

Supporting Students' Vocabulary Development Through an Integrated Literacy Approach

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This study investigates the implementation of an integrated, theoretically based vocabulary intervention in fourth-grade ELA classrooms. The intervention was designed with word knowledge at the center and focused on developing high-quality lexical representations of words as depicted by the Lexical Quality Hypothesis. Lessons utilized Word Generation (WG) resources, word study targeting morphology, and strategies to develop students' word consciousness. Both quantitative and qualitative measures were used to assess students' knowledge of target words, their ability to transfer learned affixes to new words, and to evaluate the growth of word consciousness. Evaluation of the assessments illustrate how students demonstrated growth in all areas. The study results reveal promising findings for integrated vocabulary instruction and positive impacts on students' word knowledge. Further, this investigation depicts important implications for supporting students' ideas in lessons and how this flexible approach may positively impact students' learning.

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1.0 Naming and Framing the Problem of Practice

1.1 Broader Problem Area

My problem of practice focuses on the vocabulary development of upper elementary students and approaches to vocabulary instruction that I could implement to support that development. My interest in vocabulary grew from a concerning trend among students within my 4th-grade classrooms. Students pronounce words quickly and accurately because they have strong foundational knowledge and skills in decoding and sight words. However, when I confer with them, they often appear to lack word knowledge and strategies for determining word meanings, leaving me concerned about their text comprehension. After reviewing the research of vocabulary scholars and experts, I have learned that this is a pervasive issue many educators face. During the transitional years, as students move from "learning to read" to "reading to learn," this challenge is particularly apparent. In fact, Chall and Jacobs (2003) coined the term "fourth-grade slump" to describe the difficulties students face regarding text comprehension and vocabulary during this period.

Contributing to this problem, the yearly plan in my school does not include specific vocabulary words or strategies, so instruction is left to each teacher and is often sporadic and generally focused on using context clues to determine the meaning of unknown words. Likewise, this issue is not unique to my place of practice. According to Beck et al. (2013), many educators lack the knowledge of instructional approaches for successful vocabulary teaching. Reflecting on this led me to identify my problem of practice as a concern for lack of attention to students' vocabulary development.

1.2 Organizational System

My problem of practice exists within a public, rural, racially white-dominant, but socioeconomically diverse school that serves approximately 2,400 students. The district operates four schools, including (a) one elementary school for grades K-5, (b) a middle school serving grades 6-8, (c) one high school with 9-12 grades, and (d) a K-12 school for court-appointed adjudicated youth. The student population overall is approximately 81% Caucasian.

I teach two fourth-grade sections of reading in the K-5 elementary school, which I will refer to as Edgewood Elementary. To identify teacher perceptions of strengths and weaknesses in our literacy curriculum, I designed a needs assessment that I sent electronically to the 24 English Language Arts (ELA) teachers K-5. A total of 23 ELA teachers in grades K-5 completed the needs assessment, which was in the format of a 5-point Likert rating scale. Teachers were asked to indicate the extent to which they felt that literacy goals were well defined and in place. Further, they rated the degree to which instructional approaches and resources were available to meet those goals. One of the most significant areas of need, as revealed by the teachers taking the survey, was vocabulary. In response to the statement, "the literacy curriculum includes a plan for common and consistent vocabulary strategies and assessments in all grades," there were no teachers who indicated that they felt the literacy curriculum adequately addressed students' vocabulary learning. Also, fewer than half (42%) of teachers reported that this goal was "in progress." In other words, 68 % of the ELA teachers indicated that vocabulary instruction and curriculum at Edgewood need to be addressed.

Compounding this issue, a recent decline in reading scores on standardized assessments led the building principal to launch several new schoolwide initiatives. One of the new strategies included a transition from self-contained classrooms to departmentalization. Previously, teachers

in grades K-5 taught all subjects to all students, except for learning support students in their homeroom class. The rationale for departmentalizing was that teachers would be responsible for less curricular content, allowing them to become "experts" in their discipline of either ELA or math and science. Departmentalizing, in this context, also involved tracking the students into Advanced, Proficient, or Below level classes based on their assessment performance, which means that even children in kindergarten and first grade are placed into these leveled classes. Leveling students in this way impact the existing problem of the lack of focus on vocabulary in several essential ways. First, students entering kindergarten are coming from vastly different lived experiences, and tracking these children at such a young age likely promotes a narrowed view of their abilities. Schools, in general, tend to value academic vocabulary that is likely to be encountered in texts and on tests used by schools. Therefore, students who have not been exposed to these words at home will likely be tracked into lower levels entering kindergarten regardless of their true aptitudes or abilities. My problem of practice is directly impacted by this tracking and adds to the importance of addressing vocabulary instruction.

1.3 Stakeholder Description

I have identified the following stakeholders for my problem of practice: (a) teachers, (b) school and district administration, (c) instructional coaches, and (d) students.

1.3.1 Teachers

There are 36 classroom teachers in Edgewood Elementary. All are Caucasian. Eighteen of the classroom teachers are exclusively ELA teachers. Additionally, there are four learning support teachers and a Title I teacher who provides instructional support and interventions in ELA. Of this group of teachers, 22 are female, and 4 are male. The majority of teachers, nineteen, have been with the district for more than fifteen years. Two have been in their position for 5-10 years, and three have been with the school for fewer than 5.

Teachers who responded to the needs assessment that I conducted indicated the need for collective and consistent vocabulary instructional strategies and assessments. Further, teachers expressed a specific need for professional development time devoted to instructional best practices, including vocabulary instruction, as well as the desire for time to collaborate within and among grade level and department teams. Teachers also pointed to the lack of time for collaboration, as well as the perception of continual curriculum changes, as primary drivers for the inconsistency of the reading program, including vocabulary approaches and instruction. Teachers expressed being overwhelmed at trying to keep up with new initiatives and also maintaining all prior responsibilities. Also, they consistently expressed the need for professional development time devoted to meeting with grade level and department teams to coordinate new initiatives before adding any other curriculum changes. Lack of clarity and the need for district direction concerning literacy programming was an overarching theme that the needs assessment illuminated. Ideally, examining and refining one piece of the literacy curriculum, specifically vocabulary, may spur the process of systematically improving each component of the ELA curriculum.

1.3.2 School and District Leaders

Edgewood employs a principal and an assistant principal. The principal, a female Caucasian, has served in the role for approximately 15 years. Previously, she was an assistant principal within the district at the K-12 school for adjudicated youth. Three years ago, the position of assistant principal was created due to the merging of the two elementary schools. The assistant principal is a Caucasian male who had been serving as the vice principal in the district's school for adjudicated youth. Central administration is led by the district superintendent, a Caucasian male. His tenure began in January of 2016. Previously, he had served 12 years as a high school principal and two years as an assistant superintendent within a suburban district approximately 60 miles away from Edgewood. The position of assistant superintendent was added in the spring of 2016. This position is held by a Caucasian male who previously worked with our current Superintendent as his vice principal in their previous district. Through in-service and committee meetings, as well as informal interviews, I have learned that the principal and assistant principal are primarily responsible for curriculum decisions and allocations for professional development time. Also, Edgewood's principal has indicated during an interview conducted on November 14, 2019, that she does not believe in "teaching reading out of a box." Instead, she believes that teachers should be able to make professional decisions regarding how to teach the expected outcomes. This mindset may be perpetuating the lack of clarity teachers expressed by further contributing to the divisiveness of the literacy program overall.

1.3.3 Literacy Coach

Edgewood employs three instructional coaches: literacy, math, and STEAM, for grades K-5. The literacy coach is a female Caucasian who has served in the current position for approximately 20 years. Previously, she worked out of state as a high school English teacher. In an interview on October 23, 2019, the literacy coach described her primary roles to be data management and analysis, as well as facilitation of professional development. The coach explained that she analyzes the assessment data for students in grades K-5 and identifies areas of weaknesses to address in professional development. Further, she works to identify areas where more targeted instruction is needed.

Additionally, the literacy coach explained that she analyzes PSSA's released content and interprets the CCSS standards for each grade level so that teachers understand the specifics of the skills addressed by each standard. An area of concern expressed by the coach is assisting teachers who are overwhelmed and feel that they don't have enough time to fit in everything. She explained that teachers are forced to prioritize. When speaking specifically about vocabulary, she stated that, while vocabulary is essential, it is not as crucial as other literature and informational standards, and those standards must be the priority. While there is an abundance of literacy data available, and the coach ensures that all teachers receive data regularly, there is no mention of how to use the data to improve instruction. Further, the coach's belief that vocabulary instruction is not as high of a priority as standards that are assessed on PSSA assessments suggests a misunderstanding on how vocabulary impacts reading comprehension. Further, this belief may implicitly undermine the importance of vocabulary in the minds of the teachers as well.

1.3.4 Students

According to the district website, Edgewood serves 875 students in grades K-5. The student population is 54 % male/46% female, 94% Caucasian, 3% African American, 2% Latino, and 1% Asian. Approximately 44% are economically disadvantaged. Because of the percentage of students living in poverty within the district, our school is considered a schoolwide Title 1 school. Roughly 20% of students qualify for special education, and the gifted program services about 4% of primary students. Testing data for the school year 2018-2019 shows that 72.8% of students achieved scores at a proficient or advanced level in English Language Arts and Literature, which is an increase from the percentage of 67% from previous years. However, only 47% of economically disadvantaged students are achieving these levels. In other words, of the 385 economically disadvantaged students, almost half are performing at basic or below basic. Considering this data and the tracking model that is in place, these neediest students may benefit most from intentional, consistent, and comprehensive vocabulary instruction.

1.4 Statement of the Problem of Practice

Vocabulary development is critical to students' reading growth as the reciprocity of vocabulary development and reading comprehension is well-documented (e.g., Beck et al., 2013; Kieffer & Lesaux, 2007; Lesaux et al., 2017). According to the National Reading Panel, vocabulary knowledge is one of the five essential components that scientifically based reading instruction must focus on (National Reading Panel, 2000). In fact, Hiebert (2019) argues that text comprehension and knowledge of vocabulary are so dependent on one another that there can be

negative consequences for students who enter school with limited vocabularies, particularly if their school does not have quality vocabulary instruction in place (p. 14). According to Hiebert (2019):

Students with strong entry vocabularies may learn to read quickly and, through reading, extend their vocabularies. Their peers with less extensive vocabularies may be off to a slow start and then may lag even further behind in vocabulary growth because they are not gaining new vocabulary from the text. (p. 14)

This may contribute to the reason educators report a "fourth-grade slump" in many students' literacy growth, particularly among students from low-income families (Chall & Jacobs, 2013). When studying this critical period of reading development, Chall and Jacobs (2003) looked at specific reading skills. They found that students' knowledge of "word meaning," or vocabulary knowledge, showed the most substantial decline during this transitional period.

Clearly, there are people working for and against a change to instructional practices at Edgewood. There is a disconnect between the perspectives of teachers who want direction, clarity, and consistency in literacy programming, the principal who believes teachers should be allowed to make their own instructional decisions, and the literacy coach who devalues vocabulary instruction as a vital component of literacy. Edgewood Elementary appears to be a microcosm of the educational system at large as scholars report that vocabulary instruction often receives too little time in schools, and instructional pedagogy is not universally reflective of best practices (Beck et al., 2013).

In order to understand the professional knowledge related to vocabulary instruction, I reviewed the literature to answer these two questions:

- What theoretical perspectives explain the role of vocabulary in literacy development?

- What does research reveal about effective instructional perspectives or approaches for vocabulary instruction?

2.0 Review of Supporting Scholarship

2.1 What Theoretical Perspectives Explain the Role of Vocabulary in Literacy Development?

Contemporary perspectives of vocabulary development cast it as a critical part of learning to read and write texts. Scholars have generated theories focused on understanding word meanings in context and intentionally supporting students in acquiring word knowledge, rather than expecting that if students read widely, they will simply absorb word knowledge. A theoretical perspective that informs vocabulary research suggests that the key to the reciprocal relationship between text comprehension and word identification exists within the readers' mental lexicon or dictionary (Perfetti & Stafura, 2014). Similar to a dictionary entry, a high-quality mental representation of a word consists of several features. Perfetti argues that recognizing a word quickly, or fluently, does not necessarily lead to greater comprehension. Rather, readers must be able to identify words and efficiently associate appropriate meaning for the context. The Lexical Quality Hypothesis, developed by Perfetti, illustrates the components of word identity that are present in a high-quality representation. As shown in Figure 1, a high-quality representation of a word includes understanding the words meaning as well as its phonology (pronunciation), morphology (meanings of word parts), syntax (function in a sentence), and orthography (spelling) (Perfetti, 2007; 2017). Thus, vocabulary instruction needs to focus students' attention on all of these word features.

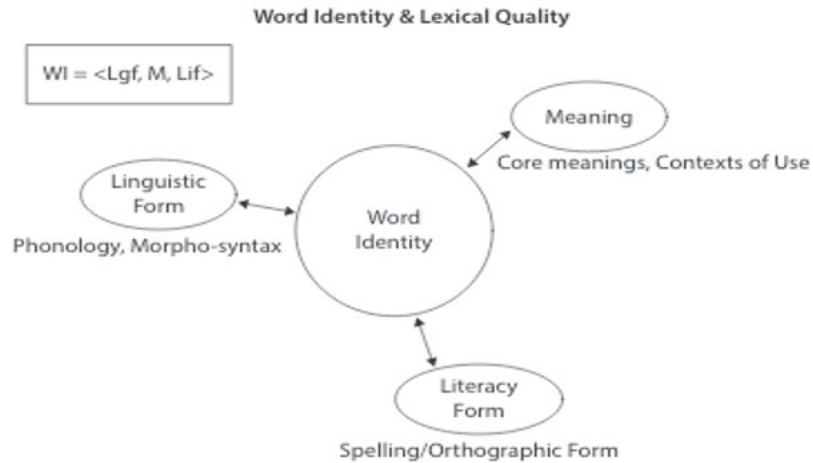


Figure 1. Word Identity and Lexical Quality

Perfetti and Stafura (2014) posit that the mental lexicon of a reader is the link that connects word identification to text comprehension. In other words, the mental lexicon is the bridge or gateway between the word identification system and the comprehension system, affecting both. Perfetti and Stafura (2014) refer to this as the Reading Systems Framework (Figure 2).

