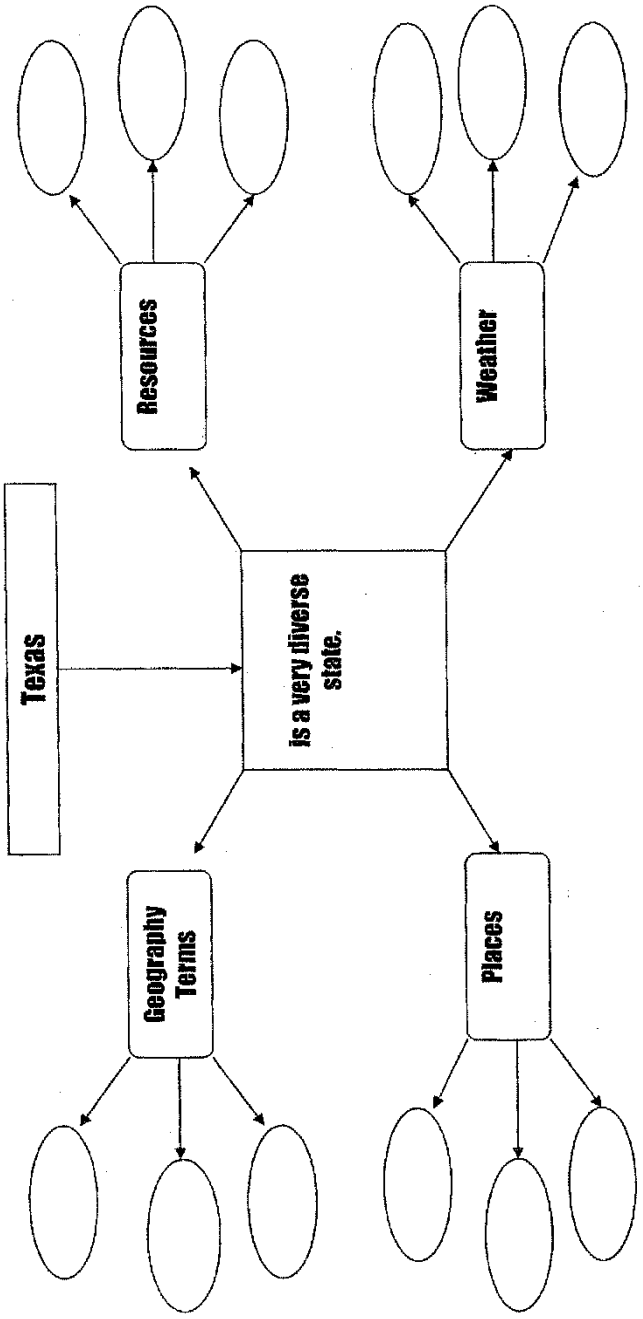
APPENDIX - A



Connections Web – Week 6, Lesson 1