AN INVESTIGATION OF READ-ALOUDS, CLASSROOM INTERACTIONS, AND

GUIDED PLAY AS SUPPORTS FOR VOCABULARY LEARNING IN PRESCHOOL

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Elizabeth S. LaGamba, Ed.D.

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A large body of research has established the existence of a gap in vocabulary knowledge that occurs largely along socioeconomic lines, is evident prior to age two, and continues to widen as children age. Because research has shown that early vocabulary knowledge supports present and later text comprehension, interventions for supporting preschoolers' vocabulary development are being explored through research and in classrooms.

The present study sought to build upon prior research to explore the impact of two intervention conditions, *rich instruction + more rich instruction* (RI) and *rich instruction + play* (+P), on preschoolers' knowledge of targeted Tier 2 vocabulary words selected from read-alouds of children's literature. The study included 28 preschool students in two full-day, state-funded classrooms, mean age=4.32. A within-subjects design was used to allow all students to experience both conditions by randomly assigning target words to each condition.

Findings suggest that participation in both the *rich instruction + more rich instruction* (RI) and *rich instruction +play* (+P) conditions increased preschoolers' learning of targeted Tier 2 vocabulary words. Furthermore, students demonstrated deeper word learning in the +P condition as compared to the RI condition. There is some evidence to suggest that preschoolers may have been more engaged in the classroom activities in the +P condition than when they were

in the RI condition. Implications for choosing target words for preschool students are also discussed.

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1.0   INTRODUCTION

The first day of kindergarten should be an exciting rite of passage into the world of academic learning. Yet, some students begin their school journey already at a significant disadvantage, and never catch up. One way in which children's knowledge and skills vary greatly upon school entry is the amount of language they know and can use (Hart & Risley, 1995; Hoff, 2006). A significant body of literacy scholarship has identified a gap in vocabulary development between the most proficient vocabulary users and those children who have the least vocabulary knowledge, a divide that largely occurs along socioeconomic lines (Farkas & Beron, 2004; Hoff, 2013), is evident prior to age two, and continues to widen as children age (Biemiller, 2005; Biemiller & Slonim, 2001; Chall & Jacobs, 2003; Fernald, Marchman, & Weisleder 2013; Hart & Risley, 1995; Marchman & Fernald, 2008; Rowe, Raudenbush, & Goldin-Meadow, 2012).

1.1   IMPACT OF VOCABULARY KNOWLEDGE ON EARLY LITERACY AND FUTURE READING ACHIEVEMENT

This ever-widening gap is worrisome because the relationship between students' vocabulary knowledge and their ability to comprehend text has been well documented (e.g., Beck, Perfetti, & McKeown, 1982; Dickinson, Golinkoff, & Hirsh-Pasek, 2010; McKeown,

Beck, Omanson, & Perfetti, 1983; Chall, Jacobs, & Baldwin, 1990; Kieffer & Lesaux, 2007; Lesaux, Kieffer, Faller, & Kelley, 2010). A considerable number of studies have established that vocabulary knowledge not only supports comprehension in the *present*, but that additionally, vocabulary knowledge in the early school years is an indicator of a student's *future* ability to comprehend what is read (Biemiller & Slonim, 2001; Chall, Jacobs, & Baldwin, 1990; Dickinson & Tabors, 2001, 2002; Dickinson & Porche, 2011; Justice, Mashburn, & Petscher, 2013; NELP, 2008; Scarborough, 2001; Wagner et al., 1997). In one such study, Cunningham and Stanovich (1997) reported that vocabulary size in first grade is a strong predictor of reading comprehension in eleventh grade, ten years later. Furthermore, studies have demonstrated a causal link between the teaching of sophisticated vocabulary words and increases in students' vocabulary knowledge and comprehension skills (Beck, Perfetti, & McKeown, 2007; McKeown, Beck, Omanson, & Perfetti, 1983).

1.2   IMPORTANCE OF EARLY INTERVENTION

Informed by these findings, it is reasonable to advocate for vocabulary instruction in preschool classrooms, in an effort to increase the vocabulary knowledge of very young students (Hoff, 2013). This is especially necessary for those students who demonstrate low vocabulary knowledge compared to their peers. We know that children who have rich vocabulary knowledge can more readily make word-learning gains, causing at-risk students to fall further behind their peers (Neuman & Celano, 2006; Stanovich, 1986). Should successful interventions be identified and implemented, the resulting gains in vocabulary knowledge have the potential to support students' growth in the areas of listening comprehension and eventually reading

comprehension, an impact that could potentially influence students' academic learning throughout their school careers and beyond.

1.3   NEED FOR RESEARCH FOCUSED ON EARLY VOCABULARY INTERVENTIONS

It is clear that preschool vocabulary interventions have great potential, however for instructional interventions to be truly impactful, we need to know more about the most effective instructional choices that will lead to the greatest and longest lasting vocabulary knowledge gains. Because preschoolers are rapidly developing, their learning needs often differ drastically from their peers who are only a year or two older. So, while research that informs the principles of effective vocabulary learning for elementary school students is certainly valuable when considering instruction in preschool, it is not appropriate to simply enact these approaches without considering the specific needs and abilities of preschoolers and the pedagogies that have been found to be most useful in preschool settings. Research specifically focused on the best ways to increase *preschoolers'* vocabulary knowledge is essential, and yet it is not abundant. A meta-analysis of research conducted prior to 2010 revealed only 28 published studies examining the effects of vocabulary instruction on preschoolers' language skills (Marulis & Neuman, 2010). More recently, Wasik, Hindman, and Snell (2016) compiled early childhood studies with a focus on interventions grounded in book reading and their impact on vocabulary development. This work identified 9 additional studies focused on preschoolers' word learning. As a result of this meta-analysis, Wasik and her colleagues assert that, "much more needs to be learned about the nature of vocabulary learning and effective interventions" in early childhood, such as optimal

strategies for vocabulary teaching, the ideal number and nature of target words, and the most effective duration of interventions (p. 52-55).

Scholars not only identified a need for more research targeting preschool vocabulary development, but also recognized a practical need as well. Researchers determined that word learning has not traditionally been a focus of early learning standards (Beck & McKeown, 2007; Biemiller, 2001; Neuman & Roskos, 2005), preschool curricula (Neuman & Dwyer, 2009), or instruction in preschool settings (Beck & McKeown, 2007; Biemiller, 2001).

This lack of attention to vocabulary was evident in the classrooms that were the site of the present inquiry. In these classes, teachers spent relatively little time engaged in discussions about the meanings of words. Even when reading aloud to children and encountering a word that was likely unknown to students, teachers often simply continued reading as if children already understood the word or would gain understanding through context clues alone. These assumptions, however, are not supported by research (Beck & McKeown, 2007; McKeown & Beck, 2014).

The present study seeks to build upon current knowledge about intervention techniques for enhancing the vocabulary knowledge of preschool students, particularly those students who have already demonstrated a vocabulary deficit when compared to their same-aged peers.

2.0 REVIEW OF SUPPORTING SCHOLARSHIP AND PROFESSIONAL KNOWLEDGE RELATED TO VOCABULARY INSTRUCTION AND INTERVENTIONS

2.1 THEORETICAL PERSPECTIVE

The present study is informed by a cognitive processing framework, in which active processing, or the deliberate, attentive mental manipulation of ideas, supports learners in gaining the ability to understand, remember, use, and apply new information (Sternberg, 1979, 1982). For vocabulary learning, this framework highlights the importance of the learner interacting with words in various contexts in order to form flexible and accessible representations of those words that are available for understanding oral or written texts. Perfetti's (2007) Lexical Quality Hypothesis emphasizes the important role of a person's lexicon, or mental dictionary, positing that word knowledge is built by increasing both the number of and robustness of lexical entries. Lexical entries are made more robust when the learner engages in active processing of words in a variety of contexts. Reading comprehension is then supported by the ability to retrieve robust word identities of high lexical quality. Limited or low-quality representations compromise a reader's ability to comprehend text. Research supports the notion that semantic learning requires active processing and multiple exposures in a variety of contexts (Marulis & Neuman, 2013; Nagy & Scott, 2000; Perfetti & Hart, 2002; Perfetti & Stafura, 2014). The importance of

repeated exposures to words in a variety of contexts for word learning is related to the concept of word consciousness (Scott & Nagy, 2004) which posits that simply being mindful of the importance of exposure to words and their meanings, having an interest in words, and purposefully including a variety of vocabulary words in oral and written language increases the amount and depth of vocabulary learning. Over time, becoming word conscious and interacting with word conscious adults has the potential to increase students' trajectory of word learning.

2.2   INSIGHTS FROM RELEVANT VOCABULARY RESEARCH

2.2.1   Word Selection

Target word selection in the present study was based on the work of Beck, McKeown, and Kucan (2013) who have grouped vocabulary words into three tiers. They define Tier One words as those that are highly typical in oral conversations. Examples of Tier One words include *house, shoe, run*, *happy, cup*, and *jump*. Tier One words typically require no explicit instruction because they are learned by native speakers simply through exposure to language in everyday contexts. Tier Two words are sophisticated words, such as *challenge, construct, perplexed, devour,* and *retrieve.* Tier Two words occur frequently in written language across a variety of domains as well as in the oral language of mature users. The third classification of words, Tier Three words, are content-specific. Examples of Tier Three words include *photosynthesis*, *precipitation*, *legislature, carburetor,* and *addend*. Knowledge of Tier Three words is important within individual contexts, yet is not widely impactful outside of the targeted domain.

Beck and her colleagues assert that instructional interventions should focus on Tier Two words. This is because, unlike Tier One words, they are uncommon in oral language and therefore are not likely to be learned incidentally. Additionally, unlike Tier Three words, their routine inclusion across a variety of texts and in the oral language of sophisticated speakers makes them important to know in order to support comprehension across a variety of domains and contexts. Beck et al. argue that a Tier Two word is considered to be a good candidate for instruction if the word itself is likely to be unfamiliar to children, yet the concept is something that children can relate to or have experienced. For example, although young children may not understand the terms, they have certainly at one time or other felt *famished* to the point that they *devoured* their next meal. Beck and her colleagues further caution that student-friendly definitions must be created for each word. Therefore, if a word cannot be explained using terms that children already know, it is not a good candidate for instruction.

Other researchers have called attention to the parts of speech of words that are selected for instruction (Hadley, Dickinson, Hirsh-Pasek, Golinkoff, & Nesbitt, 2016), ranking them in order of perceptual accessibility, and finding that more abstract word types such as abstract nouns and adjectives were more difficult for children to learn in a deep way than were perceptually more accessible categories such as concrete nouns and verbs.

2.2.2 Contexts and Procedures for Word Learning

There is also much research on the most effective contexts and procedures for vocabulary instruction and learning. Children's literature can provide a meaningful context for Tier Two vocabulary by weaving these less-encountered words into a meaningful narrative. For young children, such sophisticated texts can be shared through read alouds. Research has shown that

read-alouds – sometimes also referred to as shared reading or storybook reading – are a useful way to expand language interaction with students (Arnold, Lonigan, Whitehurst, & Epstein, 1994) as well as students' vocabulary knowledge (Elleman, Lindo, Morphy, & Compton, 2009). However, read-alouds alone do not seem to be enough. Numerous studies have found that further opportunities for target-word interaction allow additional and more substantial word-learning to occur (Beck, McKeown, & Kucan, 2013; Coyne, McCoach, Loftus, Zipoli, & Kapp, 2009; Dickinson & Smith, 1994; Maurulis & Neuman, 2010; McKeown & Beck, 2003, 2007, 2014). Beck, McKeown, and Kucan (2013) report that when kindergarten and first grade students in their research were engaged in rich language instruction following a text-based introduction to words, they demonstrated vocabulary gains about twice as large as those reported in read-aloud only studies. Beck and her colleagues (2007, 2013, 2014) suggest that the deepest and most enduring learning takes place when students see, hear, and say target words; are provided with student-friendly word meanings using everyday language; and interact with and use words in ways that relate to their own experiences. Whitehurst et al. describe a similar procedure that they call "dialogic reading," in which teachers ask questions, provide additional information, and encourage students to interact with words during and after a teacher read-aloud (1994, 1999). Blachowicz and Obrochta (2005) also extend vocabulary instruction beyond the simple exposure that comes from a read-aloud. In their research, they simulated the immersion into a topic that comes from going on a field trip using a thematic set of teacher-read texts, group discussions, picture representations, word games, semantic sorting, and writing. Following these simulated field trips, students could write significantly more words related to each topic as compared to the initial assessment, with students who struggled the most at the beginning making the greatest gains.