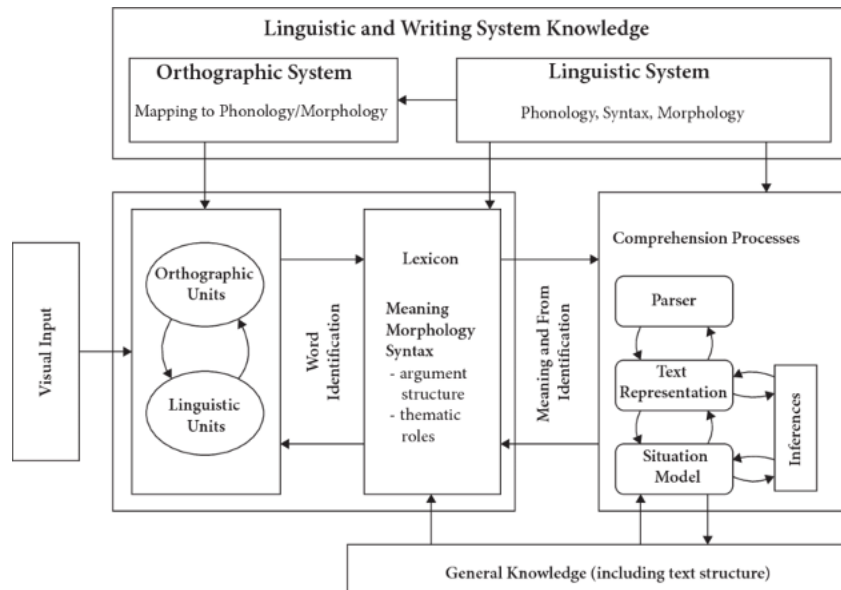


Figure 2. Reading Systems Framework

To develop high-quality lexical representations of words, Kucan (2012) claims that vocabulary instruction focusing directly on word meanings must be systematic with carefully selected words. Likewise, Beck et al. (2013) note that learning words through context is insufficient, as this assumes that students are reading widely enough to encounter a large number of unfamiliar words. Students also must have inference skills in place to understand unknown words. This stance is a direct response to the Simple View of Reading (SVR), which fails to consider the reader's interaction with text or the role of explicit instruction in supporting vocabulary development. SVR assumes that if a reader can decode and has enough experience with language comprehension, they will make gains in reading comprehension (Hoover & Gough, 1986; 1990).

Acknowledging the need for a more comprehensive framework, LaRusso et al. (2016) developed a model that explains deep reading comprehension. This was in response to the need for vocabulary instruction that addressed comprehensive cognitive abilities beyond SVR, such as memory and word knowledge. The authors argue that there is a need for increased attention to deep comprehension beyond the primary grades when students transition from learning to read to reading to learn. The authors hypothesized that three indicators would predict deep comprehension in older students. The three predictors examined in this study were academic language, perspective-taking, and complex reasoning. These skills, the authors insist, are essential to older students' ability to interact with and deeply comprehend the more challenging literacy tasks asked of students as they progress in grade level and begin disciplinary coursework.

This research reveals consensus that deep word knowledge is complex and multi-dimensional, yet a critical pillar in literacy success. While wide-reading, or the Simple View of Reading, was previously considered to be the most accepted method for growing student's

vocabulary knowledge, current research reveals word learning to be more complicated. Acknowledging the complexity of word learning also points to the complexity of teaching vocabulary in a meaningful way.

2.2 What Does Research Reveal about Effective Instructional Perspectives or Approaches for Vocabulary Instruction?

Existing research of contemporary scholars on effective vocabulary instruction presents convincing evidence that vocabulary instruction must be comprehensive and multi-dimensional (e.g., Beck et al., 2013; Graves, 2016). Two bodies of work guide current research in looking towards a model for comprehensive vocabulary instruction. Graves (2006, 2016) recommends a broad four-part instructional framework including (a) Frequent, Varied, and Extensive Language Experiences, (b) Teaching Individual Words, (c) Teaching Word-Learning Strategies, (d) Fostering Word Consciousness. Additionally, Beck et al. (2013) provide principles for a "robust" approach to vocabulary. This approach "involves directly explaining the meanings of words along with thought-provoking, playful, and interactive follow-up" (Beck et al., 2013) and is intended to be explicit and systematic, yet also rich and lively. Specific components of robust vocabulary instruction: (a) student-friendly definitions, (b) multiple exposures, (c) multiple contexts, (d) deep processing, (e) emphasis on high-utility academic language, (f) text-based approaches, (g) engagement in structured discussions, and (h) engagement in writing tasks. These two frameworks underscore just how critical a comprehensive approach to vocabulary instruction is to student's literacy development. In what follows, I examine how research from each of these approaches may intersect and highlight relevant research from other scholars in the field.

2.2.1 Frequent, Varied, and Extensive Language Experiences

The Common Core State Standards (CCSS) underscore the crucial role that vocabulary development plays on literacy achievement overall. CCSS standards relating to vocabulary are not only in the English Language Arts domain, but vocabulary expectations also appear implicitly across the standards of foundational skills, fluency, and writing (Fisher & Frey, 2014). For example, in grades 3-5, foundational skill standards require students to have morphology knowledge, and fluency standards call for the use of context to self-correct. In the writing standards, students must use transitional words and phrases and specific content vocabulary. Therefore, students must engage in vocabulary learning that promotes opportunity for use in a variety of language experiences across all content areas (Beck et al., 2013; Fisher & Frey, 2014; Graves, 2016).

2.2.1.1 Vocabulary From Texts That Students are Reading

Wide-reading alone is insufficient for most students to acquire in-depth vocabulary knowledge (Snow, 2018); however, there is research to support text-based vocabulary learning. Academic Language Instruction for All Students (ALIAS) is a text-based vocabulary intervention (Lesaux et al., 2017). It is based on the perspective that vocabulary is multi-dimensional and includes decoding skills as well as a deep understanding of word meanings.

This intervention is comprised of units that each focus on a short, engaging informational text. For each text, Lesaux and her colleagues chose high-utility academic vocabulary words for teachers to develop students' conceptual knowledge. Studies of this approach indicate that short, high-interest texts are a good starting point for providing students with meaningful interactions

with vocabulary in the text. Ultimately, Lesaux et al. (2017) concluded that a text-based approach to teaching vocabulary shows promise.

2.2.1.2 Promoting Multiple Exposures Across Multiple Contexts

Using student-friendly explanations for word meanings is a crucial component of vocabulary instruction; however, most students also need opportunities to use new words in meaningful contexts to develop deep and lasting knowledge (Beck et al., 2016; Graves, 2016). Research shows that students are more likely to truly acquire new words if they are exposed to them multiple times and through a variety of meaningful contexts (Beck et al., 2016; Nagy et al., 2012). Further, Biemiller and Boote (2006) emphasize that students are able to gain a better understanding of word meanings when they are introduced to words in context and given a brief explanation of the word meaning. Kieffer and Lesaux (2007) explain that being able to identify a word and knowing what it means is not enough. Readers must be able to go "beyond understanding its literal meaning but also knowing its relationship to other words and how to use the word in different contexts" (p. 136). That is, students gain deeper knowledge when they learn word meanings and are also given opportunities to use those words in different contexts to see how their meaning might be affected.

2.2.1.3 Engagement in Structured Discussions

Ford-Connors and Paratore (2015) conducted a meta-analysis to learn about factors impacting vocabulary instruction and learned that discussion and instructional conversations deepened student's vocabulary in several ways, including an increase of word learning in anticipation of discussion and participation deepening of content knowledge and increase in word consciousness. Similarly, Lawrence et al. (2015) sought to understand how discussion impacted

student knowledge of taught words. First, they defined high-quality classroom discussion to include "high engagement, attentive listening, and eagerness to contribute," as well as a high student-to-teacher ratio of talk (p. 753). Ultimately, Lawrence et al. learned that academic discussion provides a promising approach to increase student's depth of vocabulary knowledge. Goldman et al. (2016) were interested in common themes among three reading comprehension programs and determined that students' literacy learning deepened when they had opportunities to engage in either structured or informal discussions. Vocabulary, specifically, was increased when students had opportunities to read and engage in discussions multiple times within units to deepen content-specific knowledge and vocabulary (Goldman et al., 2016).

2.2.1.4 Engagement in Writing Tasks

A gap in research exists currently regarding studies that examine the reciprocal relationship between writing and vocabulary development. However, it is well established that students benefit from various and repeated opportunities to interact with words. Scott et al. (2008) describe how attending to authors' word choice can lead to opportunities for students to reflect on their writing and attention to vocabulary actively. The Common Core State Standards (CCSS) illuminate the importance of word choice and vocabulary in Writing Standard 2, which specifies that students in Grades 4-8 should be able to "use precise language and domain-specific vocabulary to inform about or explain a topic" (Common Core Standards Initiative, 2010).

2.2.2 Teaching Individual Words

Stahl and Nagy (2007) estimate that students learn approximately 3,000 words per year, not including multiple-meaning words, idioms, or multi-word units. Since directly teaching all

words that students need is an impossible task, it is essential to know what words deserve instructional attention. Beck et al. (2013) propose a tiered approach to selecting words for instruction. The authors explain that Tier 1 words are those that are likely to be easily understood because of experience or simple explanation. Some examples include a clock, run, and calf. Tier 2 words are "high-utility for mature language users and are found across a variety of domains" (p. 9). For example, words such as conclusion, irritate, and chaotic are Tier 2 words. Tier 3 words are domain-specific, such as democracy or circumference, and require explanations in specific disciplines such as history or mathematics.

A related body of work focuses on academic language use and vocabulary within academic discourse. Snow (2018) points out that with the more rigorous career and college readiness standards, upper elementary and secondary students are asked to complete more challenging tasks. Snow explains that research shows that older students must be able to consider "an array of perspectives, to work through a line of reasoning, and to use academic language appropriately" (p. 315). When examining academic language and effective instructional approaches, it is essential to explain what academic language is. According to Snow and her colleagues (2009), the academic language includes words used across disciplines, are at an appropriate challenge level, and have properties that provide opportunities for transfer are ideal for academic vocabulary instruction. Tier 2 words meet the criteria for academic language.

2.2.2.1 Emphasis on Academic Language

Existing research points to the role of academic vocabulary knowledge for achievement. These words, according to Nagy et al. (2012), refer to "the specialized language, both oral and written, of academic settings that facilitates communication and thinking about disciplinary content" (p. 92). The authors report that readers must understand the purpose of academic

vocabulary and how the language used in educational settings differs from the language used in casual conversations. Marzano (2006) sought to understand the effect further than academic vocabulary has on academic achievement. Teachers used a six-step instructional model called Building Academic Vocabulary (BAV) over the course of one academic year. When compared to students who did not participate in the BAV program, students who participated in the program achieved higher test scores in reading and across disciplinary contexts as well.

2.2.2.2 Student-friendly Definitions

Dictionary definitions are often brief and unfamiliar to students, and, therefore, they are not the most effective way for students to develop word meanings (Beck et al., 2013). Instead, the authors claim, student-friendly definitions allow students to make real connections since they are not confined by space and can provide longer, more complete descriptions (Beck et al., 2013). Further, dictionary definitions tend to use vague language and lack word associations that students understand. By contrast, student-friendly definitions provide students with explanations of meaning using everyday language and engage students in lively word association activities to foster more in-depth word knowledge (Beck et al., 2013). Beck and her colleagues suggest giving students an explanation of the word and how it is typically used, followed by explaining how the word could be used in everyday language (2013).

2.2.3 Teaching Word-learning Strategies

2.2.3.1 Direct Instruction of Morphology

An additional approach towards vocabulary instruction specifically examines word study strategies or morphology. Kieffer and Lesaux (2007) define morphology as "the study of the

structure of words, particularly the smallest units of meaning in words: morphemes" (p. 137). In a study that focused on how fourth and fifth-grade student's ability to break words down correlated with their reading comprehension, they found a positive correlation between the two. Kieffer and Lesaux (2007) suggest there is not only reciprocity between vocabulary and reading comprehension, but also the relationship between vocabulary and morphology knowledge is reciprocal. In other words, the higher the understanding of morphology, the higher the reading comprehension.

To more precisely understand what it is about morphology that impacts comprehension, Levesque et al. (2018) studied the impact of morphological awareness and morphological analysis on comprehension. Levesque et al. (2018) defined morphological awareness as "the awareness of and ability to manipulate the minimal units of meaning, or morphemes, in oral language" (p. 64). The morphological analysis takes this one step further and is defined as "the ability to infer the meaning of unfamiliar morphologically complex words on the spot based on their morpheme" (p. 64). It is the inference of meaning that is critical to morphological analysis.

Levesque and colleagues studied English-speaking students throughout their third and fourth-grade years. The results revealed that morphological awareness was not a unique predictor of gains in reading comprehension; however, the morphological analysis did predict these gains. Morphological awareness did, however, predict increases in morphological analysis. The results of this study show that morphological analysis is a critical piece of vocabulary instruction since it provides readers with tools for when they encounter unknown words.

2.2.3.2 Fostering Word Consciousness

Kucan (2012) describes classrooms that foster word consciousness as "environments in which words are not only noticed and appreciated but also savored and celebrated" (p. 361). Word

consciousness, or word awareness (Beck et al., 2012), involves creating a rich verbal environment with an intentional awareness of words, word meanings, and appreciation of language. Scott and Nagy (2004) assert that word consciousness is not an isolated part of vocabulary instruction but rather something that is infused throughout each day through talk and wordplay. Especially important is the awareness that word consciousness involves not only cognitive and affective views of words but also "integrates metacognition about words, motivation to learn words, and deep and lasting interest in words" (Graves, 2016).

2.2.3.3 Reading for Understanding Initiative

In response to concerns about the lack of progress in students' progress in reading comprehension, the U.S. Institute of Education Sciences (IES) established the Reading for Understanding Initiative (RfU). Teams of researchers sought to understand and improve the development and pedagogy of reading comprehension. In their synthesis report, Pearson et al. (2020) detail the critical themes that emerged throughout the research and grouped them into three "headlines." One of these significant headlines, or themes, is "language drives every facet of reading comprehension" (Pearson et al., p. 3). Pearson and his colleagues emphasized that it is important for students to engage with sophisticated language tasks, such as discussion and debate, even at the elementary grade levels, in order for them to learn how to comprehend texts deeply. One of the programs featured in the RfU initiative was Word Generation (WG), a vocabulary program that incorporates rich discussion and evidence-based debate. Implementation of this program was analyzed to find out how the approach might impact students' reading comprehension. Their findings revealed that students' knowledge of vocabulary increased when they were given the opportunity to participate in discussions using targeted words from a text, and these effects increased the longer students participated in the WG program. Further, they learned

that students are better able to engage with the text when they participate in rich discussion and are asked to form and defend a position based on topics within the text (pp. 174-175). This research is noteworthy and influenced my decision about the kind of vocabulary instruction that I would implement in my classroom.

