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The Effect of Direct Instruction on Spanish Language Acquisition in a Preschool Free-Play Environment: A Single-Case Design

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The Effect of Direct Instruction on Spanish Language Acquisition

in a Preschool Free-Play Environment: A Single-Case Design

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Thesis submitted to the
College of Education and Human Services
at West Virginia University

in partial fulfillment of the requirements for the degree of

Masters of Arts in
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ABSTRACT

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The predicted increase in Spanish speakers within the United States brings to light a new direction for preschool curricula. There are multiple, on-going arguments about the best time for children to learn a second language and what role critical periods for brain development play in second language acquisition. Although there are individual differences in development, the current study demonstrates that children can learn Spanish vocabulary words with an average of 30 minutes of instruction per week. Using a combination of direct instruction with developmentally appropriate practices, hands-on, and engaging activities, the teaching of Spanish vocabulary, themed and age appropriate for preschoolers, was incorporated into the West Virginia University Nursery School classroom. Six children from the afternoon collaborative class were chosen to participate in various forms of activities that incorporated English and Spanish into play-based interactions. Using prompts and feedback or praise, the progress of the children across days and over weeks was recorded and examined. Girls improved significantly on Spanish words correctly identified from pre-test to post-test, while boys showed little to no improvement. However, all children improved in fluency, or time taken to identify a pictorial response. Across the five-week intervention, all children demonstrated improved pronunciation and increasing independence and use within each set of themed words. A combination of direct instruction and engaging, interactive activities was shown to be beneficial in the learning of the children. This method of teaching can be easily incorporated into a more naturalistic classroom setting by providing opportunities of various types to slip vocabulary, directives, and bilingual instruction into the daily routine.

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CHAPTER I

Introduction

The United States, long considered to be a "melting pot," has much diversity in terms of the prevalence of cultures, subcultures, and languages. The United States Census Bureau reports that 20% of families are speaking a first language in home other than English; 13% of those are speaking Spanish (US Census Bureau, 2012). It is predicted that Hispanics will become a majority, rather than a minority, in the near future. This would also increase the prevalence and use of the Spanish language in many contexts, such as schools, media, and other daily interactions (e.g., grocery store, work, public transportation). Indeed, California has already begun incorporating Spanish into the common core state standards (San Diego County Office of Education, n.d.). Language and communication skills can either be an asset or a barrier when thinking of all the different communication styles, norms, and variations in vocabulary use and meaning. It is believed that the value of language increases when two languages are known and provides better tools to achieve success within language learning (San Diego County Office of Education, n.d.).

For young children, it is commonly thought that the ideal time to learn a second language is during the preschool years, while their brains are still making connections and the ability to differentiate between sounds is easier (cf. Birdsong, 2006). Between the ages of three and five years old, children are taking in an incredible amount of information from their surrounding environment, from behavior, to communication

styles, problem solving skills, and language. Children are sorting through the techniques and skills that work best for them to succeed. Acquiring a second language, such as Spanish, with its rapid increase in prevalence, would prepare a child for more refined and diverse skills in the common developmental domains, diverse learning activities, and specific future job opportunities. It seems necessary for new generations to not just be exposed to the Spanish language for a few years, as an elective during high school, but come to learn this language alongside their native one. Research is contradictory about critical periods for children to learn a second language (Birdsong, 2006; Genesee, 2000; Johnson & Newport, 1989); however, earlier learning is likely to increase how natural or native a speaker will sound in that second language (Birdsong, 2006).

Statement of the Problem

The present study focused on a child's ability to learn Spanish vocabulary, intermixed with English, with little to no previous second language exposure. It took place in a free-play environment that is considered developmentally appropriate, where children are encouraged to make learning decisions based on their personal interests and skills. The study implemented a direct instruction technique during administration of vocabulary words. Through activities planned for individuals or small groups, direct instruction was utilized as a method of teaching words; data were collected to measure vocabulary use and acquisition over time. Thus, the problem addressed in this study was: *Can young children learn Spanish vocabulary words through direct instruction within child choice time of a developmentally appropriate environment of a university preschool?*

Definition of Terms

    Direct instruction was defined as one-on-one or small group (two to four children) instruction, during a teacher-led activity, using hands-on and interactive activities, where there is an intentional focus on teaching word meanings and usage for a specific set of vocabulary words (Wanzek, 2014). For the purpose of this study, *vocabulary use* was defined as the receptive or expressive language, understood or spoken/identified, during interactive teacher-child activities. Here, *vocabulary acquisition* was defined as the learning, retention, and recall, over time, of typical vocabulary words for a four-year-old child, with the focus here being on Spanish vocabulary. *Developmentally appropriate practice* (DAP) has been defined as a framework that "promotes young children's optimal learning and development" (Copple & Bredekamp, 2009, p. 1). Used within a curriculum, developmentally appropriate practices serve to guide interactions, teaching moments, and lesson design and structure to create a basis of learning that is always just a bit more challenging for the child than their current level of learning. This practice recognizes that most or all of the learning domains are interrelated throughout learning and promotes the utilization of scaffolding, decision-making, and problem solving within a learning context (Copple & Bredekamp, 2009).