Across studies of vocabulary learning in elementary school students, certain principles have consistently informed instructional design and have been found to be effective. These include selecting sophisticated, Tier Two words from children's literature, exposing students to those targeted words during read-alouds, and providing opportunities to interact with those words during and after book reading. While some universal principles of effective instruction may remain consistent across age groups, it is important to test this thinking by applying methods that are effective in kindergarten to preschool classrooms and to additionally investigate in what ways research supports adaptations to instructional designs that have been effective in early elementary school in order to better meet the unique learning needs of *preschool* students.

2.3   PRESCHOOL VOCABULARY DEVELOPMENT THROUGH PLAY

Researchers are currently appealing for more vocabulary research to be conducted with preschool-aged children in order to determine the methods and strategies that will best suit young learners and their unique learning needs (Loftus-Rattan, Mitchell, & Coyne, 2016). Play is widely believed to be an important and essential context for learning in preschool settings (NAEYC, 2009). Theorists such as Piaget (1962) and Vygotsky (1976) have provided theoretical frameworks for the relationships between play and literacy, with Piaget emphasizing play as a context for children to practice and consolidate cognitive skills such as symbolic representation and Vygotsky underscoring the support provided by more capable peers and adults through social interactions during play and their impact on literacy development. It has been further argued that play and literacy share higher order, cognitive processes such as problem solving, imagining, and categorizing (Bruner, 1973; Pellegrini, 1985; Smith, 2007).

Because of this rich body of research, it is reasonable to investigate, in the present study, socialization during play as a context to bolster the vocabulary learning of preschoolers.

Sociodramatic play, a type of pretend play in which children take on roles and interact to recreate events that they have experienced in real life, is often seen in preschool classrooms in the form of a kitchen center or a dress-up corner. It can also include many various settings such as an office, fire station, flower shop, or bakery. These settings allow young children to participate in sustained social interactions that mimic real-life situations and to navigate relating to others in these settings (Elkonin, 2005). Given that children who are exposed to and interact with more language are able to understand and use more vocabulary (Hart & Risley, 1995) and that vocabulary instruction is most successful when it provides students with opportunities to encounter and practice using words repeatedly and in multiple contexts (Beck, McKeown, & Kucan, 2013; Bolger, Balass, Landen, & Perfetti, 2008; Stahl, 2005), sociodramatic play may be an appropriate setting for preschoolers to practice and learn language (Nicolopoulou, 2010).

Although the National Association for the Education of Young Children calls for developmentally appropriate practice in preschools, including time for play (NAEYC, 2009), increased calls for rigor in national and state learning standards and school curricula do not always take into account the developmental needs of preschool students (Christie & Roskos, 2006; Roskos & Christie, 2007). As a result, playtime such as recess and dramatic play is being reduced or eliminated in favor of more direct instruction (Miller & Almon, 2009). Researchers such as Nicolopoulou (2010), Hirsh-Pasek and Golinkoff (2011), and Fuller, Bein, Bridges, Kim, and Rabe-Hesketh (2017) reject the false dichotomy that teachers must choose between or alternate between periods of unstructured free play and periods of direct academic instruction, instead challenging teachers to combine rigorous academic objectives with a playful pedagogy.

Roskos and Christie agree, arguing that researchers should fight the trend of diminishing play time with a revival of play-literacy research in order to "double down on efforts to find firm connections between play activity and the pre-reading skills that have been found to be strong predictors of successfully learning to read" (2015, p. 418).

In recent years, a small number of studies demonstrated that preschool-aged children exhibit an increase in vocabulary knowledge after being exposed to an intervention including a read-aloud followed by play (Dickinson et al., 2013; Conner, Kelly-Vance, Ryalls, & Friehe, 2014; Han, Moore, Vukelich, & Buell, 2010; Roskos & Burstein, 2011; Weisberg, Ilgaz, Hirsh-Pasek, Golinkoff, Nicolopoulou, & Dickinson, 2015). Roskos and Burstein (2011) demonstrated that preschoolers who were taught targeted words through a read-aloud followed by discussion and play were able to increase their vocabulary knowledge significantly. The study focused on thirty-six preschoolers who were selected to receive a vocabulary intervention because they were at risk for language learning difficulties. Their classmates, typically-developing preschoolers across twelve classrooms, were considered the control condition. During the study, the intervention group received vocabulary instruction through a teacher read-aloud followed by a "say, tell, do" procedure, in which students repeated a word, discussed the word's meaning with a peer, and used gestures to briefly act out the word. Finally, students receiving the intervention engaged in a session of play involving story reenactment, puppet play, or a board game. Children in the intervention group increased both their vocabulary knowledge of targeted words as well as their general vocabulary knowledge more significantly than did their typically-developing peers who received the standard school curriculum. Conner, Kelly-Vance, Ryalls, and Friehe (2014) also found that preschoolers demonstrated significant improvements in vocabulary knowledge following exposure to shared reading and play. A small number of two-

year-olds in a daycare setting were exposed to a series of themed read-alouds followed by theme-aligned pretend play while their counterparts in the control condition continued to experience standard classroom procedures. The researchers reported that all children in the intervention group demonstrated a significant increase in their comprehension and expressive communication scores, as measured by a researcher-designed vocabulary assessment, as well as a significant increase in their standardized scores in auditory comprehension, expressive communication, and total language. The comparison group displayed no increase using either instrument. These studies indicate that the combination of a read-aloud with play led to increased vocabulary and language learning. However, based on these findings, it is not clear which variable – read-alouds or play – contributes more to word learning, or if it is truly the combination of the two that provides the most impressive results.

Other research studies demonstrate that play itself can provide a context for word learning. Neuman and Gallagher (1994) reported that children whose parents were encouraged to engage them in literacy-related play showed an increase in vocabulary knowledge. In their research, teenaged mothers were provided with materials to create literacy-related play settings in their homes as well as coaching to teach mothers to use selected cues in playful literacy explorations with their children. Mothers in the control condition received no materials or coaching. The researchers reported that children whose mothers had received the intervention demonstrated significant post-test gains on a standardized measure of general vocabulary knowledge and usage as well as an increase in their active participation in literacy activity. Han, Moore, Vukelich, and Buell's (2010) research provided similar results, finding that encouraging vocabulary practice through play increased students' vocabulary knowledge. In their research, preschoolers were assigned to one of two conditions for thirty minutes each day. In the first

condition, students heard a read-aloud followed by a short discussion about the meaning of selected vocabulary words from the text and were asked to perform a simple action related to each word's meaning. In the second condition, students received a shortened twenty-minute version of these steps followed by ten minutes of adult/child play using props selected to encourage the use of the targeted vocabulary. Researchers reported that the play component slightly improved both the students' performance and their performance trajectory on measures of expressive and receptive vocabulary. The mean number of Tier One words learned in the plus-play condition was significantly higher (m=7.37, sd=5.03) than in the non-play condition (m=3.88, sd=4.95) on the expressive measure of vocabulary knowledge.

Hypothesizing that engaging in play can indeed improve vocabulary learning, Levy, Wolfgang, and Koorland (1992) sought to determine if certain types of play are more beneficial than others. They found that teacher interactions during sociodramatic play led to preschool students' producing more words and more targeted words than when the same students participated in unstructured and unsupported play sessions. In this study, preschool students first participated in "impromptu play," and then on subsequent days engaged in "enriched sociodramatic play." When engaged in "impromptu play," students were provided with items such as books, blocks, puzzles, puppets, paper and crayons, and toy trains. The teacher supervised but did not interact with their play. In the "enriched sociodramatic play" sessions, learning was organized around themes, and students were provided with theme-related toys, books, filmstrips, and field trips. Teachers interacted with students during their theme-related sociodramatic play, asking questions to expand and enrich vocabulary. During each type of play, fifteen-minute samples of language were collected. In the "enriched sociodramatic play" sessions, all subjects increased in all measures – number of words, length of utterances, number

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of theme-related words, and number of concept words – as compared to when the same student was in the "impromptu play" sessions. These findings are not surprising given that students in the "impromptu play" condition were engaged in social interactions. It seems that all play is not equal when it comes to vocabulary learning. Instead, play that is highly social and interactive and that involves oral communication has the most positive impact on vocabulary learning. Dickinson et al. (2013) built upon this understanding that adult interaction during play can provide an added benefit. The researchers found that adding an opportunity for young children to practice previously taught vocabulary though adult-supported play increases students' word knowledge. Preschoolers in this study were assigned to one of three conditions: taught, exposure, or control. In the taught condition, teachers exposed students to selected vocabulary words during a trade book read-aloud, provided a definition of the word, and facilitated a play session with small toys in which children used targeted words in conversation during play. In the exposure condition, students were introduced to the same targeted words using the same teacher read-aloud and were given opportunities to play, but were not encouraged to engage in further discussion or play using the targeted vocabulary. In the control group, students were not exposed to the targeted words in any context. The researchers concluded that simply being exposed to the words incidentally through their inclusion in read-alouds improved students' vocabulary knowledge. They found even larger gains for words that were targeted during adult-supported play.

While research in the area of play as a context for preschool vocabulary practice and learning is somewhat limited, the work that has been done shows promising results. There is evidence that providing students with an opportunity to engage in social interactions in a playful setting is a useful way to deepen students' vocabulary knowledge (Conner, Kelly-Vance, Ryalls,

& Friehe, 2014; Han, Moore, Vukelich & Buell, 2010; Levy, Wolfgang & Koorland, 1992; Neuman & Gallagher, 1994; Roskos & Burstein, 2011; Weisberg, Ilgaz, Hirsh-Pasek, Golinkoff, Nicolopoulou, & Dickinson, 2015; Weisberg, Hirsh-Pasek, Golinkoff, Kittredge, & Klahr, 2016) and that teacher-guided or teacher-directed play promotes larger gains than does fully child-directed play (Dickinson et al., 2013; Fisher, Hirsh-Pasek, Newcombe, & Golinkoff, 2013; Hadley, et al., 2016).

The above studies provide evidence to support continued research in key contexts and interventions in the area of vocabulary teaching and learning in preschool settings. This body of research supports the following conclusions: (a) sophisticated, Tier Two words can be learned by very young children (Beck, McKeown & Kucan, 2013); (b) sophisticated texts suitable for reading aloud are an appropriate context from which to select Tier Two vocabulary to teach to preschool children (Beck, McKeown & Kucan, 2013; Dickinson et al., 2013); (c) interactive read-alouds and text-based discussions are a successful method for introducing robust vocabulary to young students (Beck, McKeown & Kucan, 2013; Dickinson et al., 2013); (d) increased and varied encounters with words build depth of vocabulary knowledge (Beck & McKeown, 2007; Beck et al., 2007); and (e) teacher-supported play may be a promising context for social practice and, therefore, deeper processing of new words (Conner et al., 2014; Dickinson et al., 2013; Fisher, Hirsh-Pasek, Newcombe, & Golinkoff, 2013; Hadley, et al., 2016; Han et al., 2010; Levy, Wolfgang & Koorland, 1992; Neuman & Gallagher, 1994; Roskos & Burstein, 2011). The present inquiry builds upon this body of research.