3.0 Theory of Improvement & Improvement Plan

My review of the literature revealed several components of effective vocabulary approaches, including (a) student-friendly definitions, (b) multiple exposures, (c) multiple contexts, (d) deep processing, (e) emphasis on high-utility academic language, (f) text-based approaches, (g) engagement in structured discussions, and (h) engagement in writing tasks.

My goal was to design and implement an integrated literacy approach to vocabulary instruction to improve students' vocabulary knowledge and word-level skills in my fourth-grade classes. Keeping the components of a high-quality representation of word identity, as described by the Lexical Quality Hypothesis (Perfetti, 2007; 2017) at the forefront, I designed an intervention that addresses each of these components and incorporates the effective vocabulary approaches revealed through the review of the literature. I made use of Word Generation resources to do this and other principled approaches that addressed the components of effective vocabulary instruction. Through this intervention, students had opportunities to engage in reading, writing, listening, and speaking activities related to a theme.

I designed an integrated literacy intervention foregrounding vocabulary development by incorporating these components to answer the following research questions:

- How can theoretical perspectives and instructional research related to vocabulary development inform the design of a vocabulary intervention?
- How did the intervention influence students' learning of target words?
- What impact did lessons focused on morphology have on students' ability to figure out unknown words with similar morphological constructions?

- Did an increased focus on vocabulary and word learning lead to an increase in students' word consciousness?

3.1 Methods

3.1.1 Context and Participants

Throughout the intervention implementation, the context of my classroom changed several times due to the Covid 19 pandemic. The pandemic also impacted the participants in this study, as my class rosters fluctuated throughout the intervention. Edgewood Elementary offered families' options that enabled students to participate in fully remote options, in-person learning, or hybrid options that blended the two. I began the year in person with 28 fourth-grade students, 15 boys, and 13 girls, among my two ELA classes. Some students, however, started the year remotely and then transitioned to in-person and joined my classes. Then, in the late fall, the entire district shifted to fully remote learning due to rising cases of Covid 19. When we transitioned back to in-person learning after several weeks, several students continued with remote learning. Edgewood Elementary has a designated ELA teacher responsible for the instruction of remote students, and therefore, the students who stayed remote were not on my class rosters. Occasionally, students would need to quarantine and would consequently be required to participate in remote learning for the duration of their quarantine. I did, however, receive permission to continue to instruct students in my classes during these short-term periods. Quarantined students joined our class via Livestream and participated in lessons as if they were in person.

For this study, I only used data from students who took both the pretests and the posttests. Ultimately, 36 fourth-grade students, 17 boys and 19 girls, participated in this study. All are

general education students, meaning none of them qualified for special education services in language, and all were native English speakers. The median age of the students was nine years and seven months. The intervention took place during a daily, 45-minute ELA block. The lesson delivery changed several times during the intervention period due to the Covid 19 pandemic. Throughout the intervention, instruction was delivered in three ways: in-person, remote, and hybrid. All students included in the study received the same intervention.

3.1.2 Intervention Design

I designed an integrated literacy intervention with a focus on vocabulary development that encompassed all four instructional pillars: (a) Frequent, Varied, and Extensive Language Experiences, (b) Teaching Individual Words, (c) Teaching Word-Learning Strategies, (d) Fostering Word Consciousness. Further, an important aim was to design an intervention that incorporated the critical components of vocabulary instruction and ensure that the practices were theoretically based. Thus, the components of a high-quality representation of word identity, as described by the Lexical Quality Hypothesis (Perfetti, 2007; 2017), served as the foundation for the intervention.

The first approach that I made use of was WordGen Elementary. WordGen Elementary (WG) resources are available free to teachers at www.serpoinstitute.org/wordgen-elementary. WG is a multidimensional vocabulary curriculum that focuses on a set of target academic vocabulary words, incorporates those words discussion and argumentation, text-based strategies, and writing. Further, it promotes academic language and perspective-taking by reading multiple documents with differing points of view. WG uses core texts and requires students to take a stance on a topic

and support it using textual evidence. The program assists students in reading to form an opinion on topics that are relevant to their lives and also provides a context for debate.

A typical WG unit introduces a central idea using informal texts and then transitions to more formal and complex texts on the same topic. Students engaged in discussion and learned components of argumentation as the units progressed. In unit one, for example, students are asked, "Should students share responsibility for each other's behavior in school?" These questions allowed students the opportunity to form an opinion and become active participants in classroom discussions.

WG is a rich resource that addresses the pillars of (a) frequent, varied, and extensive language experiences that include using vocabulary from texts that students are reading, promoting multiple exposures across multiple contexts, engagement in structured discussions, and engagement in writing tasks, and (b) teaching individual words, which emphasizes academic language and student-friendly definitions. However, WG does not address the pillars of (c) teaching word-learning strategies, including morphology and (d) promoting word consciousness. To address these pillars, I made use of the approaches described by Beck et al. (2013) in *Bringing Words to Life* and Hiebert (2019) in *Teaching Words and How They Work*. The research and practices outlined in their work provided direction for (c) teaching word-learning strategies, including direct instruction of morphology, and (d) fostering word consciousness.

Morphology instruction involves studying morphemes, or the smallest units of language that indicate meaning or function in a word. Morphemes include prefixes, suffixes, and roots. For example, the word unbreakable has three morphemes: un, break, and able. Break is the base morpheme. The prefix un- means "not." The suffix -able means "likely to" and is usually attached to an adjective word form. Morphology instruction posits that identifying word parts allows

students to analyze complex words and use their knowledge of what those parts mean and how they function to understand word meanings.

Fostering word consciousness involves supporting students' cognitive and affective knowledge of words. By this I mean, word consciousness is both an awareness of and interest in words and word choice and includes appreciation for wordplay and language. Word consciousness is not a defined set of strategies; instead, teachers can embed an appreciation of words throughout the day. For example, during a read-aloud, the teacher may pause to call attention to a unique word or phrase. A word-conscious classroom may have a dedicated space to collect favorite words, and students might keep their journal of favorite words and phrases they encounter. While developing word consciousness is intentional, it is not instruction that has devoted time. Instead, it is a way of leading students to notice and savor words.

3.1.3 Intervention Plan

The intervention took place during the 2020-2021 school year. The specific timeline of the intervention and activities is illustrated in Table 2.1. I developed lessons that incorporated components of the WordGen Elementary Curriculum and incorporated strategies from Beck et al.'s (2013) and Hiebert's (2019) work while being mindful of intentionally incorporating the multidimensional described in the Lexical Quality Hypothesis (Perfetti, 2007; 2017). WordGen Elementary consists of two-week units in which students are introduced to target words at the beginning of each unit. The units are interdisciplinary and designed so that students revisit the target words throughout their math, science, and social studies classes. My school is departmentalized, and, therefore, I did not use the math components of the program as they do not

logically fit in my curriculum. I did, however, use the science and social studies components that incorporate texts, discussion, and writing when appropriate.

Table 1. Intervention Plan

Date	Activity	Data
10.7.20	Targeted Vocabulary Pretest	knowledge of target words
10.7.20	Word Form Knowledge Pretest	depth of word form knowledge
10.7.20	Word Consciousness Pretest	level of word consciousness
10.12.20	Vocabulary Notebooks	growth of target vocabulary knowledge, word forms, and level of word consciousness
10.12.20	Word Wizard Slips and Chart	
10.12.20	Lesson Reflections and Anecdotal Notes	
10.12.20 –11.04.20	Unit 1	
11.05.20– 11.04.20	Unit 2	
12.09.20	Posttest of Targeted Vocabulary	knowledge of target words
12.09.20	Word Consciousness Posttest	depth of word form knowledge
12.09.20	Word Form Knowledge Posttest	level of word consciousness
01.04.21	Delayed Targeted Vocabulary Posttest	sustained knowledge of target words

3.1.4 Intervention Procedures and Resources

Table 2 presents the instructional approaches and resources for each day of the first unit of the intervention, which focused on the question "Should students share responsibility for each other's behavior in school?"

Table 2. Unit 1 Lesson Plans

	Lesson Components	Procedure	Resources	Example
Day 1	Introduce guiding question & Five target words: accidentally disrupt expect reward goal	Pose the guiding question as a poll for students to respond Introduce target words using vocabulary cards and scripted chants	Nearpod to display the question and collect responses Vocabulary picture cards Vocabulary word chants	Cards have student-friendly definitions and pictures associated with the words. The chants involve spelling the word and clapping syllables.
	Watch Action News	Play Action News Video on Promethean Board	Action News Video on WG website	Students watch and listen to the video, which discusses the unit topic and targets words in context.
Day 2	Reader's Theatre	Read together and highlight target words. Model fluent reading and then reread in small groups	Reader's Theatre pgs. 33-35 of WG online lesson plans	Characters discuss the central topic and a game called The Good Behavior Game.
	Discussion questions	Use discussion questions to explore the week's topic	Discussion prompts pg. 33 of WG lesson plans	Have you ever been treated unfairly? How did it make you feel? What did you do about it?
Day 3	Word Study Chart -Semantically related words	Students will complete charts in vocabulary notebooks Use synonyms, antonyms, related words	Digital Vocabulary Journals Word Study Charts pgs. 37-38 in WG lessons	Record related words for the target words reward and goal. Use a variety of resources to brainstorm synonyms, antonyms, and related words.
	Reader's Theatre Perspective cards	Reread the Reader's Theatre. Determine and discuss four character's perspectives as represented in Reader's Theatre script.	Graphic organizers and prompts on pg. 36 of WG lessons	After discussing the perspectives of characters, students will decide which character's perspective they identify with.

	Lesson Components	Procedure	Resources	Example
Day 4	Letter from an expert -Shep Kellam Discussion Questions	Read and discuss the letter from Professor Shep Kellam, who created a behavior game for kids who had a hard time behaving in school.	Letter and questions: pg. 41 of WG lessons.	An example discussion question: Do you agree with Professor Kellam's belief that students' behavior in school affects the choices they make later in life?
	Word Form Word Study Chart	Complete charts together as a class. Students complete charts in vocabulary notebook	Use Bringing Words to Life (Beck, McKeown, & Kucan, 2013) as a resource to create vocabulary assessments that assess deep processing of target words and word forms	For example, to assess students' knowledge of the target words, students may be asked to generate as many sentences as they can using different forms of the word "expect."
Day 5	Prefix Word Study	Students will complete charts in vocabulary notebooks	Prefix Word Study: dis (disrupt) *disrupt differs from the other words	For example, students will brainstorm words with the prefix dis, such as disappear and disobey, to deepen their understanding of the prefix and how it affects word meanings.
Day 6	Word Analysis Lesson	Examine multiple meanings of vocabulary words by building word maps. Find synonyms, antonyms, related words, multiple word forms, and meanings.	Wordflex app Visuwords	Brainstorm words related to accidentally: similar words, synonym,s, and antonyms. Use wordflex or visuwords to put the words into a visual web.
	The Good Behavior Game text	Read the rules for how the class played the game. Generate lists of acceptable and unacceptable behaviors. Provide supporting reasons.	The Good Behavior Game text Graphic organizer Pg.	Students use the graphic organizer to organize their thoughts about "The Good Behavior Game."

	Lesson Components	Procedure	Resources	Example
Day 7	Prefix Word Study: ly (students complete in vocabulary notebooks)	Students will complete a chart exploring the -ly suffix in their vocabulary notebooks	Digital Vocabulary Journals Suffix Word Study: ly as in accidentally	For example, students will brainstorm words with the suffix -ly such as: loudly and slowly to deepen their understanding of the suffix and words
	Exit Ticket	Students will complete an exit ticket using a google form	Digital vocabulary notebook exit ticket	For instance, to assess students' understanding of the word reward, students may be asked to complete a quick write responding to the prompt: Describe a time when you did something rewarding.
Day 8	Letter from an expert -Shep Kellam	Reread letter from an expert. Highlight text that supports claims. Debates center on the central question of the units and the character perspectives they identified with.	Digital Vocabulary Journals Debate procedures pg. 44	Brainstorm possible arguments for answers to the guiding question: Should students share responsibility for each other's behavior in school? Consider counterclaims.
	Prepare to Debate			
Day 9	Word Study: Multiple Forms	Students complete in vocabulary notebooks Create a word study chart to examine how words change from one form to another	Digital Vocabulary Journals Word study chart	For example, the chart will focus on adjectives that become adverbs when a ly is added. For instance, disruptive becomes disruptively.
Day 10	Debate "Tug of War"	Students will present their stance, the guiding question, and answer questions from the opposing views.	Debate framework pg. 45 used as a guide Digital Debate Organizer Tug of War Template	Students will present their stance and be able to answer counterargument questions. The class will decide the stronger argument.

3.1.5 Materials

3.1.6 Word Generation Materials

The WordGen Elementary units are structured around high-interest topics that are intended to encourage academic discourse and debate. For example, the first unit in this intervention was titled "Should students share responsibility for each other's behavior in school?" The second unit was "When is it acceptable to break the rules?" The lessons introduce 5-6 high-utility academic vocabulary words. Students have multiple opportunities to engage in reading, writing, and discussions about each topic throughout the units. A variety of texts are presented that are designed to promote discussion and debate. Students also have opportunities to consider multiple perspectives.

Action News.

The WG unit began with several opportunities for students to encounter the target words in several ways. First, students watched Action News, which is a brief video that simulated a newscast. Reporters Paige Reider and Justin Thyme introduced the target words and the topic covered in the unit. The Action News videos allowed students to hear the target words orally in context to build their background knowledge.

Word Cards and Chants.