3.0   METHODS

3.1   RESEARCH QUESTIONS

This research examined the impact of two instructional intervention conditions on the vocabulary learning of preschoolers.   During this quasi-experimental study, I gathered baseline/pretest data, supported preschool teachers' implementation of two intervention conditions over three instructional cycles, and collected posttest and delayed posttest data to determine the impact of the intervention conditions. The current study is a modified replication of selected aspects of McKeown and Beck (2007, 2014). This modified replication sought to determine if methods that were successful in enhancing kindergarteners' word knowledge would also support the word learning of preschool students. Additionally, the present study includes a condition and measure that builds upon the work of Dickinson et al. (2013), Hadley (2017) and Hadley, Dickinson, Hirsh-Pasek, Golinkoff, and Nesbitt (2016). This marrying of methodology proven to have been successful in early elementary classrooms with a playful pedagogy that has been effective in preschools seeks to serve the purpose of beginning to understand which universal principles of vocabulary learning can be applied at any age as well as which instructional approaches are best suited to the unique needs of preschool learners.

The following questions guided the investigation:

1. What is the impact of *rich vocabulary instruction + more rich instruction* (RI) on preschoolers' learning of Tier 2 target words?

2. What is the impact of *rich instruction + play* (+P) on preschoolers' learning of Tier 2 target words?

3. Are there differences in preschoolers' learning of Tier 2 target words based on instructional approach?

4. Are there differences in preschoolers' attitudes toward vocabulary learning based on instructional approach?

3.2   STUDENT PARTICIPANTS

The participants were 39 preschool students, ages 3, 4, and 5 enrolled in two full-day, state-funded classrooms housed in a public elementary school in the northeastern United States. In classroom A, 19 students participated, and 20 students participated from classroom B. Students in classroom A were younger, ages 3 and 4, while students in classroom B were older 4-year-olds and students who had just turned 5. While all 39 enrolled students participated in the instruction and data collection, the data for 11 students were not included in the analysis because of absences on assessment days (n=7) or severe speech articulation difficulties that made it impossible to understand their responses (n=4). After eliminating the data from theses 11 students, there were a total of 28 students with usable data remaining the study (mean age=4.32), 10 from class A (mean age of 3.98) and 18 from class B (mean age of 4.63).

3.2.1 Student Race and Language Demographic Data

The students in the usable sample were 46% male (n= 13) and 54% female (n=15), with 39% (n=11) identifying as White, 39% (n=11) identifying as more than one race, and 21% (n=6) identifying as African American. All students in the study spoke English as their first language. One student had an Individualized Education Plan (IEP).

3.2.2 Student Income Data

In order to qualify for the state-funded preschool program in which the study took place, students' families had to earn an income of less than 300% of the Federal Poverty Level (FPL). A total of 54% (n=15) of students were from families whose income was below the FPL. Assuming no change in income, 89% (n=25) will be eligible for free or reduced lunch when they enroll in kindergarten.

3.2.3 Students' General Vocabulary Knowledge

The Peabody Picture Vocabulary Test (PPVT-4) (Dunn & Dunn, 2007) was administered to all participating students in order to provide a description of students' pre-intervention general vocabulary knowledge levels. In class A, the mean PPVT-4 score was 61.8 and the mean percentile rank was 47th. In class B, the students had higher raw scores on average, with a mean of 70.4; however, because these students were also older on average and would be expected to perform better on the assessment, the mean percentile rank was actually lower in class B (43rd percentile) than in class A (47th percentile).

3.3   TEACHER PARTICIPANTS

The preschool teachers were two white females, both with four-year bachelor's degrees in education. Teacher A had been teaching for three years, all three in classroom selected for this study. Teacher B had been teaching preschool for the first time during this school year. However, she had fourteen years of experience as a kindergarten teacher and had spent four years teaching other elementary grades.

3.4   PROFESSIONAL DEVELOPMENT FOR TEACHERS

I engaged teachers in approximately five hours of professional development over two sessions in order to prepare them to enact the study intervention lessons in their own classrooms. During the first session, I shared the rationale for the study, reviewed the detailed daily lesson plans for cycle 1 of the intervention, and modeled sample lessons. In session two, teachers were provided the opportunity to practice leading the sample lessons while I provided feedback and support. Teacher B received the full training, as planned. Due to her unexpected absence on the day of training session two, teacher A received an abbreviated version of the day two content on a subsequent day. In addition to the trainings that occurred prior to the classroom implementation of the study interventions, I continued to support both teachers by observing lessons and providing additional feedback throughout the study as needed.

3.5   OBSERVED CLASSROOM DIFFERENCES

When the study setting was selected, I was aware that the two classrooms would differ in terms of the ages of the children, with 3 year-olds and young 4 year-olds in classroom A and older 4 year-olds and those who would turn 5 during the school year in classroom B. However, I was assured that the classrooms were very similar in terms of curriculum, schedule, and daily routines. While observing each of the classrooms during the intervention implementation and data collection period, I became aware of pronounced differences in the day-to-day experiences of students in each of the two classrooms.

3.5.1   Classroom B

In classroom B, I observed that students were continuously engaged in productive tasks, whether they were teacher-directed (such as a mini-lesson on letter-formation and letter/sound correspondence or a read-aloud of a picture book) or student-directed (such as time to explore various stations around the room). I observed that teacher B set forth clear expectations for student behavior and was able to calmly redirect students or assign appropriate consequences if any student did not meet the expectations. Both the classroom teacher and the aide spoke to students calmly and patiently.

When students were engaging in an independent work task at their assigned tables, teacher B circulated the room to provide feedback. Most of the students' day was spent in unstructured play at various stations around the classroom. Each station had hooks on which students who chose to play there hung a card with their name and picture. This assured that no more than three or four students were at any one station at a time.

Classroom B had a music center with instruments, books about music, and room to dance to the beats being played. In the block center, wooden blocks of various sizes were organized on low shelves and other trucks and figures were readily available to drive on student-created block roads or enter student-built block buildings. Students could engage with various mediums such as dough or paint at the art station. A sensory bin was filled with rotating items and substances, often aligned with the current topic of study, such as dried corn following a trip to the pumpkin patch and spooky plastic toys hidden in sand during the week of Halloween. A reading center featured shelves of picture books, listening devices with headphones, and comfortable seating; and a writing center consisted of paper and writing utensils, a word wall featuring words and corresponding illustrations, and other writing tools such as dry erase boards. At the math center, various math manipulatives were sorted into bins on low shelves so that students could access the ones they wanted to explore. In the dramatic play center, there was furniture and dress-up materials that were routinely transformed into a themed setting such as a pumpkin patch or a pizza shop complete with literacy materials such as signs and menus and math manipulatives such as play money.

I observed students engaged in cooperative and appropriate play with the materials, moving to and from stations of their choice with little conflict, and cleaning up their materials at the conclusion of their play. While students played, I observed the teacher collecting one-one-one assessment data, preparing for future lessons and activities, or engaging with students.

3.5.2 Classroom A

Although right next-door, the routines and atmosphere in classroom A were a stark contrast to what was observed in classroom B. I rarely observed students in classroom A

receiving any formal mini-lesson or instruction, listening to a book, or attending to the teacher for any reason outside of a brief morning calendar routine and the learning activities prescribed as part of this study. Students did engage in a craft each week in which they glued pre-cut construction paper pieces together to make a letter of the alphabet look like an object that begins with the letter (for example, gluing wheels and a handle on the letter W to make a wagon). Students were often observed watching movies or shorter videos- some of which encouraged them to dance or sing along to music, or in free play.

Free play in classroom A was drastically different from this free play time in classroom B. In classroom A there were low shelves holding a small amount of toys spread out in no apparent organizational structure. It was observed that some toys were broken and many sets of toys had missing or misplaced pieces. I noted that there were a few instruments, some trucks, puzzles with missing pieces, and a small number of blocks. A reading center featured shelves filled with books and a couch, however it was not typically used by the students. There was a large collection of dress up clothes and a large section of play furniture that was very popular among students. More than half the class was often in this small area at once, sometimes playing cooperatively and other times engaging in verbal or physical altercations.

There was an art station; however, art materials were rarely provided, causing this to be mostly an unused table. The sensory bin was typically covered with a lid, making it unavailable to students. During the rare occasions the lid was observed to be off, students were crowded around, pushing, and spilling the contents of the table on the floor. The math manipulatives were on a high shelf where students could not reach them. The teacher would often get a bin for a student if he/she requested it. Some students could be observed playing independently at tables with toys they had found or requested. Students frequently spread toys around the room, rather

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than playing with them in any designated area. Clean-up time would routinely take 20 minutes, with many students continuing to play while the adults repeatedly reminded them it was time to clean up.

While students played, I observed that the teacher mostly engaged in preparing for future activities, completing personal tasks on her cell phone or computer, or correcting student behavior. Management of student behavior took up a large part of the day for both the classroom teacher and the aide. Most of this was in response to students who didn't follow directions, fought over toys, or had a physical altercation with another student. The tone of the adults, who raised their voices routinely, was often one of frustration and fatigue. Although the adults spent large portions of their day correcting student behaviors, I observed that students engaged in many negative behaviors that went unnoticed by the adults in classroom A.

3.6   INSTRUCTIONAL MATERIALS

Instructional materials, including text selections and lesson plans for the rich instruction condition, were modified from McKeown and Beck's (2014) research with kindergarten students. The materials were selected for the present study because they have been shown to have successfully supported *kindergarteners'* vocabulary development. The present study sought to determine if similar word learning would occur when the materials and selected procedures were used to support the learning of *preschool children*.

3.6.1 Read-aloud Texts

The texts selected for reading aloud to students were: *Mrs. Potter's Pig* (Root, 1996), *Mr. Tanen's Ties* (Cocca-Leffler, 1999), and *A Pocket for Corduroy* (Freeman, 1978), three high-quality children's trade books. These texts were selected and used by McKeown and Beck (2014) in their work with kindergarten students because they contain sufficiently complex language and concepts and because the stories are communicated primarily through linguistic content rather than illustrations.

3.6.1.1 Target Words

Six target-words were selected from each storybook, for a total of 18 words. These words can be described as Tier Two, meaning they are sophisticated words that occur frequently across a variety of written texts and in the oral language of mature users. The specific words for this study were selected because, although the words themselves are not likely to be known by preschool-aged children, they represented ideas and concepts that young children were likely to have experienced (e.g., students have been *eager* or have been *reluctant* to do something).

Student-friendly explanations of each word's meaning were developed based on Beck, McKeown, and Kucan's (2013) model, in which word meanings are presented in everyday and easy-to-understand language. For example, in the case of *stroll,* the teacher was supposed to say: "If you stroll, you walk slowly like you're not in a rush and you are just enjoying the walk." Table 1 lists the target words for each instructional cycle.

Table 1. *Target Words for Each Instructional Cycle*

Cycle	Story	Words
1	*Mrs. Potter's Pig*	glee, clutch, devour, shriek, stroll, plead
2	*Mr. Tanen's Ties*	appropriate, timid, perplexed, spectacular, gaze, admire
3	*A Pocket for Corduroy*	ponder, patient, distraught, eager, reluctant, insist

3.7   RESEARCH DESIGN

Data collection began with the administration of pretests to establish students' baseline knowledge. Then, teachers engaged the preschoolers in three 10-day instructional intervention cycles, with one read-aloud text and six words per cycle. Each 10-day cycle consisted of six instructional days followed by two days of no instruction and then two days of post-intervention assessments. These "no instruction" days served to accommodate the schedule of the preschool classrooms as well to ensure that temporary gains in knowledge which would disappear within hours of instruction were not recorded in the posttest results. Delayed posttests occurred approximately six weeks following the final instructional cycle in order to determine the lasting impact of the instructional interventions. Teachers provided all instruction in their classrooms, and I administered all assessments individually to students in the hallway outside the classrooms. Table 2 presents the study timeline for students.

Table 2. *Study Timeline*

Time	Classroom Activity	Assessment
Prior to study		Pretests
1st 10 days	Instructional activities *Mrs. Potter's Pig* (days 1-6)	Cycle 1 posttests (days 9-10)
2nd 10 days	Instructional activities *Mr. Tanen's Ties* (days 1-6)	Cycle 2 posttests (days 9-10)
3rd 10 days	Instructional activities *A Pocket for Corduroy* (days 1-6)	Cycle 3 posttests (days 9-10)
Six weeks delayed		Delayed posttests

3.7.1   Study Conditions

This study made use of two instructional conditions: rich instruction + rich instruction (RI) and rich instruction +playful interaction (+P).

3.7.1.1 Rich instruction + more rich instruction condition

The RI condition was based on a cognitive processing approach, as represented in work by Beck et al. (1982) and Coyne et al. (2010) and following Beck, McKeown, and Kucan's (2013) model for robust vocabulary instruction. It is a modified replication of much of the *interactive* condition in McKeown and Beck's (2014) study with kindergarten students. In the RI condition, preschool students were prompted to think about and respond to the target words. Prompts included asking students to: distinguish between examples and non-examples, make choices about the use of words, create and explain contexts for words, and represent words using

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expressions, actions, or vocalizations. Students received rich instruction in both large group and small group settings during each cycle. Table 3 provides an example of classroom discourse for each aspect of the rich instruction condition.

Table 3. *Discourse Examples for Each Type of Rich Instruction Discussion Prompt*

Discussion Prompt Type	Discourse Example
Distinguish between examples/non-examples	"I'm going to say some things and if you think you would *shriek*, say '*shriek*'… seeing a monster in a haunted house, holding a baby to get him to sleep, getting the new puppy you've been wanting."
Making choices about words	"Charles held his teddy bear tightly. What new word goes with that sentence, *clutch* or *patient*?"
Creating and explaining contexts for words	"Someone might feel *gleeful* if they got a chocolate cake for their birthday. Why would that make someone feel *glee*? When is another time you might feel *gleeful*?"
Representing words with actions	"What would your face and body look like if you were *pleading* with me to go outside for extra recess?"

3.7.1.2 +Playful interaction condition

In the +playful interaction condition, students received some of the same instruction as described above in the rich instruction condition. However, for part of the instructional time, a teacher and small groups of preschool students engaged in teacher-directed pretend play using play scenarios that encouraged students to hear and use the targeted vocabulary words. This condition was based on the work of Han, Moore, Vukelich, and Buell (2010), Levy, Wolfgang, and Koorland (1992), and Dickinson et al. (2013). It was designed to build upon research which demonstrates that increased and varied encounters with words build depth of vocabulary

knowledge (Beck & McKeown, 2007; Beck et al., 2007) as well as research findings that suggest teacher-supported play may be a promising context for social practice and, therefore, deeper processing of new words (Conner et al., 2014; Dickinson et al., 2013; Fisher, Hirsh-Pasek, Newcombe, & Golinkoff, 2013; Hadley, et al., 2016; Han et al., 2010; Levy, Wolfgang & Koorland, 1992; Neuman & Gallagher, 1994; Roskos & Burstein, 2011). Additionally, the playful scenarios were designed to be motivating ways for young students to engage in word learning. In the +playful interaction sessions, the teacher and preschool students took on the roles of the "characters" as they played out the "plot" described in each scenario prompt. In this way, preschoolers were able to approximate experiencing target words in the context of real-life situations. The following is an example of a teacher script for a play scenario.

> Let's imagine we're a family of animals. What kinds of animals should we be? Which member of the family are you? (Allow students to select roles.) Pretend we're stuck in a trap and we're *shrieking* and *pleading* to get out. (Role-play this scenario. Encourage the students to use the words *shriek* and *plead* as you play, even if they must at first repeat 'lines' after you. For example, 'I don't think anyone can hear our *shrieking*! *Shriek* louder everyone!') Who wants to be a different animal *strolling* by? When he comes, let's *plead* with him to let us out of here! (Encourage the use of target words. For example, "I see someone *strolling* towards us, do you? Repeat after me: 'I see someone strolling this way!' *Plead* with him everyone! Everyone repeat after me: 'We're *pleading* with you! Let us out!'")

While ideally students would spontaneously use the targeted words in the context of their play, in reality many students had to be prompted to repeat "lines" after the teacher. For example, teachers asked students to call out, "Someone is *strolling* by!" or "I'm *pleading* with you, please

let us out!" The play scenarios consisted of adult-supported play that allowed students to have agency over decisions within the prescribed scenarios such as which roles to take on, what food to *devour*, where to *stroll*, whether to be *reluctant* or *eager* to enter a dark cave, and what specific circus acts they found to be *spectacular* and made them want to *gaze*. Additional student agency in play would not have been appropriate in this study because adult support and an adherence to the framework of the scenario was needed in order to ensure that target words were incorporated often and well.

3.7.2   Assignment of Research Conditions

This research followed a within-subjects research design, with each student experiencing both the rich instruction +rich instruction condition (RI) and the rich instruction +playful interaction condition (+P) and serving as his/her own control. For each of the three instructional cycles, the six target-words were randomly divided between the two conditions, with three words in each condition. The words assigned to each condition in classroom A were assigned to the opposite condition in classroom B and vice versa. Table 4 displays the condition to which each word was assigned in each of the two classrooms.

Table 4. *Assigned Conditions for Each Word for Classes A and B*

Story	Words	Class A Condition	Class B Condition
Mrs. Potter's Pig	glee	RI	+P
	clutch	RI	+P
	devour	RI	+P
	shriek	+P	RI
	stroll	+P	RI
	plead	+P	RI
Mr. Tanen's Ties	appropriate	RI	+P
	timid	RI	+P
	perplexed	RI	+P
	spectacular	+P	RI
	gaze	+P	RI
	admire	+P	RI
A Pocket for Corduroy	ponder	RI	+P
	patient	RI	+P
	distraught	RI	+P
	eager	+P	RI
	reluctant	+P	RI
	insist	+P	RI

Over the course of the intervention, no matter the condition, each word received approximately 13 minutes of instructional time, spread across six days. Table 5 provides a visual representation of the instruction that occurred for each condition during each instructional cycle. In each cycle, students experienced an interactive read-aloud of the text in which all the cycle words were embedded and approximately 9 minutes of whole-group, rich instruction per word spread over the six days. In addition to this whole-group rich instruction, words assigned to the rich instruction + rich instruction condition (RI) received an additional 4 minutes of rich instruction in a small group setting, while words assigned to the rich instruction +playful interaction condition (+P) were practiced for an additional 4 minutes in the context of dramatic play scenarios. Therefore, words in the RI condition received 13 minutes of practice (9 minutes whole-group and 4 minutes small-group) using the rich instruction discourse shown in Table 3,

while words in the +P condition also received 13 minutes of practice (9 minutes of whole-group rich instruction and 4 minutes of playful scenarios in small groups). See Appendix A for sample lesson plans.

Table 5. *Design of the Instructional Days in Each of the Three Instructional Cycles*

Day	Whole Group Instruction	Small Group Instruction During Centers Rotation
1	Read aloud *(15 minutes)* Introduce 3 words *(10 minutes)*	
2	Introduce other 3 words *(10 minutes)* Contextualize in story *(10 minutes)*	
3	Rich instruction All 6 words *(15 minutes)*	
4	Rich instruction All 6 words *(5 minutes)*	Rich instruction 3 words *(4 minutes)* +Playful interaction 3 words *(4 minutes)*
5	Rich instruction All 6 words *(5 minutes)*	Rich instruction 3 words *(4 minutes)* +Playful interaction 3 words *(4 minutes)*
6	Rich instruction All 6 words *(5 minutes)*	Rich instruction 3 words *(4 minutes)* +Playful interaction 3 words *(4 minutes)*

3.8   MEASURES

3.8.1 Vocabulary Measures

Three measures of vocabulary knowledge were used for various purposes over the course of this study. First, prior to any instruction, in order to get a sense of students' overall breadth of vocabulary knowledge, the Peabody Picture Vocabulary Test (PPVT-4) was administered to all students (Dunn & Dunn, 2007). The PPVT-4 is an individually administered, norm-referenced measure of general receptive vocabulary in which the examinee must attend to words stated verbally by the examiner and select the correct referents from sets of 4 illustrations.

Additionally, two other researcher-designed measures were used throughout the intervention cycles to determine the impact of the instructional interventions on vocabulary knowledge. These tools were designed to measure preschool students' understanding of the words selected for instruction and included measures of meaning recognition and meaning richness. The following sections describe each researcher-designed measure's role as well as how each was developed, administered, and scored. Table 6 describes the study measures.

Table 6. *Summary of Measures*

Measure	Purpose	Administration
PPVT-4	Determine students' general breadth of vocabulary knowledge	Pretest
Meaning Recognition	Assess students' ability to associate target words with their meanings.	Pretest Posttest for each cycle Delayed posttest
Meaning Richness	Assess students' ability to provide synonyms/definitions, meaningful contexts, and gestural representations	Pretest to small sample Posttest for each cycle Delayed posttest

3.8.1.1 Meaning recognition measure

The meaning recognition measure is a modification of an assessment tool used by McKeown and Beck (2014). In the present study, it was used as a pretest and posttest to measure students' word-knowledge growth as a result of the interventions and as a delayed posttest to determine knowledge maintenance. Two yes/no questions were asked per target word: one definition item such as, "Does *perplexed* mean confused, like you don't understand something?" and one context item such as, "Would it be *appropriate* to tell someone you didn't like the present they gave you?"

McKeown and Beck, while working with kindergarten-aged students, asked four items per word and made use of whole-group test administration with students circling their responses in booklets. In the current study, because I worked with younger students, I included only two items per target word and administered the measure individually and verbally. Additionally, McKeown and Beck scored the assessment by crediting one point per correct yes/no response.

In order to diminish the impact of guessing on students' scores, students were required to respond correctly to both items for a target word in order to receive credit for knowing that word. See Appendix B for examples of the meaning recognition measure's administration and scoring guides.

3.8.1.2 Meaning richness measure

The meaning richness measure is an open-ended assessment designed to measure the richness of the network of associations that surround each target word. This measure is based upon the assumption that there are various facets of word knowledge that together can make up a fully elaborate network of knowledge associations. This measure is a modification of an assessment tool developed and used by Hadley (2017) and Hadley, Dickinson, Hirsh-Pasek, Golinkoff, and Nesbitt (2016) called the New Word Definition Test-Modified (NWDT-M) because it was adapted from work by Blewitt, Rump, Shealy, and Cook (2009). In the NWDT-M, students are asked "What is (a) _____?" and "Can you tell me anything else about _____?" Students' oral responses are coded for the presence of four information unit categories (synonyms, gestures, meaningful context, and basic context) for most parts of speech and three additional categories (perceptual qualities, functional information, and part/whole) in the cases of concrete nouns, such as chimney or pond.