Students also had opportunities to interact with the words through the WG vocabulary word cards and word chants. Each word card displayed the target word, along with a student-friendly definition and a picture representation. Word chants encouraged active participation as students clapped, stomped, and shouted the words and their spellings. The chants also included a verbal cue to reinforce the definition of each target word. For example, the chant for the target word "expect" included, "Do you ever expect something good for your birthday? YES!" These chants enabled

students to associate movement and rhymes while practicing the word spelling and meaning. Figures 3 and 4 show examples of a word card and a word chant from the first unit.



Figure 3. Word Card Example

ACCIDENTALLY

1. **First** word: say **ACCIDENTALLY!**
2. Clap out the syllables: **AC-CI-DEN-TAL-LY!**
3. Yell out the syllables: **AC-CI-DEN-TAL-LY!**
4. Spell out the word: **A-C-C-I-D-E-N-T-A-L-L-Y!**
5. What does it spell? **ACCIDENTALLY!**
6. Say it again: **ACCIDENTALLY!**
7. What's a related word? **ACCIDENT!**
8. Have you ever done something **accidentally**? **YES!**
9. How else can you say **accidentally**? **NOT ON PURPOSE!**
10. **Turn and Talk:** What would you say to someone who **accidentally** stepped on your foot? **SAY:** If someone **accidentally** stepped on my foot, _____.

Figure 4. Word Chant Example

Reader's Theatre.

WG units also include Reader's Theatre scripts, which were read several times throughout each unit for varying purposes. The Reader's Theatre incorporated the focus words throughout the script, providing students additional exposure to the words in context. For example, the Reader's Theatre in Unit 1 was titled The Good Behavior Game and included four fictional characters that explored a topic related to the unit's focus. In Unit 1, the characters in the script discussed a game played in a neighboring fourth-grade classroom called The Good Behavior Game. Reading the script showed students learned that the class received positive (or negative) consequences based on the class's behavior. Throughout the script, the characters debated the positives and negatives of playing this game as a class. Dialogue between the characters in the script presented opposing views of the game and introduced components of a debate within a real-life scenario. Also, the Reader's Theatre script portrayed characters stating their opinion (claim), providing evidence to support their claim, as well as considering the perspectives, or counterarguments, of others whose opinions differed from their own.

Additional Texts. In addition to the Reader's Theatre text and activities, each WG unit includes supplemental texts that incorporate the focus words and adds to the student's background knowledge of the topic. The additional readings help support students as they analyze different perspectives and form their own opinions. The supporting texts for the units include various authentic formats, such as brief articles, journal entries, and topical expert interviews. For example, Unit 1 includes a letter from a researcher who studied the Good Behavior Game, Shep Kellam. In the letter that he wrote to fourth-grade reporters, Professor Kellam explains the research behind the Good Behavior Game and discusses the impact that playing the game had on students in the short term and long term.

3.1.6.1 Additional Materials

Vocabulary Notebooks.

To organize lesson materials, I created digital vocabulary notebooks for each unit. I had three instructional goals for the notebooks: (1) to support vocabulary learning and use, (2) to extend word-learning strategies, and (3) to foster word consciousness. Students used their notebooks to keep track of target words and record their learning. In addition, the notebooks contained the WG vocabulary word cards, the word chants, and supplemental word study lessons that I developed.

I designed word study lessons to emphasize quality lexical representations of words by supporting the four components of word identity: orthography, phonology, semantics, and morpho-syntax (Perfetti, 2007; 2017).

Hiebert (2019) suggests that teaching the target words is insufficient to transfer and apply the words to other contexts. Instead, when words are introduced, teachers can lead discussions to explore how words may have multiple meanings or are semantically related when used in different contexts, how a word changes its form when different morphemes and compounds are added (knowledge of morphology), and how synonyms and antonyms are added related to the word (morpho-syntax), and relationships within spelling patterns (orthography).

Throughout the intervention, word study charts were constructed through the lessons described above. For example, one lesson in unit one focused on how adding morphemes to a word can change the part of speech. For example, the target word disruptive, an adjective, becomes the adverb disruptively when the suffix -ly is added to the base word. Figure 5 illustrates an example of this type of word study chart.

Changing Word Forms example: disruptive to disruptively	
adjective: word that describes a noun or pronoun	adverb: explains in what way something is done
disruptive: tending to disturb or interrupt Example: The sound of the alarm was <u>disruptive</u> to the class.	disruptively: in a way that is disturbing Example: The student barged through the door <u>disruptively</u> and caused the teacher to stop her lesson.
Write the words to complete the chart by filling in the blanks below. You don't have to write the meanings of the words.	
slow	slowly
angry	angrily
gentle	gently
sudden	suddenly
selfish	selfishly

Figure 5. Word Form Chart Example

Similarly, students' vocabulary notebooks incorporated word study charts to extend students' morphological knowledge. Several focus words provided an opportunity to examine how parts of words can change the meaning when added to other words. For example, Figure 6 depicts a word study chart exploring the affix dis-.


Word Study - dis			
DEFINITION of WORD PART not none opposite		WORD EXAMPLES discontinue disable dislike disbelieve disobey disappear disagree dishonest	
Word Part: dis			
VISUALIZE the WORD PART disappear 		APPLICATION of WORD PART What are some things that disrupt your sleep? baby crying coffee worry Sentence: Because the baby was so disruptive during the move, the parents had to leave.	

Figure 6. Word Study Chart Example

Finally, Figure 7 displays an example of a word chart exploring semantically related words. These charts were used to explore the focus words in depth. Using the target words as a starting point, charts were created that mapped related words, synonyms, antonyms, and word forms.

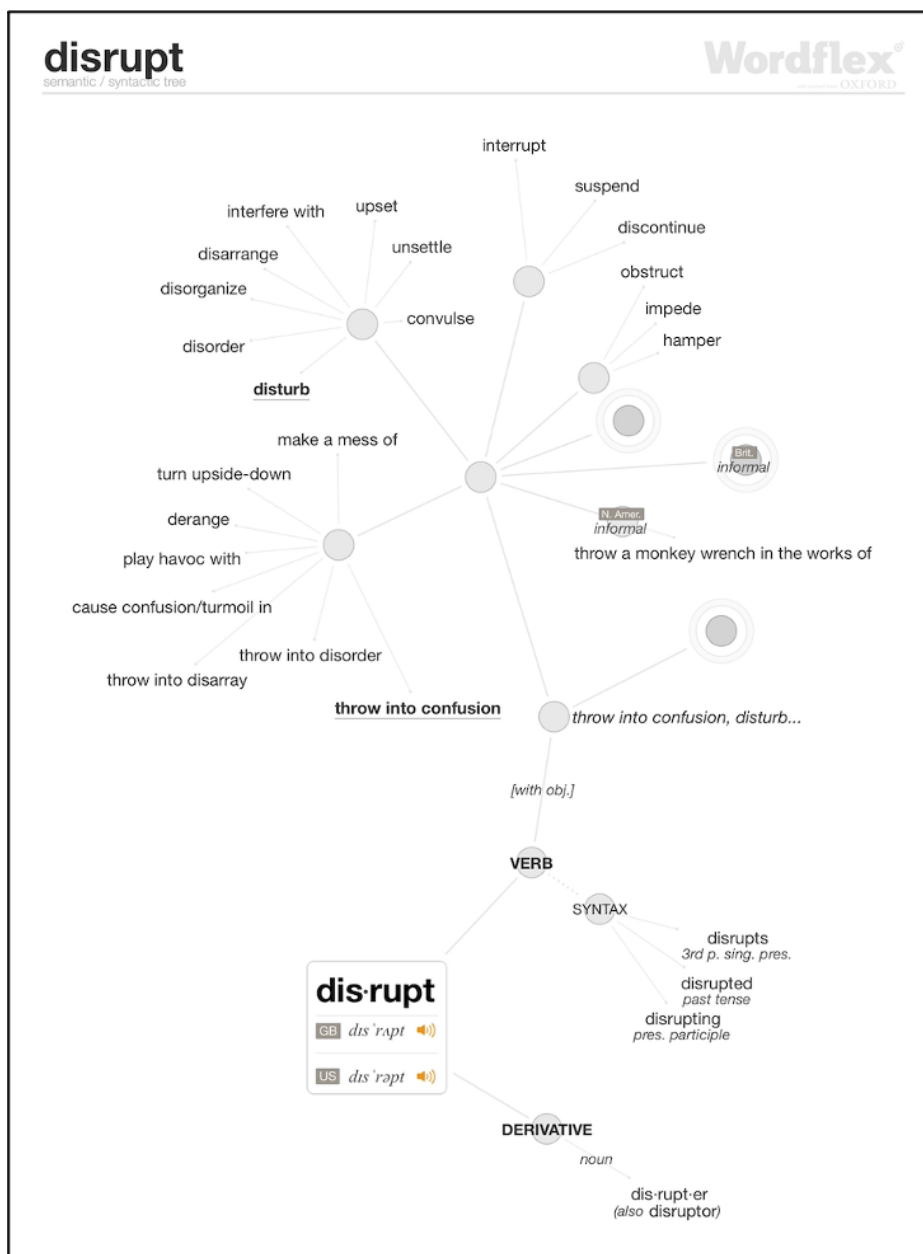


Figure 7. Target Word Map Example

While much research has been done on vocabulary, the field lacks an agreed-upon measure for assessing word knowledge. Just as vocabulary instruction must be multidimensional, evaluating students' understanding of vocabulary may be even more complicated. Schmitt, Nation, and Kremmel (2019) posit that most vocabulary studies use only a single measure and that most are not validated to any significant degree. Additionally, Beck et al. (2013) argue that multiple

measures may provide the most insight into a student's understanding of vocabulary, suggesting that "the fact that different assessments can lead to different conclusions might suggest that a multipronged approach to assessment may be most informative of what students have learned" (p. 104). Considering this, I will incorporate multiple measures of assessment throughout my intervention. The primary data sources for this study include: (a) target vocabulary pretest/posttest/delayed posttest, (b) word form knowledge pretest/posttest (c) word consciousness pretest/posttest, (d) word wizard chart and slips, (e) vocabulary notebooks, (f) lesson reflections and notes.

3.1.7 Quantitative Data Sources and Analysis

3.1.7.1 Target word Pretest, Posttest, Delayed Posttest

The impact of the intervention on student's vocabulary learning was assessed using a 22-item multiple-choice test. Each assessment included two items that evaluated students' knowledge of the 11 target words. For example, for a word to be considered "known," students had to answer both questions for each word accurately. Therefore, 11 was the highest possible score for each of the three assessments. The questions presented were the same on the three tests; however, the order of the questions varied.

Results of the pretest and posttest were analyzed using a paired t-test. Likewise, a paired t-test was used to compare the results of the posttest and delayed posttest. Table 3 provides examples of the type of questions and answer choices presented on the pretest, posttest, and delayed posttest.

Table 3. Target Word Sample Questions

Target Word	Question/Prompt	Answer Choices
stray (adj)	Which of these is most likely to be stray?	a shark swimming in the ocean a nest on a high tree branch a puppy found near a highway a bunch of bananas in a fruit bowl
stray (adj)	A stray animal is an animal that...	has no home or wandered away from home belongs to a certain group marked or decorated with stripes has been trained
disruptive (adj)	The teen was disruptive in the movie theatre. He was asked to leave. Disruptive is a word that means...	lackadaisical troublesome overstated inattentive
disruptive (adj)	Is raising your hand to ask a question an example of disruptive behavior?	yes no
accidentally (adv)	intentionally is the opposite of accidentally	true false
accidentally (adv)	Which of the following would someone most likely do accidentally?	bump another person's elbow at the table sneeze into a tissue so as not to spread germs plan a vacation to a distant country figure out the solution to a complex math problem

3.1.7.2 Word Consciousness Pretest, Posttest

Students' word consciousness was assessed using a Word Consciousness Assessment (WCA) modified from a measure used by Baumann et al. in 2009. Baumann (2019) and his colleagues developed the WCA assessment as part of the program, the Multi-faceted Comprehensive Vocabulary Instructional Program (MCVIP) (Baumann et al., 2009-12). The

measure was designed to provide data useful in understanding student's level of awareness of words. Students completed the nine-question self-rating scale pretest before the intervention and the posttest upon completion of the intervention.

The first seven items of the test, shown below in Table 2.4, presented students with a statement or prompt. Students then selected one of the five provided responses that best reflected their attitudes or beliefs to the prompt. For example, one prompt was, "I like learning and using new words." For this prompt, students chose from the following choices: (a) not at all, (b) not very much, (c) neutral - I do not like or dislike it, (d) somewhat, and (e) a lot. Questions eight and nine prompted students to identify one new word learned in the previous week, as well as where that word was learned.

Table 4. Word Consciousness Assessment

<p>1. The size of my vocabulary is...</p> <ul style="list-style-type: none"> <input type="radio"/> far too small <input type="radio"/> too small <input type="radio"/> just right <input type="radio"/> above average <input type="radio"/> far above average 	<p>6. I understand most of the words I come across when reading</p> <ul style="list-style-type: none"> <input type="radio"/> never <input type="radio"/> not very often <input type="radio"/> sometimes <input type="radio"/> most of the time <input type="radio"/> always
<p>2. I like learning and using new words</p> <ul style="list-style-type: none"> <input type="radio"/> not at all <input type="radio"/> not very much <input type="radio"/> neutral - I don't like or dislike it <input type="radio"/> somewhat <input type="radio"/> a lot 	<p>7. How many words did you learn last week?</p> <ul style="list-style-type: none"> <input type="radio"/> 0 - 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> Five or more
<p>3. I enjoy listening to how people use new words when they speak</p> <ul style="list-style-type: none"> <input type="radio"/> not at all <input type="radio"/> not very much <input type="radio"/> neutral - I don't like or dislike it <input type="radio"/> somewhat <input type="radio"/> a lot 	<p>8. Write one new word that you learned last week</p> <hr/> <p>9. Where did you learn that word?</p> <hr/>
<p>4. How important is it for a reader to have a large vocabulary?</p> <ul style="list-style-type: none"> <input type="radio"/> not at all important <input type="radio"/> not very important <input type="radio"/> neutral - not important and not unimportant <input type="radio"/> somewhat important <input type="radio"/> very important 	
<p>5. I use new words when I speak and write...</p> <ul style="list-style-type: none"> <input type="radio"/> hardly ever <input type="radio"/> not very often <input type="radio"/> sometimes <input type="radio"/> somewhat often <input type="radio"/> very often 	

To determine any potential shifts from the pretest to the posttest, I first analyzed student responses to items 1-7. Each of the five answer choices was assigned a numerical value ranging from 1-5. Thus, for example, in the given prompt above, (a) "not at all" would be worth 1 point,

and (e) "a lot" would receive a score of 5. I then used a paired t-test to compare the overall scores of the pretest and posttest. Next, I analyzed the pretest and posttest responses for questions eight and nine to determine if the responses showed discernable differences from the pretest to the posttest.

3.1.7.3 Word Form Knowledge Pretest and Posttest

The purpose of the word form assessment was to evaluate students' awareness of morphological structure. Also, this test provides another lens to evaluate student's vocabulary learning and assists in constructing a more thorough understanding of students' word knowledge. The specific task that students were asked to demonstrate in this study examined decomposition. The subtest, which was part of a production measure developed by Carlisle (1988), requires students to remove the bound morpheme of a multimorphemic word resulting in a monomorphemic base word. For example, students are given the word "agreeable" and the cloze sentence "With that statement I could not _____(agree)." Examples from the pre and posttest are shown in Table 5.

To compare the pretest and posttest results, students' responses were recorded as either correct or incorrect. Correct responses received one point, and incorrect responses received a zero. Results were then analyzed using a paired t-test.

Table 5. Example Questions from Word Form Assessment

Directions: Find the base word for each **boldfaced** word and write it after the equal sign.

Then, use the base word to complete the sentence.

EXAMPLE:

complexity

base word = complex

The situation became more complex as more people arrived at the crowded auditorium.

1. agreeable

base word = _____

You do not have to _____ with everyone, but you do have to be polite.

2. profitable

base word = _____

My mom said I could keep the _____ if I helped with the yard sale.

3. acceptance

base word = _____

She had to _____ the job offer, it was perfect for her!

3.1.7.4 Word Wizard Tally Chart

The word wizard chart was used to encourage students' interest in vocabulary and enrich their learning of the target words. The chart displayed in the front of the classroom contained the students' names and space for recording marks when they reported hearing or seeing the target words outside of the classroom. The tally chart, developed by Beck et al. (2013), served as a visual way to represent words noticed by students outside of our ELA classroom. Beck et al. (2013)

describe the Word Wizard chart and suggest that vocabulary learning is increased when students are given the incentive to recognize words "beyond the classroom" (p. 111). When students observed a target word outside of the classroom, they filled out a word wizard slip describing the word they encountered and how it was used. By being word-conscious learners, students had the opportunity to earn their way through several levels beginning with "Word Watcher" and ending with the highest level, "Word Wizard." At the onset of the intervention, students discussed how many words they would need to recognize to move up a level on the chart. Students turned in their word wizard slips to be recorded, and they were then responsible for updating the chart and adding their marks.

Each day at the start of class, time was dedicated to celebrating students who moved up a level on the chart. Celebrations took minimal class time and consisted of a "shout out" to the student who had moved up a level, as well as an opportunity for the student to share their favorite example of noticing a target word. Students were not required to share; however, most of the time, students used this opportunity to share. Apart from the shout-out and sharing, students did not receive prizes or awards for moving up a level.

The word wizard chart is shown below in Figure 8. Students earned tallies by recording recognized target words outside of our classroom. An example of a completed word wizard slip is shown in Figure 9. The word wizard chart was analyzed to determine the frequency with which students observed target words outside the classroom. Additionally, I compiled the sources where students recognized target words to look for patterns.

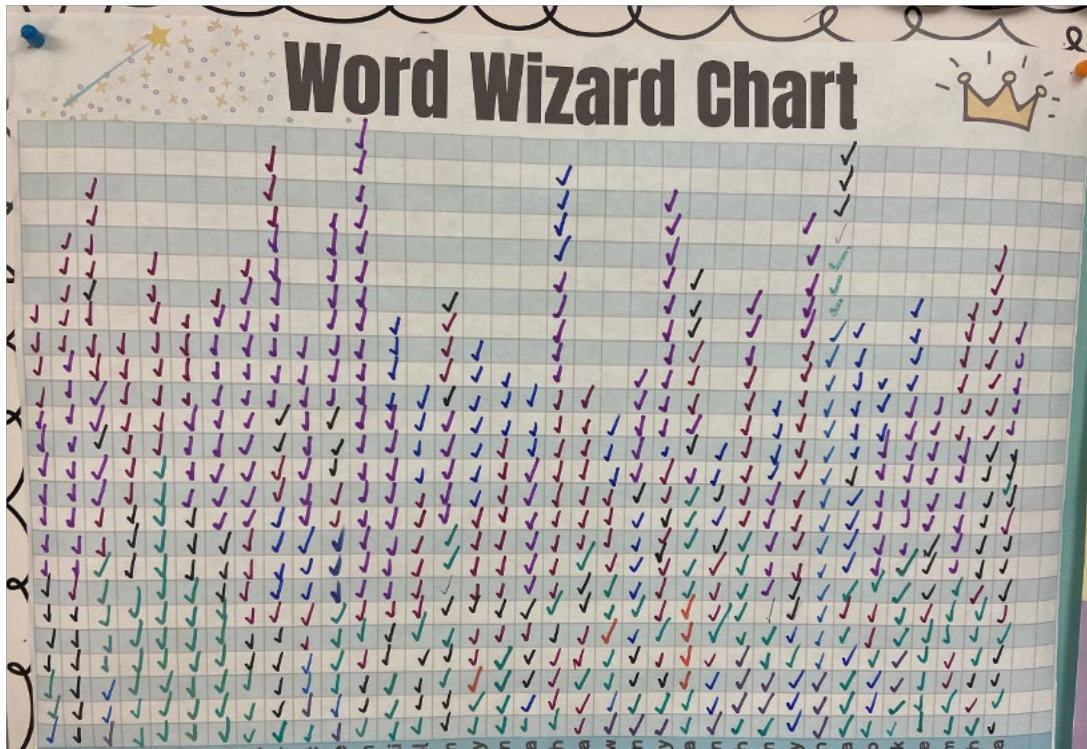


Figure 8. Word Wizard Tally Chart

WORD WIZARD SLIP

Name: COFF

Word you found and how it was used: it's shocking
unacceptable "that ps. 3,8 doesn't
have a fight song, it's
completely unacceptable

Where you found it: in a big mate book

Figure 9. Example of a Word Wizard Slip

3.1.8 Qualitative Data Sources and Analysis

3.1.8.1 Vocabulary Notebooks

Student vocabulary notebooks were reviewed weekly to monitor student responses as well as word learning. I examined responses throughout the intervention and identified common misconceptions or potential items for reteaching. Primary instructional goals of the student notebooks included (1) enhance vocabulary development and use, (2) expand word-learning strategies, and (3) support word consciousness.

Students' notebooks served as a place to collect other artifacts such as word cards, word chants, and word study charts. Further, formative assessments, such as exit tickets and word webs, provided a quick check of students' depth of word knowledge.

3.1.8.2 Lesson Reflections and Anecdotal Notes

I kept notes about the enacted lessons and reflections of student learning and anecdotes, word wizard slips, common themes from students, and completed work in vocabulary notebooks throughout the intervention. The purpose of keeping these notes was to summarize each day's critical impressions and interactions from the days' lessons. Also, I used these reflections to evaluate what needed to be changed from unit 1 to unit 2.

4.0 Findings

I have organized this chapter into three sections. In the first section, Changing Contexts, I describe how Covid impacted the vocabulary intervention and the resulting changes. I also describe adjustments that I made from unit 1 to unit 2.

In the second section, Enacting the Units, I analyze student work and use my field notes to describe how students made use of opportunities to learn and use the target words. I also emphasize how the instructional approaches relate to the theoretical and research principles that informed the design of the intervention. This section responds to the research question: How can theoretical perspectives and instructional research related to vocabulary development inform the design of a vocabulary intervention?

In the third section, Outcome Measure Results, I analyze the results of assessments of student learning. This section responds to the research questions (a) How will the intervention influence students' learning of target words? (b) What impact will lessons focused on morphology have on students' ability to figure out unknown words with similar morphological constructions? (c) Does an increased focus on vocabulary and word learning lead to an increase in students' word consciousness?

4.1 Changing Contexts

As previously described, the context of my classroom changed several times due to the Covid 19 pandemic. My classes began the initial cycle of the intervention in person. Towards the

end of unit 1, however, the district shifted to fully remote learning due to an increase of Covid 19 cases and our county remaining in a "substantial" phase. Consequently, I concluded Unit 1 as a hybrid of synchronous and asynchronous lessons. Live lessons were taught each day via Google Meet, and students then completed other work independently or collaboratively with a partner. I utilized several technology tools to present the majority of the lessons that students worked through asynchronously. Often, I recorded a video of the lesson and then presented it using Nearpod. This enabled me to embed activities, such as the WG discussion questions or response activities, within the video.

When unit 2 began, Edgewood Elementary had just returned to in-person learning. Ultimately, however, unit 2 was a combination of remote, in-person, and a hybrid of the two instructional contexts.

4.1.1 Social Distancing Discussion Issues

The Covid 19 social distancing protocols for in-person instruction meant that the physical layout of my classroom was quite different from previous years, which were designed to facilitate collaboration. Students needed to be at their desks and six feet apart to adhere to the guidelines. The physical proximity of students to one another added a layer of complexity in honoring the conversational core of the WG lessons.

Throughout Unit 1, I used several technological tools to support conversation and ensure that all students had meaningful ways of contributing to the dialogue. For example, each WG lesson includes discussion questions wherein students are asked to "Turn and Talk" with a peer and prepare to discuss their ideas with the whole class. I used interactive tools such as Google Jamboard and Peardeck to present the discussion questions on a virtual whiteboard, enabling

students to respond to the prompt and then see their classmates' answers in real-time. This worked well for maintaining social distancing while still ensuring that all students participated. Further, we were able to identify commonalities and themes among ideas quickly. The issue, however, was that I noticed several students in each class were generally the first to respond, and often many of the remaining responses tended to mirror the initial reactions. I continued to adopt this approach throughout Unit 1, incorporating wait time for students to process the question and prepare their responses before submitting. However, I still noticed students waiting to read others' replies before submitting their ideas.

4.1.2 Collaborative Remote Learning Discussion

The transition from in-person learning to remote learning was reasonably smooth because we had developed district-wide procedures and schedules, ensured that all students had standard devices and connections, and spent several months in-person to practice tools and classroom routines that students would be using. In addition, students were familiar with our class schedule and were adept at navigating where to locate assignments, meeting times, and links. Throughout Unit 1, I continued the lessons as planned, devoting approximately 20 minutes of our live class time each day to the WG lessons. Nevertheless, my notes reveal my frustration in facilitating meaningful discussions remotely. The following comment from my reflective notes captures that:

When I believe that we are getting into the flow of a quality conversation, one of two situations happens. One scenario occurs when a student begins speaking yet doesn't realize they are muted. This triggers other students to unmute so that they can inform the offending silent student of their slipup. The other frequent occurrence happens when a student unintentionally unmutes. Similar to the first scenario, other students attempt to correct the blunder by also "unmuting." Both scenarios result in a disruption to the flow of the conversation that is difficult to revisit after the distraction (Lesson Reflection, November 11, 2020).

I needed to design a structured routine and explain it to students to facilitate meaningful and productive conversations that could be sustained during remote lessons.

4.1.3 Social Distancing Discussion Issues: Flipped Instruction

To address the few students dominating the responses to discussion questions in Unit 1, I incorporated a flipped model of instruction for Unit 2. First, I looked at the questions that students were asked to reflect on and respond to for each lesson. Next, I restructured the lessons to end with the questions that were intended to be posed mid-lesson. For example, day 2 of the second unit involved students determining the characters' perspectives they read about in the Reader's Theatre lesson and then comparing their responses to other students' responses to determine similarities and differences. I adapted the lessons so that on Day 1, we read the reader's theatre as suggested. Students then completed the perspective activities as an independent response on day one and prepared their thoughts before the lesson on day 2. This small change allowed students to process the information and provided time for them to develop their ideas. However, this change meant that students had to generate their responses since they could not view their classmates' responses until the next lesson. Therefore, I began the next lesson by reviewing the ideas generated by the class from the previous lesson.

4.1.4 Remote Learning Discussion Issues: Using Hand Signals and Talk Moves to Manage Online Discussions

To address the complexity of remote learning conversations, I wanted to teach students nonverbal ways to communicate their thoughts. In previous years, I have taught students

accountable talk sentence stems to use when they have something to contribute to classroom discussions. For example, when a student wants to add to what has been shared, they may find the sentence stem "Building on what ____ said, I can add..." or "When ____ said that, it made me think about..." helpful in structuring their thoughts. This approach supports students in contributing their ideas in classroom conversations by giving them frames to structure their responses.

In a remote learning environment, I felt that it was essential to provide students access to an alternative way of using sentence stems. To facilitate these conversational moves in a remote learning environment, I assigned hand signals to the most frequently used sentences containing the talk moves. For example, stacking fists indicates that the student would like to add to what is being said. Holding one finger up is a respectful way to indicate that they disagree and have a different thought, and when called on, they may follow up with "I have a different thought than..." to frame their opinion. Figure 10 shows the hand signals and the sentence stems.

The hand signals improved communication immediately during virtual class meets. Students kept a bookmark size copy of the signals with their Chromebooks so they could reference them until they were memorized. The signals worked so well that we continued to use them to facilitate discussions even after we returned to in-person learning.



Figure 10. Talk Moves Hand Signals

4.2 Enacting the Units

How can theoretical perspectives and instructional research related to vocabulary development inform the design of a vocabulary intervention?

The Lexical Quality Hypothesis, developed by Perfetti (2017), describes the components of word identity that are present in a high-quality representation. According to Perfetti, a high-quality representation of a word includes understanding the words meaning as well as its phonology (pronunciation), morphology (meaning of word parts), syntax (function in a sentence), and orthography (spelling) (Perfetti, 2007; 2017). Vocabulary instruction, therefore, needs to focus

the attention of students on these word features. The Lexical Quality Hypothesis is the theoretical perspective that informs the present intervention. Figure 11 illustrates how the intervention aligns with the Lexical Quality Hypothesis. I intentionally planned word study lessons to facilitate students' vocabulary development in each area.