In the present study, I also provided an open-ended prompt to elicit preschoolers' word knowledge such as, "Think about the word *eager*. Tell me about the word *eager*." I recorded and transcribed students' open-ended responses and coded for three facets of word knowledge: synonym or definition, meaningful context, and gesture/facial expression/vocalization. Because the present study did not include any concrete nouns as target words, it was not necessary to include the additional three categories used in the NWDT-M. Another divergence from the

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NWDT-M was that, after students provided an initial response such as, "If you're *eager*, you really want to do it. It's like you can't wait," I continued to prompt students with cues such as, "Name a time when someone might be *eager,*" and "Can you tell me or show me anything else that goes with *eager*?" The addition of the follow-up questions maximized the likelihood that I was able to elicit all the facets of knowledge about that particular word the student was able to verbalize or demonstrate.

One point was awarded for each of the three facets of knowledge associated with each target word that was verbalized or demonstrated, making it possible for students to earn 0, 1, 2, or 3 points per word. Coding was completed by the researcher as well as a trained second coder. Agreement was achieved in 99.2% of cases. Discrepancies were discussed and consensus was achieved for all scores. Both coders were blind to student identify as well as condition. This measure was used as a posttest at the end of each cycle and as a delayed posttest to determine the extent to which the learning was maintained over time. While the meaning richness measure was not given as a pretest to all students, it was given to the five students who achieved the highest scores on the PPVT-4. Because all five of these students earned 0 points for each of the 18 words in the study, I determined that it would not be appropriate to ask all students in the study to take this pretest, which was lengthy and possibly frustrating due to the difficulty of the target words. Based on the scores of those five preschool students, it is reasonable to assume that the mean pretest score for all students in the sample is 0 or extremely close to 0. (See Appendix C for examples of the meaning richness measure's administration and scoring documents).

3.8.2 Additional Data

I used two additional data collection tools over the course of the study: observation and interview. In order to determine the fidelity with which preschool teachers implemented the prescribed interventions, I observed half of the lessons in each condition in both classrooms. I used copies of the lesson plans along with field notes to identify any discrepancies and discussed any concerns or questions with the teachers. I also audio-recorded a portion of these observed sessions in order to have a precise record of the language that was used. I followed up by conducting an interview with both of the teachers to ask about their impressions of the study experience; including what they found beneficial, how they would apply or adjust the study procedures in their future teaching, and their observations of the study's impact on their students. In addition to determining if one intervention is preferable to the other in terms of vocabulary learning, I wanted to further compare the interventions in terms of student enjoyment positing that if learning was determined to be similar, the more enjoyable intervention would still be preferable to the one students enjoyed less. In order to determine the preschoolers' feelings toward the intervention in general and the two conditions specifically, I conducted brief interviews with each student after the study concluded in which I asked:

These past few weeks, you've been learning a lot of interesting new words. How did you feel about learning those words? Remember how sometimes you would talk about the words with your teacher at the round table and some other times you would pretend with the words over on the carpet by the window? If you could choose to do one of those more, which would you pick? Why? What did you like about (both settings)? What didn't you like about (both settings)?

In the case of all interviews, responses were audio recorded, transcribed, and coded using a

grounded theory approach in order to identify common themes in the data (Corbin & Strauss,

2014).

Table 7 presents the research questions, data sources, and data analysis procedures for

this study.

Table 7. *Data Sources and Analysis Procedures Aligned to Research Questions*

Research Question	Data Sources	Data Analysis Procedures
What is the impact of *rich vocabulary instruction + more rich instruction* (RI) on preschoolers' learning of Tier 2 target words?	Pretest Posttests Delayed posttests	within-subjects *t*-tests
What is the impact of *rich instruction + play* (+P) on preschoolers' learning of Tier 2 target words?	Pretest Posttests Delayed posttests	within-subjects *t*-tests
Are there differences in preschoolers' learning of Tier 2 target words based on instructional approach?	Pretest Posttests Delayed posttests	within-subjects *t*-tests
Are there differences in preschoolers' attitudes toward vocabulary learning based on instructional approach?	Interviews	grounded theory analysis

4.0   FINDINGS

This chapter presents the results of the quantitative and qualitative data analyses. The quantitative analysis focuses on pretests, posttests, and delayed posttests for two measures of vocabulary knowledge: meaning recognition and meaning richness. The subsequent qualitative analysis focuses on findings associated with student interviews and classroom observations. The results are discussed in terms of the following research questions:

1. What is the impact of *rich vocabulary instruction* + *more rich instruction* (RI) on preschoolers' learning of Tier 2 target words?

2. What is the impact of *rich instruction* + *play* (+P) on preschoolers' learning of Tier 2 target words?

3. Are there differences in preschoolers' learning of Tier 2 target words based on instructional approach?

4. Are there differences in preschoolers' attitudes toward vocabulary learning based on instructional approach?

4.1 WHAT IS THE IMPACT OF RICH VOCABULARY INSTRUCTION + MORE RICH INSTRUCTION (RI) AND RICH INSTRUCTION + PLAY (+P) ON PRESCHOOLERS' LEARNING OF TIER 2 WORDS?

In order to determine if preschool students in the study sample learned the vocabulary words taught, I administered pretests, posttests, and delayed posttests using the meaning recognition measure and the meaning richness measure.

4.1.1 Meaning Recognition Measure

The meaning recognition measure is an individual, verbal assessment in which preschoolers were asked two questions in reference to each targeted word, one about the definition of the word and one in which the word was applied to a meaningful context. Students responded verbally by saying either *yes* or *no*. For example, students were asked, "Does *glee* mean to feel happy?" and "If a friend fell and scraped his knee, would he feel *glee*?" In order for a word to be counted as known, the student had to respond correctly to both questions targeting that word.

On the pretest and delayed posttest, students were asked to respond to a total of 18 questions in each condition (2 for each of the 9 target words in that condition) for a total possible score of 9 points for RI words and 9 points for +P words. In this analysis, the three cycle posttest scores were combined, making the highest possible posttest score also 9 for each condition. This was done in order that the posttest scores could be compared to the pretest and delayed posttest.

A within-subjects *t*-test was used to compare scores on the meaning recognition measure since students experienced both instructional approaches as shown on Table 4.

Table 8 presents the mean words known on the meaning recognition measure for each instructional approach. The results of the *t*-test analysis indicate that the preschool students demonstrated significant positive differences in knowledge of target word meanings for both conditions. This knowledge growth was evident from pretest to posttest and was maintained on the delayed posttest. Delayed posttests occurred 6-11 weeks following posttests depending on the instructional cycle in which the word was taught.

Table 8. *Results of Meaning Recognition Measure by Condition*

Condition	Pretest (SE)	Posttest (SE)	Delayed Posttest (SE)
RI	1.7 (.22)	3.09 (.30)**	2.88 (.27)
+P	1.58 (.24)	2.88 (.33)**	3.12 (.34)

p<0.05, ** p<0.01, *** p<0.001

4.1.2   Meaning Richness Measure

While the meaning recognition measure provides some information about student word learning, it does not provide a sense of students' depth of knowledge about the targeted words. Additionally, students could have simply guessed in providing a yes or no response. Therefore, the meaning richness measure can provide further data.

The meaning richness measure is an open-ended assessment in which students were prompted to demonstrate their knowledge of each word. Those open-ended verbal and nonverbal responses were coded along various semantic units or categories, each of which was worth one point. The semantic units or categories included: (a) synonym or definition, (b) meaningful context, and (c) gesture/facial expression/vocalization. Students were able to earn 0, 1, 2, or 3

points for each of the 9 words for a total possible score of 27 points. For example, in response to the prompt, "Tell me about the word *gaze*," a student who said, "It's like this" while staring out the window would earn a point for a providing a representative gesture. If she then said, "It's like staring and looking. Like, how I like to gaze and gaze at my baby sister because she's so cute," two additional points would be awarded for providing a synonym and a meaningful context.

All students were presumed to earn a score of 0 for the pretest. This assumption was reasonable because the five students who achieved the highest scores on the PPVT-4 each earned 0 points for each of the 18 words on the pretest. Table 9 displays the mean scores from the meaning richness measure for each condition.

Table 9. *Results of Meaning Richness Measure by Condition*

Condition	Pretest	Posttest (SE)	Delayed Posttest (SE)
RI	0	8.14 (1.09)	3.21 (.72)***
+P	0	9.82 (1.44)	5.57 (1.04)***

p<0.05, ** p<0.01, *** p<0.001

Due to the assumptions made about the pretest scores being zero, paired *t*-tests were not run on the differences between the pretest scores and the mean posttest scores. However, it is clear that the preschool students increased their knowledge of target words between the pretest and posttest. A paired *t*-test was applied to determine if students' decrease in knowledge between the time of the posttest and delayed posttest was significant. This difference was found to be significant, meaning students were not able to maintain their target word knowledge between the posttest and delayed posttest. Even after this decrease in word knowledge though, learning was still evident at the time of the delayed posttest as compared to the pretest.

4.2 ARE THERE DIFFERENCES IN PRESCHOOLERS' LEARNING OF TIER 2 TARGET WORDS BASED ON CONDITION?

In order to determine if there was a difference in students' learning of target words between each of the two conditions (RI and +P), paired *t*-tests were used. Table 10 displays preschoolers' learning as measured by the meaning recognition measure for both conditions. On this yes/no measure, no significant difference was detected between word learning across the two conditions. This was true both in students' short term learning (posttest-pretest) and in their long term learning (delayed posttest-pretest).

Table 10. *Student Word Learning by Condition on the Meaning Recognition Measure*

Time Period For Word Learning	Rich Instruction (SE) Words Learned	+ Play (SE) Words Learned	p
Short Term Mean Learning (post-pre)	1.39 (.38)	1.30 (.36)	.835
Long Term Mean Learning (d.post-pre)	1.18 (.36)	1.55 (.37)	.423

p<0.05, ** p<0.01, *** p<0.001

Table 11 repeats this analysis for the meaning richness measure. Paired *t*-tests indicated students showed more growth in terms of the mean facets of knowledge they were able to produce in the +P condition as compared to the RI condition in both the short term (posttest-pretest) and the long term (delayed posttest-pretest). Therefore, although Table 9 indicated students were not able to maintain their depth of word knowledge from the time of the posttest to the time of the delayed posttest, Table 11 shows students both initially learned as well as better retained more facets of knowledge for words in the +P condition than words in the RI condition.

Table 11. *Student Word Learning by Condition on the Meaning Richness Measure*

Time Period For Word Learning	Rich Instruction (SE) Facets of Knowledge Learned	+ Play (SE) Facets of Knowledge Learned	p
Short Term Mean Learning (post-pre)	8.14 (1.09)	9.82 (1.44)	.009**
Long Term Mean Learning (d.post-pre)	3.21 (.72)	5.57 (1.04)	.002**

p<0.05, ** p<0.01, *** p<0.001

4.3 ARE THERE DIFFERENCES IN PRESCHOOLERS' ATTITUDES TOWARD VOCABULARY LEARNING BASED ON INSTRUCTIONAL APPROACH?

In order to determine if there were differences in students' attitudes toward the vocabulary learning activities in each of the study conditions, I conducted very brief interviews. One week after the cycle 3 posttests, students met individually with me to discuss their attitudes toward engaging in the present study. In response to a question asking their general feelings about their participation in the study, 67% (n=20) of respondents reported they enjoyed learning the targeted 'big kid words,' while 30% (n=9) reported they did not enjoy the experience. When asked about their preference of either the rich instruction or the play scenarios, 65% (n=11) of students indicated they enjoyed the play portions of the lessons better, while 35% stated they found the rich instruction sessions to be more enjoyable. Unfortunately, most students were unable to articulate their feelings in response to the open-ended prompts as had been hoped, so examples such as *fun* or *boring* were provided in many cases in order to support students' ability to respond. Following the questions about their general impressions, students were asked to explain *why* they responded the way they did. In response, several students (n=11) provided off topic remarks such as, "I have a dress at my house," "My dad bought me crackers to make gingerbread houses," "If someone dropped your phone, you'll cry," and "Christmas…and

nothing else." All students answered at least one of the questions with a general statement such as, "because it is good," "because I wanted to," or "because I liked it," or did not provide an answer at all.