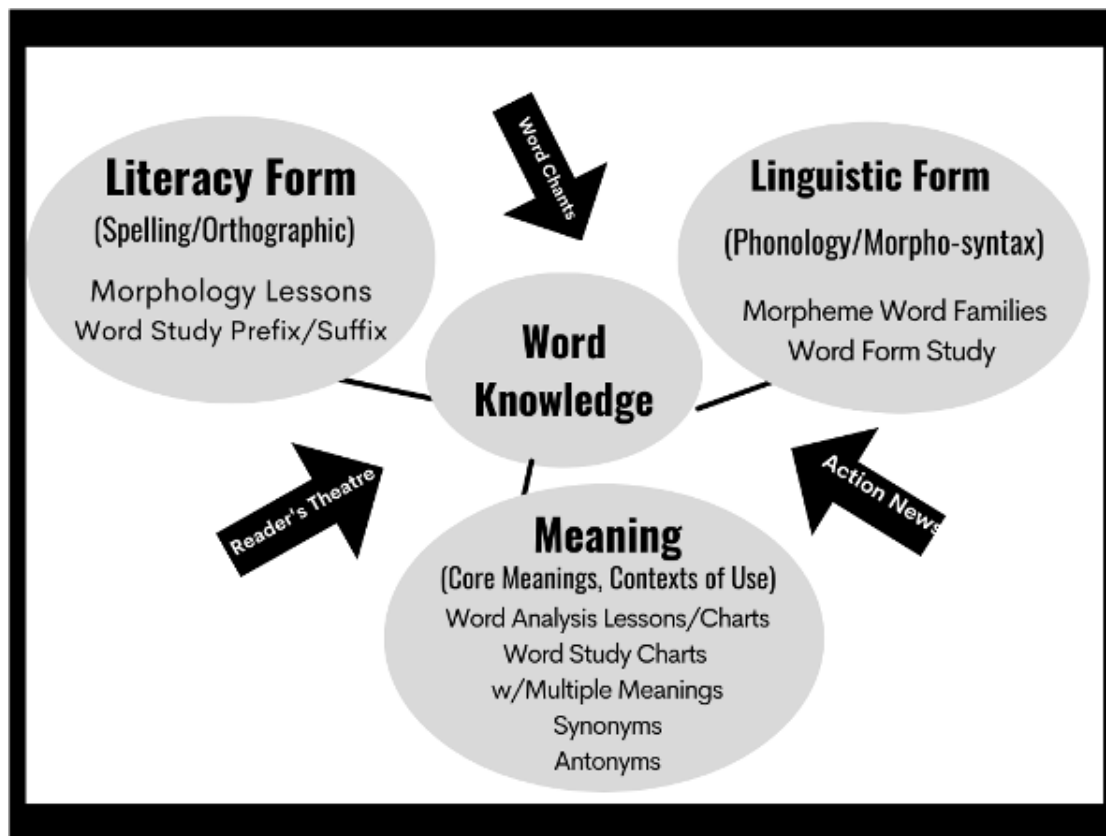


Figure 11. Lexical Quality Hypothesis and Intervention Overview

4.2.1 Qualitative Analysis

To trace the impact of the intervention on students' learning, I examined their vocabulary notebooks and the reflective notes that I took during the intervention. Specifically, I searched for evidence of students' depth of knowledge about target words increased, how their knowledge of

morphological systems developed, and how students demonstrated interest and positive attitudes toward vocabulary learning. I describe that evidence in the sections that follow.

4.2.1.1 Students' Depth of Knowledge of Target Words Improved

I analyzed the progression of students' concept word study maps to discern any potential effect of the intervention on students' target word knowledge. I reviewed student vocabulary notebooks weekly and used the "version history" feature in Google slides to gain insight into students' learning progression.

Students completed a concept map for each target word. These maps required students to record the definition, a self-generated sentence, synonyms and antonyms, and a picture that represented the word. Figures 12 and 13 show how Abby's map changed by the end of the unit. Specifically, Abby's final map includes more synonyms and antonyms for the target word designated, as well as a more personal pictorial representation for the word. Abby's concept maps are generally representative of the other students in the class, although there was a variety related to the target words.

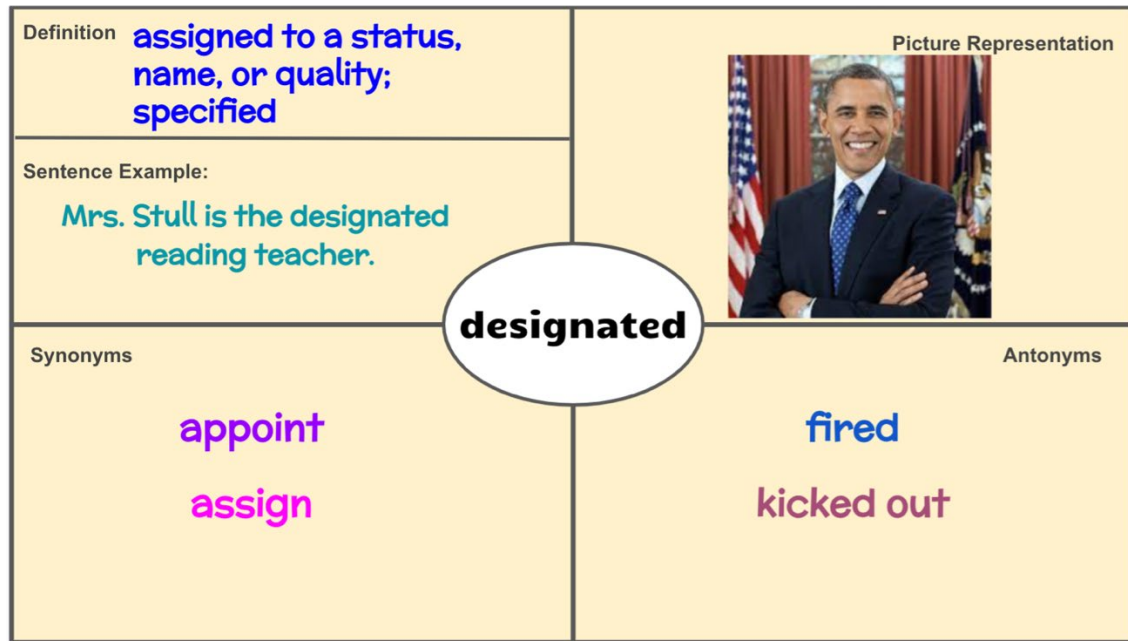


Figure 12. Abby's Beginning Target Word Concept Map

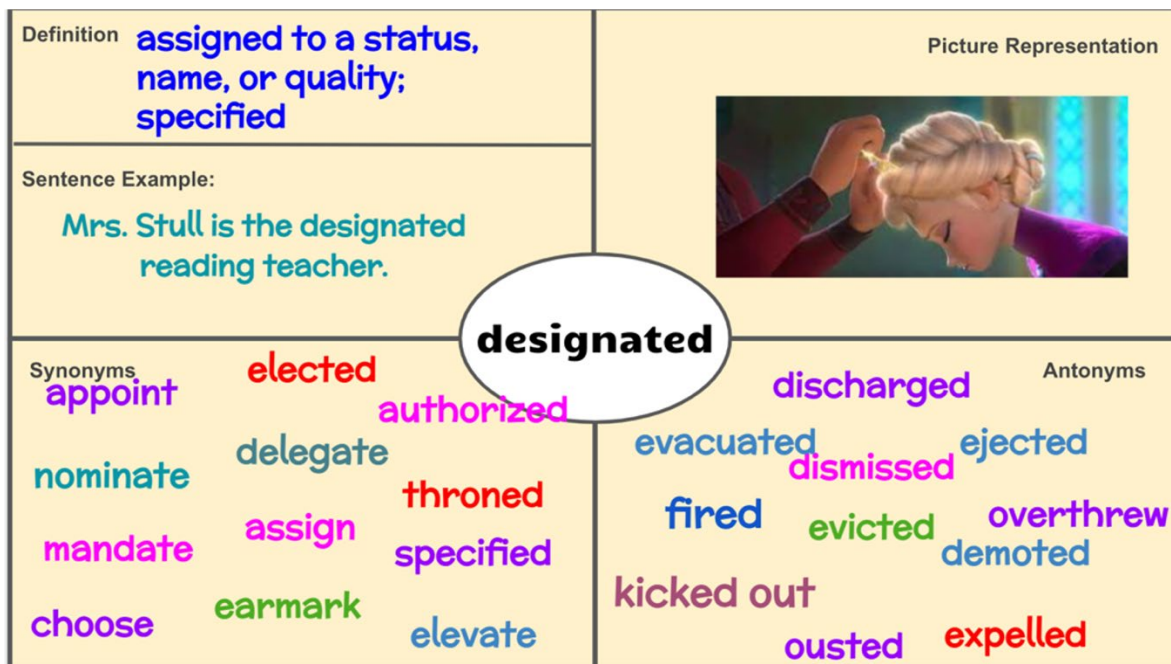


Figure 13. Abby's Final Target Word Concept Map

4.2.1.2 Students' Knowledge of Morphological Systems Increased

Form-Meaning Relationship Word Charts.

Students became more proficient in their ability to change target words from one form to another accurately. Students completed word form charts for several target words across both units, studying how words can change from one form to another. To illustrate, one minilesson explored how adding the suffix -ly can change adjectives to adverbs. In this example, the word slow becomes slowly when -ly is added to the base word. Initial lessons in unit 1 were scaffolded and were completed together as a class. By the end of unit 2, however, four students required one to two prompts, or affirmations, to help them identify and complete the chart. However, 32 students were able to identify the pattern and correctly complete their charts independently accurately. Figure 14 shows an example of a student's completed chart.

Changing Word Forms example: text to texting	
noun text: send a message Example: The text said mom would be home soon.	verb texting: action of sending a text message Example: Mom was so busy texting , she didn't see that she missed her stop.
Write the words to complete the chart by filling in the blanks below. You don't have to write the meanings of the words.	
bike	biking
read	reading
iron	ironing
swim	swimming
frown	frowning

Figure 14. Completed Word Study Chart

Form-Meaning Sentences.

Along with the word form charts described above, students were also asked to write two sentences, each using a different target word form. For example, for the word study chart completed for "accidental," students were asked to write one sentence using the adjective form and one sentence using the adverb form. I examined students' sentences to determine if there were

appreciable differences in their correct use of word forms from their initial writing to their final writing.

Comparing students' sentences across units revealed clear improvement in their ability to use word forms in sentences correctly. In other words, students often used incorrect word forms in the first unit. Adri, for example, wrote the following sentence for the word slowly: "My mom is slowly to get angry." This sentence used slowly as an adjective as opposed to an adverb. In the final unit, by contrast, Adri wrote the following sentence: "My puppy did not intentionally wake up the baby." This trend was consistent among other students as well. Specifically, all students correctly used word forms, with one exception, in their final writing. Below are student examples of sentences written in the final unit:

- Harper wrote: "The wind blew the tree gently."
- Jack wrote: "I was suddenly tired and fell right to sleep."
- Evelyn wrote: "My brother rides his bike slowly."

Knowledge of Morphemes.

I analyzed student work samples in their vocabulary notebooks, including word study charts and responses to prompts to determine the potential impact morphological instruction had on students' ability to apply their knowledge to known and unknown words. Examination of notebooks revealed that students demonstrated improvement in their understanding of taught morphemes from the beginning to the end of the intervention.

For example, students were given the following prompt as an informal assessment at the beginning and end of a minilesson: What does the word discontinue mean? Use what you know about prefixes and suffixes to explain. Before the lesson, students had difficulty writing an accurate definition. Most responses were either a description of an activity they wanted to stop doing or an

inaccurate definition of the prefix that resulted in an incorrect definition. The following responses by Natalie and Lucas show examples of each and represent the overall class responses.

- Natalie: "Sometimes I do something, and then I want to stop. Like at dance, I don't always want to do it."
- Lucas: "Dis means to continue to do it. So you keep going."

Throughout the lesson, as students gained a more complete understanding of the prefix dis-, I would often hear, "Ooooh! Now I get it!" or, "Can I change my answer from the beginning of class?" At the end of the lesson, students were given the same prompt from before the lesson. This time, Natalie wrote: "I know that dis means not and continue means to keep going. So discontinue means not to keep going." Lucas wrote: "It means to not keep doing something because dis means not." Similarly, all students produced more accurate definitions of discontinue after the lesson. This trend was similar during other similar lessons as well.

As units 1 and 2 progressed, students would often ask at the beginning of class if we would be learning affixes that day. One day in particular, Austin walked into the classroom and said, "Can you give us a really hard word puzzle today?" At first, I wasn't sure what he meant. However, he explained that he meant "the itty bitty word parts that go on the beginning and end of words that try to trick kids!" Following that day, I began putting a new word on the board each morning for students to try to figure out as they were settling in. Many times, students would bring in word suggestions to use. Students would sometimes use websites that we had used for other word study charts, such as www.membean.com or www.visuwords.com, to figure out meanings of affixes or come up with new words.

Finally, I compared students' initial affix word study charts with their final charts. All students beginning charts showed more errors than their ending charts, despite having more teacher support for the beginning lessons. Also, students frequently shared examples of how they had

figured out an unknown word using their knowledge of affixes. An example of this is illustrated in Abby's response. Abby was reading "The Secret Garden," and she came up to me very excited and showed me the following sentence: "If Martha had been a well-trained fine young lady's maid, she would have been more subservient and respectful and would have known that it was her business to brush hair, and button boots, and pick things up and lay them away" (Burnett & Hunt, 2011). Then Abby described her word solving: "I wasn't sure what subservient meant, but I looked to see if there were parts I knew. I don't know if I knew that sub meant below or if I just figured that it did. And then servient is similar to servant, and so I figured that it must mean that she was supposed to be forced to be a servant. I looked it up to make sure, but I was right, and it made sense!" (January 13, 2021).

4.2.1.3 Students' Interest and Attitudes Toward Vocabulary Learning Increased

The Word Wizard chart was a way to document students' encounters with target vocabulary outside the classroom. As the intervention progressed, students shared target words with increasing frequency. During the first week of using the Word Wizard chart, only two students filled out a slip to document noticing a target word outside of class, which means that the remaining 672 words were identified in the final three weeks. Students entered the classroom with contagious energy, eager to share where they'd found a word. One afternoon in the middle of the second unit, I could hear cheering from my teaching partner's classroom. A moment later, she appeared in the classroom doorway laughing and reported that the excitement had been because she had used the word intention. This was not an isolated incident, as other teachers and parents shared similar examples.