While most responses were not sufficient to gather rich data, a few students articulated their preferences in a detailed manner. Looking at these responses can provide some information about student attitudes toward the study interventions. One girl talked about which condition she preferred by saying, "I like playing because somebody was playing with me, because they were my best friend," seeming to indicate she enjoyed the social interaction that was present in the +P scenarios, but not during rich instruction. A young man also referenced the imaginative aspect of the +P scenarios saying, "Pretend play was fun. Going places was fun." Two students responded by referencing a favorite specific play scenario. One girl spoke about when she took on the role of server in a restaurant, saying, "I liked the food game. I gave out food." Then, referencing her line from the scenario when restaurant customers had to *clutch* their plates because she tried to take them too soon, she added, "'You better eat it or I'll throw it away!' I like pretending with words!" Another student referenced a particular play scenario in which people were *admiring* the *spectacular* tricks others in the group could do, such as balancing objects on their heads. He said, "I like pretend because it feels good. That's a joke, a joke about pretend. You got to laugh and you put a candy cane on your head and you said, 'Ahhh!' on your head. And you got to laugh." Finally, one student seemed to indicate that she prefers time for unstructured free play over the adult-supported pretend play in the +P scenarios. She stated, "Playing, because playing is fun. All that I like about it is the, is the new stuff… like the kitchen or blocks. I didn't like playing with the words, because I don't know why."

While these few examples provide some insight into student thinking, clearly the task of articulating a preference and justifying that preference proved to be developmentally inappropriate for the majority of the participating students. This being said, both teacher interview data and my own classroom observations provide further evidence that preschool students were more engaged when participating in +P activities when compared to RI activities. Both teachers reported observing more student enthusiasm during the +P portions of the lessons as compared to the RI portions. For example, teacher A informed me that students would routinely ask her when they would have another opportunity to play with their teacher and classmates using the +P scenarios. Additionally, when analyzing the sample of recorded intervention sessions, I determined that off-task student behavior and teacher redirection accounted for a larger percentage of the time in the RI condition (5.73%) versus the +P condition (4.19%). In the next chapter, I will further discuss the limitations of the open-ended interview with the young participants and will suggest possible alternatives for gathering more reliable student attitude data in the future.

5.0   DISCUSSION

This study investigated the effects of vocabulary instruction on preschoolers' vocabulary learning.   In the sections that follow, the words selected for instruction as well as the instructional interventions targeting vocabulary learning are discussed.   Limitations, practical applications, and implications are also presented.

5.1   WORD SELECTION

The findings of the present study support research which has shown that sophisticated, Tier Two words can be learned by very young children (Beck, McKeown & Kucan, 2013). Specifically, the present study found that *preschoolers* were able to learn a subset of the targeted Tier Two words which *kindergarten* students had been able to learn as reported in previous research (McKeown & Beck, 2014).

While some preschool and kindergarten vocabulary studies choose words that are considered to be Tier 2 and/or words that children are not likely to know (Wasik et al., 2016), some studies continue to focus on Tier One words such as *crab* and *catch* (Zucker et al, 2013). However, Beck, McKeown, and Kucan (2013) argue that for typically developing native English speakers, Tier One words such as these are not necessary to teach because they will be learned naturally, in the context of normal interactions. The word learning that occurred during the

present study adds to the growing body of research that Tier Two words are an appropriate instructional choice for *preschool* students since they are not likely to be learned automatically and they support comprehension because they are common across a variety of texts. Even so, it is important to consider that all words in the Tier Two category may not be equally appropriate or useful for preschool students to learn.

5.1.1   The Impact of Word Selection on Preschoolers' Word Learning

Results in the present study provide evidence that the preschoolers learned some words more easily than other words. One way to look at the types of words that should be selected for instruction with preschoolers is their part of speech (also known as form class). Research has demonstrated that part of speech can affect children's learning of words (Byrnes & Wasik, 2009), yet researchers who study preschoolers' and kindergarteners' word learning often do not consider part of speech when choosing words nor do they typically report the impact of part of speech on young children's word learning (Wasik et al., 2016). Some researchers have suggested part of speech may not tell the whole story, and that it is important to additionally consider a word's perceptual accessibility in terms of shape (*Does it have a consistent form?),* individualization (*Is it easily distinguished from other things?*), concreteness (*Is it a tangible object?*), and imagineability (*How easily can a mental image be conjured?*) when thinking about how difficult it will be for young children to learn a word (Maguire, Hirsh-Pasek, & Golinkoff, 2006). Based on this thinking, Hadley, Dickinson, Hirsh-Pasek, Golinkoff, and Nesbitt (2016) divided words into part of speech and additionally "abstract" and "concrete" categories based on their overall perceptual accessibility. For example, *quarrel* and *foolishness* were considered

abstract nouns, while *quilt* was considered a concrete noun. *Returning* was considered an abstract verb while *chuckling* and *sobbing* were considered concrete verbs.

When applying this thinking to the word learning in the present research, the "easiest" words for preschool students to learn—the words for which the mean scores were the highest across measures—were the concrete verbs *clutch, devour, plead,* and *gaze* as well as words that could be used as both concrete nouns and concrete verbs, *shriek* and *stroll*. The only word students learned very well that was less concrete was *patient*, an adjective that is highly applicable to preschoolers' everyday lives, particularly in a school setting. By contrast, words that were "hardest" for preschool students in this study to learn—those words earning the lowest mean scores—were the abstract verbs *admire* and *insist* and the adjectives *appropriate, eager*, and *reluctant*. Words that were moderately difficult were *glee* (abstract noun), *timid*, *perplexed*, *spectacular*, and *distraught* (adjectives), and *ponder* (abstract verb). This data supports the thinking that both part of speech and perceptual accessibility are key factors in how easily young children learn new words and should be considered when choosing targeted words to teach to young children.

Another related factor that seemed to divide words into "easier" and "more difficult" categories was how easily the word could be represented with movement, with the most learned words being those that lent themselves to pantomime or gesture (*clutch*, *devour*, *shriek*, *stroll*, *plead*, and *gaze)* and the least learned words being those that were more difficult to represent with motion (*admire*, *eager*, and r*eluctant).* This confirms research that suggests that pairing verbal representations of words with gestures improves preschoolers' comprehension of complex ideas, when compared to using language alone to represent words (McNeil et al., 2000) as well as research that suggests multimodal experiences support learning (Kieffer & Trumpp, 2012).

A possible conclusion is that if researchers and educators were more selective in choosing Tier Two target words for preschoolers, focusing primarily on concrete verbs and nouns and other words that lend themselves to actions, then the students might be able to learn more words. In fact, the first instructional cycle in the present study can be seen as a small case representing this idea. By chance, cycle 1 contained a disproportionate number of the "easiest" word types: 3 concrete verbs (*clutch, devour, plead*) and 2 concrete verbs/nouns (*shriek, stroll*). Cycle 1 contained 33% of the words in the study, yet these words accounted for 47% of the short term learning and 45% of long term learning in the entire study sample, as determined by the meaning recognition measure. As determined by the meaning richness measure, the word learning in cycle 1 accounted for about 57% of short term learning and 45% of long term learning in the study.

5.2   INSTRUCTIONAL APPROACHES

Based on cognitive processing theory (Sternberg, 1979, 1982), the Lexical Quality Hypothesis (Perfetti, 2007), and past research (Beck & McKeown, 2007; Beck, McKeown, & Kucan, 2013; Marulis & Neuman, 2013; McKeown & Beck, 2014; Nagy & Scott, 2000; Perfetti & Hart, 2002; Perfetti & Stafura, 2014), it was hypothesized that preschool students in the present study would demonstrate increased knowledge of targeted Tier Two words after engaging in the RI instructional experiences. Those experiences included; providing examples and nonexamples, making choices about words, creating and explaining contexts for words, and representing words with actions. Findings indicate that students did, in fact, demonstrate

learning in both the short term and long term, as compared to pre-intervention knowledge, on both study measures.

The case for RI-type interventions that provide multiple, varied encounters with words in order to build vocabulary knowledge is strong and well supported by research. Exposure to words in *multiple* contexts is important for word learning, and while play could potentially allow for a more realistic experience of contexts, RI allows students to mentally manipulate words in many various contexts in a short amount of time. In addition to the growth in word knowledge measured in this study, it can be assumed that across both study conditions students practiced focusing their attention, accessing their memories, and making inferences, all behaviors that support comprehension and other general academic skills.

It is important to note, however, that preschoolers demonstrated more growth in terms of the richness of their semantic representations of words when those words were practiced through a combination of adult-supported play and rich instruction (+P) rather than through rich instruction (RI) alone. This finding is consistent with research that highlights play as an effective context for deeper processing, and therefore increased knowledge, of new vocabulary words (Conner et al., 2014; Dickinson et al., 2013; Fisher, Hirsh-Pasek, Newcombe, & Golinkoff, 2013; Hadley, et al., 2016; Han et al., 2010; Levy, Wolfgang & Koorland, 1992; Neuman & Gallagher, 1994; Roskos & Burstein, 2011). Perhaps the more substantial word learning in the +P condition was because play provided the opportunity to build upon rich instruction sessions, allowing students to bring their knowledge from mentally manipulating words in a variety of contexts to additionally "experiencing" the targeted words in various contexts. Dale's Cone of Experience model (1969) suggests that learners retain more information from what they experience more concretely as compared to less experiential forms

of learning. Applying this theory, we might speculate that it was the act of experiencing target words in "realistic" situations during pretend play that lead to increased word learning in the +P condition in the present study. Furthermore, the play scenarios provided enhanced opportunities for students to engage in multimodal experiences, using their bodies to represent word meanings. Embodiment theory suggests that this sensory and motor interaction supports human cognition and enhances learning (Kiefer & Trumpp, 2012).

The concept of depth could be used to explain why the meaning richness measure detected a difference in word learning between the two conditions that was not detected by the meaning recognition measure. Preschoolers in this study did not demonstrate a difference in the breadth of their word knowledge as measured by the meaning recognition measure across conditions, but did experience a difference in the depth of their word learning across conditions, as measured by the meaning richness measure. Perfetti's Lexical Quality Hypothesis (2007) is a framework for thinking about these data. Perfetti emphasizes that multiple, flexible encounters with a word across contexts is necessary to engage in active processing and therefore build a richer lexical representation of the word. Furthermore, this deeper concept of a word supports comprehension when that word is encountered in context (Perfetti, 2007). Therefore, it could be the case that the play scenarios in the +P intervention are more supportive of future comprehension than the RI intervention activities alone.

5.3   LIMITATIONS

The most substantial limitation of the present study was the low number of student participants. However, this study was conceptualized as a proof-of-concept endeavor rather than one with a goal of definitive and generalizable findings.

A second limitation was the substantial dissimilarity between classes. In addition to the differences in student age and classroom culture described in chapter 3, classroom A students also experienced the instructional interventions differently than in classroom B.

I observed approximately one half of all study lessons in order to gather information about the fidelity of implementation of the interventions. I observed that both teachers adhered to the scripted lesson plans with fidelity and used timers to assure all portions of the interventions were enacted for the prescribed duration.

One noted distinction in enactment in the two classrooms was that Teacher A routinely placed her students in groups of 7-8 for small group instruction rather than the recommended group size of 5. This occurred even after she was reminded of the prescribed size. She stated that it was the best way to fit the tasks within the daily schedule. Fortunately, this is not expected to have impacted the RI vs. +P comparisons because she increased group sizes at the same rate for both types of small group instruction. However, this choice to provide the intervention in larger-than-recommended groups likely contributed to the differences in word learning by class.

In addition, Teacher B, who had more teaching experience, was observed to be a more effective educator in general. For example, by coding randomly selected audio recordings of the classroom enactment of the study lessons, I was able to estimate the percentage of time devoted to student off-task behavior and teacher behavior management speech for each class. I

determined that this type of speech accounted for 14% of the intervention time in class A, but only 9% in class B.

Furthermore, I was able to gather discourse examples of this management speech in each classroom. The following examples represent speech in classroom A: "Sit on your spot." "Please get on your spot." "Do you need to go back to your seat?" "No, you hit him first, I saw you. Go back to your seat." "Can I have that please?" "Please stop touching her or I'll have to take your sticker back." "Sit on your bottom and zip those lips." "Are you listening?" "Sit up. Sit up. Sit up." By contrast, the following statements exemplify the nature of behavior management speech in classroom B: "Wiggle your fingers, wiggle your toes, wiggle your shoulders, wiggle your nose, now all the wiggles are out of me and I can sit and quietly be." "I'll close my eyes and count to 3 and when I open them everyone will be sitting on their bottom… 1, 2, 3… Wonderful!" *Whispering-* "I'm going to whisper the last word, so you have to be really quiet so you can hear it." "If you're sitting quietly give yourself a pat on the back because you're a good listener." *Sung with finger motions:* "Open shut them, open shut them, give a little clap. Open shut them, open shut them, put them in your lap."

There was also a contrast in the ways the two teachers talked about the study intervention. For example, teacher A said, "We have to get through our vocabulary words before we can go to centers," while instead teacher B excitedly stated, "Oh my gosh… I've got another word for you! Are you ready?"

It is reasonable to assume these classroom differences likely contributed to the measured differences in word learning by class. Because of this, it can be informative, as part of the overall picture, to isolate data from the classroom with a highly qualified and highly effective teacher, in order to understand the best-case scenario for word learning under close to ideal study

conditions. Table 12 displays the measured learning differences by class, showing that class B demonstrated significantly more learning on the meaning richness measure than class A. Learning differences on the meaning recognition measure, while visible, were not determined to be statistically significant.

Table 12. *Learning by Class*

Measure	Time Period For Word Learning	Class A (SE)	Class B (SE)
Meaning Recognition	Short Term Mean Learning (post-pre)	2.8 (2.3) words	3.44 (2.78) words
	Long Term Mean Learning (d.post-pre)	2.5 (4.09) words	3.38 (2.14) words
Meaning Richness	Short Term Mean Learning (post-pre)	10.2 (7.1) facets	22.28 (6.4)** facets
	Long Term Mean Learning (d.post-pre)	5.0 (4.8) facets	10.89 (4.5)* facets

*p<0.05, ** p<0.01, *** p<0.001

5.4   PRACTICAL APPLICATIONS TO CLASSROOMS

In this study, statistically significant word learning was determined to have occurred in both conditions. This learning occurred at a significantly greater extent in the +P condition as compared to the RI only condition on the measure of vocabulary depth, the meaning richness measure. However, in their meta-analysis, Wasik, Hindman, and Snell (2016) caution that not all statistically significant findings should have implications for classroom learning because the measured results may not actually produce learning that is impactful in a practical sense. They use the example of a study, Penno et al., (2002), which reported an effect size of .9 based on results that students in the treatment condition learned 2.5 words out of 10 and those in the control condition learned .5 out of 10 words. Wasik and her colleagues assert that while it is statistically significant, the real difference of 2 words learned is not practically substantial (p.

53). In light of this thinking, I would like to consider whether and in what ways the learning in this study should have practical implications for classroom instruction in preschools.

The overall mean learning in the present study, a less than a 3 out of 18 word increase in both the short term and long term as measured by meaning recognition (see Table 10) and an increase of almost 18 facets of knowledge provided in the short term and less than 9 facets of knowledge in the long term out of a possible 54 (see Table 11) is arguably not practically substantial. However, when looking only at the preschool class without implementation issues and applying the previously discussed thinking about more carefully selecting target words, it is also reasonable to assert that the findings of the present study warrant researchers' attention in the form of future investigations. In fact, in the present study, when isolating cycle 1 because of the disproportionate number of perceptually accessible words and when also looking at only the class with the higher-quality instruction (B), students were able to provide an average of 2 out of 3 facets of knowledge per word in the days following instruction and 33% of students were able to provide17 or 18 out of 18 possible facets of knowledge.

5.5   VOCABULARY MEASURES FOR FUTURE RESEARCH

It is important to consider whether and in what ways the measurement tools used in this study were useful in gauging the word learning of preschoolers.

5.5.1 Meaning Richness Measure

The meaning richness measure used in the present study was a modification of NWDT-M (Hadley, 2017; Hadley, Dickinson, Hirsh-Pasek, Golinkoff, and Nesbitt, 2016) with the addition of prompts to maximize the likelihood I was able to elicit all the facets of knowledge about a particular word students were able to verbalize or demonstrate. This measure quantified how well a word was known (how many and what types of semantic information were learned), rather than simply whether or not it was known. Because of this, the meaning recognition measure can be considered a measure of depth. This distinction is important because depth has consequences for reading comprehension (Perfetti, 2007). I suggest that the meaning recognition measure partially addresses the concerns expressed by researchers such as Elleman et al. (2009), who argued that "poorly conceptualized, unreliable measures" (p. 35) of vocabulary knowledge, such as those that measure only very shallow knowledge, are the reason their meta-analysis found the impact of vocabulary instruction on comprehension to be relatively weak, as well as Pearson, Hiebert, and Kamil (2007), who referred to vocabulary assessment as "grossly undernourished, both in its theoretical and practical aspects," and called for measures that "are as conceptually rich as the phenomenon (vocabulary knowledge) they are intended to measure" (2007, pp. 282-283).

The meaning richness measure, as used in the present study, could provide some of the richness these researchers are calling for. A possible explanation for why the meaning richness measures detected differences in learning between the two conditions that were not identified by the meaning recognition measure, as well as some loss of depth of knowledge over time in both conditions that was not detected on the meaning recognition measure, is that the instrument is more precise. This precision is important to an understanding of vocabulary knowledge and a

measure such as the meaning richness measure, which provides the opportunity for students to express their knowledge about target words, includes prompts to maximize the likelihood that all available knowledge was shared, and codes responses along various facets of lexical knowledge, should be a part of future studies of vocabulary learning.

5.5.2 Meaning Recognition Measure

Although the meaning recognition measure was not as precise in measuring nuanced differences in word learning in the present study, it also has value in future research. When paired with the meaning richness measure, the meaning recognition measure provided important additional data in this study. For example, while students' ability to produce facets of information about targeted words decreased after several weeks of no instruction, their ability to answer a yes/no question related to the word remained constant, even weeks after instruction. It can be hypothesized that while lexical entries can become harder to access over time if not used, particularly for an expressive task, they don't disappear completely. Some of that knowledge seems to remain and is available to draw upon the next time it is needed, especially for a receptive task such as understanding the word when it is encountered in context, an ability that would almost certainly support comprehension to some extent.

5.5.3 Student Interviews

The student interviews, which were designed to determine if preschool students experienced differences in their attitudes toward word learning between the intervention conditions, weren't as useful as had been hypothesized. As was described in chapter 4, students

did not provide many unprompted or detailed responses. Because of the overwhelming lack of rich responses, the conclusions that could be drawn from the interview data were extremely limited. However, identifying preschool students' preferences related to the intervention design would be valuable information. One method of attempting to gather similar data in the future might be a Likert scale or other similar tool. This instrument could still be administered individually and verbally, but could ask students to color or circle one of several smiling/frowning faces representing their level of enjoyment. Furthermore, gathering this data *immediately* following instruction on the final day would increase the data's accuracy.

5.6   CONCLUSIONS

The present study adds to the research on classroom interventions to support preschoolers' language development, specifically research which seeks to determine the most effective combination of activities to best support word learning and the most important criteria to consider when selecting target words for preschoolers. The present study was able to provide support for research that suggests: sophisticated Tier Two words selected from read-alouds of children's literature can be learned by preschool students, multiple encounters with target words across a variety of contexts increase vocabulary knowledge, and teacher-supported play may bolster the word learning of preschoolers. However, due to the limitations of the present study, the conclusions must be considered merely exploratory and further research must be conducted.

Larger scale studies, including a greater number of classrooms, preschool students, and teachers, should be conducted; and these studies should include a larger number of target words that are practiced over an extended number of weeks/cycles. It is my recommendations that

future research measure the impact of a variety of conditions, including a control condition, an RI only condition, a teacher-supported play only condition, and multiple conditions in which various proportions of time are spent in RI and play. The inclusion of a delayed posttest in the present study was valuable and is recommended in future studies in order to view the impact of a time delay on vocabulary knowledge maintenance.

Furthermore, future studies should, to a greater extent than in the present study, select target words with special attention to part of speech, perceptual accessibility, and the extent to which *preschoolers* will find the explanation or definition simple to understand.

While limitations of the present study reduce the extent to which recommendations can be made, the results of this study combined with the body of current research in this area can support recommendations for instructional decisions in preschool classrooms. Specifically, preschool teachers should read aloud frequently to their students and should choose high-quality children's books that contain Tier Two words. Those words should be discussed in the context of the text as well as engaged with in the ways described in the RI intervention procedures. Words should be incorporated in daily activities and across multiple contexts, building word consciousness and a love of word learning. Furthermore, there is evidence that preschool teachers should engage their students in playful methods of hearing and using the targeted words, such as in the play scenarios described here. Such approaches have the potential for increasing preschoolers' word knowledge and influencing their literacy trajectories in consequential and positive ways.

SAMPLE LESSON PLANS

Vocabulary Intervention Lesson Plans
Classroom A
Cycle 1: *Mrs. Potter's Pig*

Day 4
Whole Group Lesson- Rich Instruction
10 minutes
Discussion of all 6 target words

Centers Rotations-
Small Group- Rich Instruction
(glee, clutch, devour)
10 minutes

Small Group- Playful Instruction
(shriek, stroll, plead)
10 minutes

Whole Group Lesson- Rich Instruction
10 minutes
Discussion of all 6 target words
Situations and Examples:

1) Let's think about the word **glee**.
   You might feel **glee** if your mom got you a chocolate cake for your birthday.
   - When else would you feel **glee**? *(As children provide examples respond by stating the connection between the word and its meaning. For example, "Yes, you might feel glee if you just got a new toy because you've wanted it for a long time.")*

2) Now let's think about the word **shriek**.
   - Why would you **shriek** if you saw a friend cross the street in front of a car? *(For example, "You'd shriek because you might be afraid they'd get hit by the car.")*
   - Name another time when you'd shriek. (Encourage examples of shrieking when excited and shrieking when startled/scared). (Help children make connections to their examples and the meaning.)

3) Think about the word **strolled**. This summer, I took a stroll (around my neighborhood, at the beach, at the zoo, etc.)