The Word Wizard chart was so well-liked with students that they came up with a few spinoffs. As I mentioned previously, students had a significant interest in affixes, viewing these

words almost as puzzles or riddles. Often, students would want to add a word to the Word Wizard chart that shared a morpheme as one of the target words. For example, Charlie wanted to add returnable because the word contained the suffix -able, as did the target word acceptable. Several students explained that returnable was not on the vocabulary list and couldn't count the word. This prompted a student, Nora, to announce, "I guess we need more charts!" Thus, we began to add word study charts to collect words with similar morphemes as we learned new word parts. Since our school context for instruction was unstable, we ultimately made these charts digitally to accommodate both in-person and remote learning. Figure 15 displays an example of the morpheme collection charts.

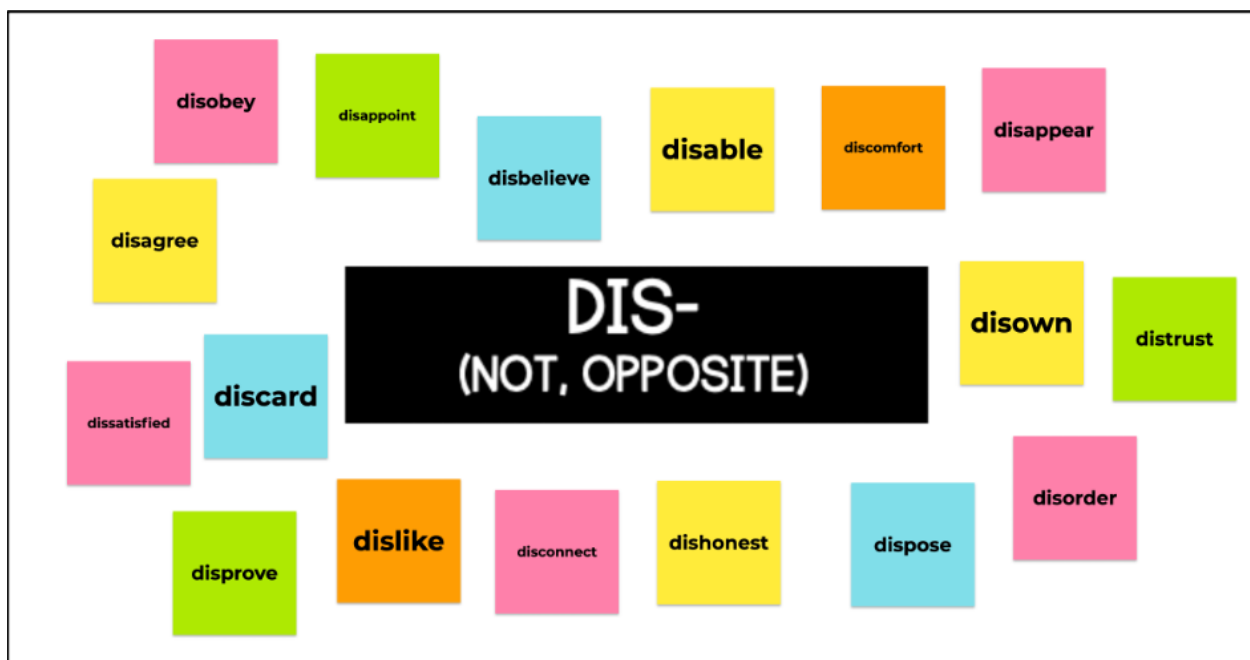


Figure 15. Dis- Word Collection Chart

Also, students determined they needed a place to keep track of interesting words to them, and they kept track of their words using a Google slide document to which they could add additional slides as needed. Students often asked to share their collections which led to "Wordy

Wednesdays." During this time, students signed up to share their word collections at the start of class on Wednesday. Figure 16 depicts Myra's word collection chart.



Figure 16. Myra's Word Collection Chart

4.3 Outcome Measure Results

4.3.1 How Did the Intervention Influence Students' Learning of Target Words?

4.3.1.1 Target Word Pretest, Posttest, Delayed Posttest

The target word assessment included 22 multiple choice questions that measured students' knowledge of the 11 target words. I used a double item rule to score the assessments. In other words, I only counted a word as "correct" if students answered both items correctly. For this reason, the maximum score on the pretest, posttest, and delayed posttest was 11. I analyzed the

effect of the intervention on student's target word growth by using a paired t-test to compare the pretest and posttest scores. The results of the paired t-tests revealed that the average score on the pretest was 7.1 (64.55%), and the average score on the posttest was 9.4 (85.45 %). As illustrated in Table 3.1, all students showed statistically significant positive differences on the pretest/posttest. Conversely, the posttest-analysis and the delayed posttest scores revealed no statistically significant differences, indicating that the students retained their understanding of the target word meanings. In other words, students maintained their knowledge of the target words three weeks after the cessation of the intervention.

Table 6. Mean Performance Scores on Vocabulary Assessments

	Pretest M (SD)	Posttest M (SD)	Delayed-Posttest M (SD)
Student Sample (N = 36)	7.1 (1.82) *	9.4 (1.87) *	9.5 (2.15) *
*p = < 0.0001			
NOTE: All assessments included 22 items			

I used a simple item analysis to examine students' assessments to determine which words were known by students. Again, a word was considered "known" only if the student correctly answered both items related to the target word. Analysis of the pretest revealed that two of the 11 target words were known by 25 or more students prior to the intervention. Also, the average increase from the pretest to the posttest was 53.32%. In comparison, the posttest showed that all 11 of the target words were known by 25 or more students after the intervention. The delayed posttest results confirm that students maintained their vocabulary knowledge as there was no significant change between the post-test and delayed post-test. The delayed posttest indicated that,

like the posttest, 11 words were known by 25 or more students. Table 3.2 depicts the number of words known by students and the percentage increase from the pretest to the post-test.

Table 7. Students' Knowledge of Target Words

Target Word	Pretest Words Known by Students (N=36)	Posttest Words Known by Students (N=36)	Percentage Increase from pretest	Delayed Posttest Words Known by Students (N=36)	Percentage Increase from pretest
goal	14	27	92.86%	25	78.57%
acceptable	19	31	63.16%	30	57.89%
disruptive	20	33	65.00%	33	65.00%
expect	22	30	36.36%	30	36.36%
designate	22	30	36.36%	30	36.36%
accident	23	33	43.48%	33	43.48%
intention	23	27	17.39%	27	17.39%
regulation	24	25	4.17%	25	4.17%
apprehend	24	34	41.67%	33	37.50%
stray	26	33	26.92%	31	19.23%
reward	29	34	17.24%	32	10.34%
			53.32% Average Increase	50.69% Average Increase	

4.3.2 What Impact Will Lessons Focused on Morphology Have on students' Ability to Figure Out Unknown Words with Similar Morphological Constructions?

4.3.2.1 Word Form Pretest and Posttest

I compared pretest and posttest scores from the word form measure, which required students to either produce or decompose derivative word forms. The purpose was to determine if there was evidence that students were able to transfer their knowledge of taught affixes to new words. In addition, I conducted a quantitative analysis of the scores using paired t-tests. Students' responses were counted as either correct or incorrect and assigned a score of one and zero accordingly.

An analysis of the results reveals that students averaged 19 correct responses for each item on the pretest, compared with an average number of 31 correct responses on the posttest. Considering this, students increased their scores by approximately 51% from the pretest to the posttest. Table 3.3 summarizes the responses from the word form pretest and posttest.

Table 8. Summary of Responses from Word Form Pretest and Posttest

Question Number	Word Form Pretest Correct Responses	Word Form Posttest Correct Responses	Percentage of Increase
1	21	31	47.62%
2	20	32	60.00%
3	18	33	83.33%
4	20	31	55.00%
5	18	32	77.78%
6	19	32	68.42%
7	18	31	72.22%
8	20	32	60.00%
9	21	32	52.38%
10	18	27	50.00%
11	20	32	60.00%
12	19	32	68.42%
13	20	31	55.00%
Average	19	31	51.31%

n = 36

4.3.3 Did an Increased Focus on Vocabulary and Word Learning Lead to an Increase in Students' Word Consciousness?

4.3.3.1 Word Consciousness Assessment

The Word Consciousness Assessment (WCA) was used to determine if any meaningful change occurred in students' word consciousness as a result of the intervention. Students took the WCA pretest before the intervention and the posttest upon completion. The purpose of the WCA was to examine students' perceptions and beliefs regarding their awareness of their word

knowledge. The assessment consisted of a nine-question Likert scale survey with seven quantitative questions and two qualitative questions. The quantitative questions, numbers 1-7, presented students with question stems and five statements to choose from. For example, one prompt was, "I like learning and using new words." Students then select the response that reflected their feelings from the following choices: (a) not at all, (b) not very much, (c) neutral - I do not like or dislike it, (d) somewhat, and (e) a lot. Each response was assigned a numerical value ranging from 1-5. For example, in the given prompt above, (a) "not at all" would be worth 1 point, and (e) "a lot" would receive a score of 5.

I examined the data from the pretest and posttest in a few different ways. First, I used a paired t-test to compare the overall scores of the pretest and posttest. Second, I also used a t-test to compare the pretest and posttest data for questions 1-7 to determine if there was a meaningful increase in students' awareness of words. Table 9 illustrates the combined data from questions 1-7.

Table 9. Word Consciousness Assessment Questions 1-7 Combined

	Pretest M (SD)	Posttest M (SD)
Student Sample (N = 36)	3.1 (1.10) *	3.8 (1.25) *
*p = < 0.0001		

As depicted in Table 3.5, the data revealed a statistically significant gain from the combined pretest score of 3.1 with the combined posttest score of 3.8.

The qualitative questions, numbers eight and nine, prompted students to identify one new word learned in the previous week, as well as where that word was learned. Tables 3.6 and 3.7 captures the results of these items from the pretest and posttest. Responses to item eight, "write a

new word that you learned in the previous week," reveal that the quality of responses improved from the pretest to the posttest. On the pretest, three individual words represented 61% of the total responses—however, an increase in the number of response types by the students. As seen in Table 10, six words represented 39% of the responses.

Table 10. Item Eight: Write a New Word That You Learned in the Previous Week

Pretest			Posttest		
Vocabulary Word	Frequency	Percent	Vocabulary Word	Frequency	Percent
melancholy	15	41.67%	perseverance	4	11.11%
sermon	4	11.11%	classified	2	5.56%
produce	3	8.33%	grime	2	5.56%
congregation	2	5.56%	sorrow	2	5.56%
hymn	2	5.56%	cirrus	2	5.56%
cyclops	2	5.56%	alas	2	5.56%
discombobulated	2	5.56%	righteous	1	2.78%
grit	2	5.56%	slithers	1	2.78%
potluck	2	5.56%	maneuver	1	2.78%
no answer	2	5.56%	Plexiglas	1	2.78%
Total Responses			cyclops	1	2.78%
			remember	1	2.78%
			neon	1	2.78%
			devastated	1	2.78%
			congenial	1	2.78%
			fluttering	1	2.78%
			intentionally	1	2.78%
			overgrown	1	2.78%
			frequently	1	2.78%
			Bunce	1	2.78%
			marriage	1	2.78%
			prohibited	1	2.78%
			gracias	1	2.78%
			wisdom	1	2.78%
			forbidden	1	2.78%
			flattering	1	2.78%
			acceptable	1	2.78%
			No Answer	1	2.78%
			Total Responses	36	

Results from the posttest reveal that students showed a greater range of response types. There were 27 different responses provided in the posttest compared with nine on the pretest. While there was no significant shift in where students reported learning their words, responses suggest that more words were noticed outside of class than pretest responses.

Table 11. Item Nine: Where Did You Learn the New Word

Pretest Sources	Frequency	Posttest Word Sources	Frequency
Winn Dixie Book	6	book - independent reading	9
school	4	book - unspecified	5
YouTube	3	school	5
home	5	home	5
tv	1	video	2
no answer	17	online	4
		tv	1
		no answer	5
Total Responses	36	Total Responses	36

Table 11 summarizes the response to item nine, which asked students where they learned the new word. On the pretest, 17 students did not respond to the prompt, compared with five blank responses on the posttest. Further, six students indicated on the pretest that they learned their new word in the book we were reading as a class at that time, Winn Dixie. However, analyzing the responses given on the pretest for new words learned shows that six of the words given as new words learned were words in Winn Dixie: melancholy, sermon, produce, congregation, hymn, and potluck. Further, two more words: grit and discombobulated, are words that I frequently use while teaching. I use the word grit to describe students working through something challenging, and I tend to spend more time on this at the beginning of the year. Also, discombobulated is a word that I use whenever something goes unexpectedly.

4.3.3.2 Word Wizard Chart Data

To determine the frequency that students recognized target words outside of the classroom, I analyzed students' marks indicating their word recognition. The word wizard chart was used for four weeks, and the 36 students recorded 674 instances of the target words identified outside of the classroom. Table 12 illustrates the frequency of words by week recognized by students outside of the classroom.

Table 12. Recognition of Target Words Outside of the Classroom

Target Word	Total Marks	% of total
acceptable	91	13.50%
intention	71	10.53%
stray	71	10.53%
goal	68	10.09%
designate	67	9.94%
apprehend	61	9.05%
disrupt	60	8.90%
accidentally	51	7.57%
expect	51	7.57%
reward	47	6.97%
regulate	36	5.34%

As shown in Table 3.8, "acceptable" was the word students most frequently found outside the classroom, comprising approximately 13.5 % of the identified target words. The following six words identified by students beyond the classroom differed from only ten words between them.

These words, which included: acceptable, intention, stray, goal, designate, and apprehend, ranged in comprising 9.05% to 10.53% of identified words.

Next, I examined the data to determine the sources where students most commonly identified the target words. The results revealed that "books or other text" was the source most frequently cited as the origin from which target words were encountered beyond the classroom. Overall, approximately 22% of encounters with the target words were cited as originating from a book or other text that students were reading. The next largest source, "conversations," comprised approximately 11% of target words, with students identifying the target words being used in conversations that they were part of. Additional categories included "overheard comments," "YouTube and other online media sources," "television shows," "words encountered while traveling," "music," "video games," "movies," "words encountered while visiting friends or family," and "words encountered during a sporting event or practice." These categories ranged from approximately 10% to 6% of target word sources. Table 13 summarizes the target word sources.