- Can you tell me a time when you might **stroll**? (*For example, "You might stroll to your grandma's house if you are not rushing to get there."*) (Help children make connections to their examples and the meaning.)

4) Think about the word **clutch**. If you were carrying your favorite toy and you didn't want to lose it, you might **clutch** it.
   - What else would you **clutch**? (*As students provide examples, respond by stating the connection between the word and its meaning. For example, "Yes, you would clutch a new backpack as you were walking over a muddy puddle because you don't want to it to fall in the mud."*)

5) Let's think about the word **devour**.
   - I would devour _____ (food) because it's my favorite.
   - What kind of food would you **devour**? (*For example, various foods could be mentioned here, candy, cake, pizza, etc.*)

6) Think about the word **plead**.
   - Someone who arrived at a store just after it closed might plead with the owner to open it up for just one more minute.
   - When might you **plead** with your mom? (*For example, various responses: to go to the playground, for an ice cream cone, to stay up late to finish watching a tv show, etc.*)

Small Group Rich Instruction
(glee, clutch, devour)
10 minutes

Yes/No:

I have some sentences that make sense and some that don't make sense. You decide. If it makes sense, everybody say, "Yes." If it doesn't make sense, say "No." Listen Carefully!

1) When Kara's dog died she was so upset and filled with **glee**. (**No**)
   Why doesn't that make sense?

2) Kelly **clutched** the burning hot pot handle. (**No**)
   Why doesn't that make sense?

3) Tina always hated lima beans so when her mom put a big plate of them in front of her, she **devoured** them. (**No**)
   Why doesn't that make sense?

4) When you hear a really funny joke, you're filled with **glee**. (**Yes**)

Why does that make sense?

5) I loved my blanket so much that I would **clutch** it when I went to bed. **(Yes)**
   Why does that make sense?

6) My mom tells me I could get a belly ache if I **devour** all of the cookies. **(Yes)**
   Why does that make sense?

7) I feel **glee** when I have a nightmare. (No)
   Why doesn't that make sense?

8) My mom **clutches** the steering wheel when she's driving in the rain. **(Yes)**
   Why does that make sense?

9) I like to devour pencils. **(No)**
   Why doesn't that make sense?

With extra time, students should define and give their own examples for **glee**, **clutch**, and **devour**.

Small Group Playful Instruction
(shriek, stroll, plead)
10 minutes

We're going to do some pretending. I'll tell you about what we'll pretend and then we'll all play. As we play, we're going to try to use the words **stroll**, **shriek**, and **plead** as much as we can. So, you should try to SAY the words **stroll**, **shriek**, and **plead** as many times as you can as we pretend and play.

Play Scenario 1: Shrieking, Pleading Animals in a Trap
Let's pretend we're a family of animals. What animal should we be? Assign parts... Who be the parents? The kids? etc.

Let's imagine we're stuck in a trap and we're **shrieking** and **pleading** to get out. (Role play this scenario.) Try to use the words as much as possible and encourage the students to use the words, even if they have to repeat after you. For example, "I don't think anyone is hearing our shrieking."

Assign one person, to be another animal who is **strolling** by. **Plead** with the animal to set you free. Pretend each animal says no. Repeat several times allowing other volunteers to be an animal **strolling** by. Encourage the animals who are strolling to use the word, for example saying to themselves aloud "This is such a nice **stroll**. I'm really enjoying **strolling** through the woods." Encourage the use of the other words, for

example the strolling animal might say, "No matter how much you **shriek** and **plead**, I cannot let you out."

Play Scenario 2: An Amusement Park Stroll
Let's pretend we're **strolling** through an amusement park. (Allow students to remind their classmates what an amusement park is. Brainstorm things we might see on our **stroll**.) Act it out... Let's **stroll** around and look at all the different things we see. Assign roles. Who wants to be a kid? Etc. Let the students choose their own roles. **Stroll** around the park and notice different attractions. Use the word **stroll** as you play, encourage students to use **stroll** even if you have to have them repeat after you.

Tell the "kids" they should begin to **plead** to ride some of the rides by saying "I'm **pleading** with you, I really want to, please let us, etc." "Get on" some of the rides they **plead** to ride. Will they/did they make us shriek? (excited or nervous?) Discuss whether or not we **shrieked** and why or why not?

Play Scenario 3: A City Stroll
Let's imagine we're taking a **stroll** in the city or country (kids choose). Let's **stroll** around and talk about everything we see. (Role play this. Discuss the sights.) Use the word **stroll** and encourage the students to use it often as you imagine. For example, "This is such a fun **stroll**!"

MEANING RECOGNITION MEASURE SAMPLES

Meaning Recognition Yes/No Posttest
Instructional Cycle 2: *Mr. Tanen's Ties* Words

Classroom: A or B
Total Score   /6
Total R.I. Score   /3
Total +Play Score   /3

Student: _____ Date: _____

Prompt	Cycle = 2 Word (A-F) & Question Type (1 or 2)	Student Response (correct responses are in bold)
If you saw a dog riding a bicycle, could that be called *spectacular*?	2.B2	Yes No Don't Know
Does *timid* mean to be friendly?	2.C1	Yes No Don't Know
Does *spectacular* mean clean?	2.B1	Yes No Don't Know
If your teacher told you to wash your hands, would you be *perplexed*?	2.E2	Yes No Don't Know
Would it be *appropriate* to tell someone that you didn't like the present they gave you?	2.A2	Yes No Don't Know
Does *perplexed* mean confused, like you don't understand something?	2.E1	Yes No Don't Know
If someone was scared of something on TV, would they want to *gaze* at it?	2.D2	Yes No Don't Know
If a little boy hid behind his mom when someone tried to talk to him, would you say he's *timid*?	2.C2	Yes No Don't Know
Does *admire* mean to pick up and hold?	2.F1	Yes No Don't Know
Does *gaze* mean to look at something?	2.D1	Yes No Don't Know
Does being *appropriate* mean doing or saying the right thing?	2.A1	Yes No Don't Know
Would someone who loved animals probably *admire* a zookeeper?	2.F2	Yes No Don't Know

Word	Check if Definition Correct (coded 1 above)	Check if Context Correct (coded 2 above)	Credit (0 or 1) Student must correctly respond to both the definition and context knowledge questions in order to earn a point.
A) appropriate			
B) spectacular			
C) timid			
D) gaze			
E) perplexed			
F) admire			

Meaning Recognition Yes/No Posttest
Instructional Cycle 3: *Corduroy* Words

Student: _____ Date: _____

Prompt	Cycle = 3 Word (A-F) & Question Type (1 or 2)	Student Response (correct responses are in bold)
Does *ponder* mean to slip and fall down?	3.A1	Yes No Don't Know
Does *reluctant* mean you think you might not want to do something?	3.D1	Yes No Don't Know
If Anna is excited to go to the circus, does that mean she's *reluctant* to go?	3.D2	Yes No Don't Know
Would you be *distraught* if someone gave you your favorite dessert?	3.F2	Yes No Don't Know
If you spent a lot of time thinking about which game to play, would that be *pondering*?	3.A2	Yes No Don't Know
Does *distraught* mean to be really upset by something?	3.F1	Yes No Don't Know
If a child is screaming, "Hurry up!" is he being *patient*?	3.C2	Yes No Don't Know
If your mother made you clean up your room right now, would she be *insisting*?	3.B2	Yes No Don't Know
Would a lost child probably be *eager* to find her family?	3.E2	Yes No Don't Know
Does being *patient* mean to wait calmly and to wait without getting upset?	3.C1	Yes No Don't Know
Does *eager* mean to be lost?	3.E1	Yes No Don't Know
Does *insist* mean drawing a picture?	3.B1	Yes No Don't Know

Word	Check if Definition Correct (coded 1 above)	Check if Context Correct (coded 2 above)	Credit (0 or 1) Student must correctly respond to both the definition and context knowledge questions in order to earn a point.
A) ponder			
B) insist			
C) patient			
D) reluctant			
E) eager			
F) distraught			

MEANING RICHNESS MEASURE SAMPLES

Meaning Richness Interview
Script

The following protocol will be used to conduct post-intervention target-word interviews with each child (after each cycle and as a delayed post-test). Children's responses will be coded for the type and number of knowledge units demonstrated in order to determine the richness of the network of associations and facets of knowledge each child has developed and maintained for each target word.

Interviewer Protocol:

Hi, (student). Today I'm going to ask you about some of the words we've been learning about lately. I want to hear all that you know about these awesome new words. I want you to tell me everything you know about each of the words I ask you about. OK? I'm going to record what we talk about so I can remember for later. OK? Ready?

Think about the word _____.
Tell me about the word _____.

Record credit for each correct facet of knowledge the student says.
☐ Synonym or Definition   ☐ Meaningful Context(s)
☐ Antonym   ☐ Gesture/Action/Facial Expression or Vocalization

If a student does not receive credit for an above category, select the appropriate prompt(s) from those below in order to elicit the demonstration of the missing knowledge categories.

Tell me more.
What does _____ mean?
Do you know another word that means the same as _____?
When would you _____?
Name a time when someone might _____?
What is the opposite of _____?
Show me with your body or face (or voice) what _____ would look like.

If it is unclear how a student's response relates to the word, ask one of the following follow up questions:

How does _____ fit with _____?
Tell me more.
Why?

Before moving on to the next word, ask each student to provide any further information by asking:

Can you tell me anything else about/that goes with _____?

Meaning Richness Interview
During Interview Record Sheet & Coded Transcript
Posttest Cycle 1: *Mrs. Potter's Pig* Words

Student: _____   Date _____

Scoring: +1 for each correct unit of knowledge
(a stated incorrect unit of knowledge will cancel out a correct unit for that specific facet)

stroll (1.D)
☐☐☐ Synonym or Definition   ☐☐☐ Meaningful Context(s)
☐☐☐ Antonym   ☐☐☐ Gesture/Action/Facial Expression or Vocalization

clutch (1.A)
☐☐☐ Synonym or Definition   ☐☐☐ Meaningful Context(s)
☐☐☐ Antonym   ☐☐☐ Gesture/Action/Facial Expression or Vocalization

plead (1.C)
☐☐☐ Synonym or Definition   ☐☐☐ Meaningful Context(s)
☐☐☐ Antonym   ☐☐☐ Gesture/Action/Facial Expression or Vocalization

devour (1.F)
☐☐☐ Synonym or Definition   ☐☐☐ Meaningful Context(s)
☐☐☐ Antonym   ☐☐☐ Gesture/Action/Facial Expression or Vocalization

shriek (1.B)
☐☐☐ Synonym or Definition   ☐☐☐ Meaningful Context(s)
☐☐☐ Antonym   ☐☐☐ Gesture/Action/Facial Expression or Vocalization

glee (1.E)
☐☐☐ Synonym or Definition   ☐☐☐ Meaningful Context(s)
☐☐☐ Antonym   ☐☐☐ Gesture/Action/Facial Expression or Vocalization

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Meaning Richness Interview Coded Transcript
Posttest Cycle 1: *Mrs. Potter's Pig* Words

Student: _____   Date _____

Target Words: stroll, clutch, plead, devour, shriek, glee

Scoring: +1 for each correct unit of knowledge (a stated incorrect unit of knowledge will cancel out a correct unit for that specific facet)
Facets of Knowledge Codes: S/D = synonym or definition, **A**= antonym, **MC**= meaningful context, **G**= gesture, action, facial expression, or vocalization
Transcript Codes: A= researcher appeal (using one of the prompts from the interview protocol), **S**: is followed by student response

Interview Transcript	Coding

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