Table 13. Target Word Sources

Source	Frequency	Percentage of Total
Book or other text	145	21.51%
Conversation	72	10.68%
Overheard comment at home or school	67	9.94%
YouTube/Online Media	64	9.50%
Television Show	60	8.90%
While traveling	51	7.57%
Music	48	7.12%
Video Game	45	6.68%
Movie	43	6.38%
Visiting Friends/Family	41	6.08%
Sporting Event/Practice	38	5.64%

4.4 In Summary

Results of analyzing student vocabulary notebooks, concept maps, word study charts, and performance on their assessments focused on target words, word form, and word consciousness, as well as the word wizard chart and anecdotal notes, revealed robust effects on student learning as well as their interest and attitudes toward vocabulary learning.

5.0 Learning and Actions

5.1 Discussion

My inquiry began with a needs analysis that identified vocabulary instruction as an area that teachers in my school believed required attention. That analysis led me to conduct a review of literature related to theoretical frameworks and research-based approaches for vocabulary instruction. The review allowed me to survey the most current and established approaches and to design an inquiry with word knowledge at the core. Specifically, the intervention was an attempt to apply the theoretical position of Perfetti's (Perfetti, 2007; 2017) Lexical Quality Hypothesis to instructional practices. Perfetti (Perfetti, 2007; 2017) claims that a high-quality lexical representation of a word includes knowledge of meaning, linguistic, and literacy form.

Contemporary vocabulary research supports the importance of deep word knowledge and recommends comprehensive and multidimensional instructional practices for teaching vocabulary (e.g., Beck et al., 2013; Graves 2016). Two bodies of work provided the framework for structuring my intervention. First, I examined the four-part structure outlined by Graves (2006, 2016), which involves a) Frequent, Varied, and Extensive Language Experiences, (b) Teaching Individual Words, (c) Teaching Word-Learning Strategies, (d) Fostering Word Consciousness. Next, I used specific teaching principles for "robust" vocabulary instruction outlined from the research of Beck et al. (2013). Specific components of robust vocabulary instruction: (a) student-friendly definitions, (b) multiple exposures, (c) multiple contexts, (d) deep processing, (e) emphasis on high-utility academic language, (f) text-based approaches, (g) engagement in structured discussions, and (h) engagement in writing tasks.

5.2 Word Generation

An important aspect of my inquiry was its impact on my own learning. Conducting this inquiry allowed me to use my research of effective vocabulary instructional practices to analyze curriculum resources in a rigorous and principled way. The Word Generation resources used in this study included many of the research-based principles of quality vocabulary teaching. Each WG unit targets 5-6 words and is organized intentionally to ensure that students receive multiple authentic exposures to words across several contexts. Also, students are given opportunities to use the words in their reading, writing, and speaking. Teacher plans, as well as student directions, are detailed and specific, making the program user-friendly. The topics are designed to be engaging and encourage discussion, and I saw evidence of this in my students. Students were eager to share their opinions on the focus question from the first day of each unit. Also, I found that the texts in the materials were appropriate for the level of readers in my classrooms. The texts are brief yet engaging. Also, since the background knowledge is built from the beginning on the topic, students have schema when they encounter the texts.

Students particularly enjoyed the Action News videos, the word cards, and chants, as well as the articles and/or journal entries. The WG materials are free to download on the SERP website (<https://access.serp.institute.org/wordgen-elementary/>). Materials available include: (a) teacher edition lesson guides, (b) student materials, (c) Action News videos, (d) focus word cards, (e) word chants, (f) vocabulary assessments, (g) assessment rubrics, and (h) parent newsletters. All materials are available in English and Spanish, and the parent newsletters are available in English, Spanish, Arabic, and Chinese. In addition, WG offers all student materials as Google doc files in response to the Covid pandemic.

The WG curriculum is a rich resource. However, I felt two instructional principles were insufficiently addressed in the lessons. First, the word study lessons lacked adequate support and direction for teachers to address the functions of word form changes and morphological features of the target words. To compensate for this, I created word study lessons addressing these components.

Second, I did not find word consciousness to be addressed in a meaningful way in the lessons. While perhaps implied through the target words being used in multiple contexts and modalities, I felt it was essential to add intentional opportunities to build a community of word-conscious learners.

5.3 Vocabulary Learning

Despite clear limitations in this study, including sample size and lack of a control group, the impact on my students' learning adds to the understanding of vocabulary learning and research-based teaching principles. Students showed improvement on their posttests, supporting their growth in knowledge of target words, word forms, and word consciousness. Also, students showed evidence through responses in vocabulary notebooks and class discussions of their growth in their depth of word knowledge. Specifically, knowledge of morphemes and word meaning knowledge was increased. Finally, students grew in their noticing and appreciating words and language, demonstrating this by keeping word collections of favorite words and recognizing words both in and out of the classroom.

5.4 Implications

I believe that my experience has important implications for ELA teachers at all levels. Indeed, the WG curriculum is a research-based program that is easily accessible to educators. Perhaps, it may be even more effective when word consciousness opportunities and word study lessons are implemented concurrently, as this study suggests. Many teachers, however, may not have the freedom to replace the existing curriculum. My lived experience and my survey of research regarding typical vocabulary teaching norms suggest that the vocabulary curriculum used by many schools is inadequate. Most commonly, vocabulary teaching involves introducing several words along with their definitions each week. An important conclusion from the present study may suggest that teachers in these situations may consider enhancing their required existing vocabulary curriculum with word study lessons targeting features phonology, morphology, syntax, and orthography, thus increasing the number of words and features to which students are exposed.

To go one step further, many schools have an additional time and/or curriculum for grammar, including lessons such as verb tenses and sentence structure. Vocabulary research aimed at developing the rich lexical representations of words may indicate that a more intensive approach to vocabulary instruction may more meaningfully and comprehensively foster deep word knowledge and address components of grammar currently being taught in isolation.

5.5 Future Directions

I intend to share my research findings with the principals, literacy coach, and grade-level colleagues. Also, I will offer to conduct professional development opportunities to share key

findings from my research, why vocabulary instruction is an urgent need and strategies and templates that can be implemented into existing routines.

Additionally, I intend to continue using the intervention framework from my study, consisting of the WG materials strengthened with additional word study. My interest in vocabulary instruction has only strengthened throughout my study, and I intend to continue researching and learning best practices. I am interested in contributing to the advancement of vocabulary research and teaching, including continuing to write on the topic or present at a conference.

5.6 Conclusion

The EdD is committed to supporting professionals to become leader scholar-practitioners. Throughout the program, I have learned about Improvement Science, a fundamental component of the EdD as it posits the teacher as a researcher. The Improvement Science lens values research implemented iteratively, with intentional data collection and reflection. Adaptive leadership is an additional framework that I have learned about through the EdD. Like Improvement Science, adaptive leadership embraces change and accepts “failure” as a necessary component of improvement. Together, these two models are reciprocal and position leader scholar-practitioners to contribute to research in meaningful and transformative ways.

Bibliography

- Baumann, J.F; Blachowicz, C.L.Z., & Manyak, P.C. (co-PIs); Graves, M. F., & Olejnik, S. (consultants). (2019-12). *Development of a multi-faceted, comprehensive, vocabulary instructional program for the upper-elementary grades*. U.S. Department of Education, Institute of Education Services, National Center for Education Research.
- Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to life: Robust vocabulary instruction* (2nd ed.). Guilford Press.
- Biemiller, A., & Boote, C. (2006). An effective method for building meaning vocabulary in primary grades. *Journal of Educational Psychology*, 98(1), 44-62. <https://doi.org/10.1037/0022-0663.98.1.44>
- Chall, J., and Jacobs, V., 2003. "Poor children's fourth-grade slump." In *American Educator*, Spring. Available at: http://www.aft.org/pubsreports/american_educator/spring2003/chall.html.
- Cunningham, A. E., & Stanovich, K. E. (1991). Tracking the unique effects of print exposure in children: Associations with vocabulary, general knowledge, and spelling. *Journal of Educational Psychology*, 83(2), 264-274. <https://doi.org/10.1037/0022-0663.83.2.264>
- Deacon, S. H., Tong, X., & Francis, K. (2015). The relationship of morphological analysis and morphological decoding to reading comprehension. *Journal of Research in Reading*, 40(1), 1-16. <https://doi.org/10.1111/1467-9817.12056>
- English language arts standards » writing » grade 4 » 2 » D*. (n.d.). Home | Common Core State Standards Initiative. <https://www.corestandards.org/ELA-Literacy/W/4/2/d/>
- Fisher, D., & Frey, N. (2014). Content area vocabulary learning. *The Reading Teacher*, 67(8), 594-599. <https://doi.org/10.1002/trtr.1258>
- Ford-Connors, E., & Paratore, J. R. (2015). Vocabulary instruction in fifth grade and beyond. *Review of Educational Research*, 85(1), 50-91. <https://doi.org/10.3102/0034654314540943>
- Goldman, S. R., Snow, C., & Vaughn, S. (2016). Common themes in teaching reading for understanding: Lessons from three projects. *Journal of Adolescent & Adult Literacy*, 60(3), 255-264. <https://doi.org/10.1002/jaal.586>
- Graves, M. F. (2006). *The vocabulary book: Learning & instruction*. Teachers College Press.

- Graves, M. F. (2015). Building a vocabulary program that really could make a significant contribution to students becoming college and career ready. *Research-based practices for Common Core literacy*, 123-142.
- Graves, M. F. (2016). *The vocabulary book: Learning and instruction*. Teachers College Press.
- Hemphill, L., & Snow, C. (2018). Learning to read while reading to learn: The central role of multiple documents in two instructional programs. In *Handbook of multiple source use* (pp. 362-381). Routledge.
- Hernandez, D. J. (2011). *Double jeopardy: How third-grade reading skills and poverty influence high school graduation*.
- Hiebert, E. H. (2019). *Teaching words and how they work: Small changes for big vocabulary results*. Teachers College Press.
- Kieffer, M. J., & Lesaux, N. K. (2007). Breaking down words to build meaning: Morphology, vocabulary, and reading comprehension in the urban classroom. *The Reading Teacher*, 61(2), 134-144. <https://doi.org/10.1598/rt.61.2.3>
- Kucan, L. (2012). What is most important to know about vocabulary? *The Reading Teacher*, 65(6), 360-366. <https://doi.org/10.1002/trtr.01054>
- LaRusso, M., Kim, H. Y., Selman, R., Uccelli, P., Dawson, T., Jones, S., Donovan, S., & Snow, C. (2016). Contributions of academic language, perspective taking, and complex reasoning to deep reading comprehension. *Journal of Research on Educational Effectiveness*, 9(2), 201-222. <https://doi.org/10.1080/19345747.2015.1116035>
- Lawrence, J. F., Crosson, A. C., Paré-Blagoev, E. J., & Snow, C. E. (2015). Word generation randomized trial. *American Educational Research Journal*, 52(4), 750-786. <https://doi.org/10.3102/0002831215579485>
- Lesaux, N. K., Kieffer, M. J., Faller, S. E., & Kelley, J. G. (2010). The effectiveness and ease of implementation of an academic vocabulary intervention for linguistically diverse students in urban middle schools. *Reading Research Quarterly*, 45(2), 196-228. <https://doi.org/10.1598/rrq.45.2.3>
- Levesque, K. C., Kieffer, M. J., & Deacon, S. H. (2018). Inferring meaning from meaningful parts: The contributions of morphological skills to the development of children's reading comprehension. *Reading Research Quarterly*, 54(1), 63-80. <https://doi.org/10.1002/rrq.219>
- Marzano, R. J. (2006). Marzano Program for Building Academic Vocabulary: Supplemental report of effects on specific subgroups (pp. 1-17, Rep.). Marzano Research Laboratory. www.MarzanoResearch.com
- Mitchell, D., Thorn, C., & Edwards, B. (2018). Clarifying misconceptions about improvement science. *Leadership*, 47(5), 24-26.

- Nagy, W., & Townsend, D. (2012). Words as tools: Learning academic vocabulary as language acquisition. *Reading Research Quarterly*, 47(1), 91-108. <https://doi.org/10.1002/rrq.011>
- National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). U.S. Government Printing Office.
- National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). U.S. Government Printing Office.
- Pearson, P. D., Palincsar, A. S., Biancarosa, G., & Berman, A. I. (Eds.). (2020). *Reaping the rewards of the Reading for Understanding initiative*. National Academy of Education.
- Perfetti, C. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading*, 11(4), 357-383. <https://doi.org/10.1080/10888430701530730>
- Perfetti, C. A. (2017). Lexical quality revisited. *Developmental Perspectives in Written Language and Literacy*.
- Perfetti, C., & Stafura, J. (2013). Word knowledge in a theory of reading comprehension. *Scientific Studies of Reading*, 18(1), 22-37. <https://doi.org/10.1080/10888438.2013.827687>
- Schmitt, N., Nation, P., & Kremmel, B. (2019). Moving the field of vocabulary assessment forward: The need for more rigorous test development and validation. *Language Teaching*, 53(1), 109-120. <https://doi.org/10.26686/wgtn.12552059>
- Scott, J. A., Skobel, B. J., & Wells, J. (2008). *The word-conscious classroom: Building the vocabulary readers and writers need*. Teaching Resources.
- Scott, J. A., & Nagy, W. E. (2004). Developing word consciousness. *Vocabulary instruction: Research to practice*, 201-217.
- Stahl, S. A., & Nagy, W. E. (2005;2006;2007;). *Teaching word meanings*. Lawrence Erlbaum Associates, Incorporated.
- Snow, C. E. (2018). Simple and not-so-simple views of reading. *Remedial and Special Education*, 39(5), 313-316. <https://doi.org/10.1177/0741932518770288>
- Snow, C. E., Lawrence, J. F., & White, C. (2009). Generating knowledge of academic language among urban middle school students. *Journal of Research on Educational Effectiveness*, 2(4), 325-344. <https://doi.org/10.1080/19345740903167042>
- WordGen elementary. (n.d.). *Bridging research, practice, design in education* | SERP Institute. <https://www.serp-institute.org/wordgen-elementary>