CHAPTER II

Literature Review

Language and Communication

Language is a part of everyday life; there is no way to continuously avoid using it in some form. Communication styles vary between cultures and even close regions in some areas, so language barriers can be a common nuisance. The United States Census Bureau (2012) projects that, through 2020, there will be a slight increase in the number of Spanish speakers. This primarily refers to Spanish speakers from Latin America. Across the world, there are many differences between dialects, accents, vocabulary, and slang in Spanish, just as in the English language. Within the United States, Spanish is the primary language of those who speak a language other than English (Shin & Ortman, 2011). The predicted increase in Spanish as a first language brings to light a new curriculum for early education. Rather than being a second language, generally learned in secondary education, it would seem to be a practical move, if not a necessary one, to begin Spanish instruction during the preschool years.

The rationale for beginning language learning at younger ages includes the dramatically increasing movement towards globalization, diversity, multiculturalism, and multilingualism (Gürsoy & Akin, 2013). Typically, the learning of a second language takes place at the high school and collegiate levels. Gürsoy and Akin (2013) note that second language learning is now taking place as early as the elementary grade levels. It was previously thought that younger children would have anxiety about learning another language and being evaluated on their acquisition by peers and teachers; however, Gürsoy and Akin (2013) show that this is not the case. This raises the question as to the

benefits of learning a second language at the preschool level when children's brains are constantly making new connections and linguistic anxiety may be minimal.

In a study conducted within Greek State Kindergarten classrooms with students learning English as a second language, the aim was to present children with positive attitudes about foreign language acquisition and multiple means of representation to learn language skills (Griva & Sivropoulou, 2009). Similar to various components of the present study, these researchers used a pre-test and post-test to assess children's oral language skills, receptive language, and word production. Themed words were also used in the study by Griva and Sivropoulou (2009), similar to those chosen for the current study, such as colors, food, home objects, persons, and body. With similar procedures (use of receptive language, prompts, and small groups) and items for learning (themed words), even with a slightly older sample (preschoolers aged 4 to 6 years), it could be concluded that similar language acquisition patterns would be expected in the current investigation.

Children are able to learn language and other components of behavioral and social development through adult modeling and by simply being exposed to natural conversation and social situations. Neu (2012) discussed that to learn a second language, the knowledge of a child's first or native language must also be applied to the social and linguistic experiences, building upon the natural application of linguistic rules. Bilingual education and immersion is an increasing approach for teaching English to non-native speakers (Barnett, Yarosz, Thomas, Jung, & Blanco, 2007). With this in mind, dual-immersion curriculum in early childhood classrooms could have similar effects with native English speakers learning Spanish, especially while incorporating components of

direct instruction.

For a child, learning does not take place singularly, but across multiple interactive domains, such as, cognitive, linguistic, and kinesthetic (e.g., when learning to tie their shoes, a child may think about how to complete the task, recite a rhyme to remember the steps, and do the movements all at once or in separate steps, yet leading to the final outcome of a tied shoe). Despite differences in vocabulary, emphasis of definition, and body language norms across cultures, language is a necessity of life. Goodrich, Lonigan, and Farver (2013) studied Caucasian and Latino preschool students and found a correlation among print knowledge (letter symbols) and phonological awareness (letter sounds) across languages. These were not correlated with vocabulary knowledge (meaning of the words). Similarities between visual and audible representation of the English and Spanish alphabet were evident, except for a handful of words, but vocabulary was more of a language-specific skill (Goodrich et al., 2013) due to differences in vocabulary use, slang, and cultural norms.

When learning language, Yeung, Siegel, and Chan (2013), in teaching English to Spanish speakers, found that phonological awareness (knowing and identifying sounds in words and the environment) plays a prominent role in identifying and manipulating speech and in predicting later reading outcomes. With similarities between many English and Spanish words, phonological instruction would not only be beneficial, but necessary, to the direct instruction processes of learning Spanish as a second language during the preschool years. Other benefits of phonological awareness discussed by Yeung et al. (2013) include the association with reading development for a second language (Spanish-speaking learners of English, in their article, which is easily transposed to English-

speaking learners of Spanish), word decoding (applying letter-sound relations and patterns to correctly pronounce words), and segmental phonology (vocabulary expansion that produces more knowledge of words with similar sounds).

Brain Development

Learning a second language involves various processes and experiences, which interact with each other over time. Prior to adolescence and puberty, a child's brain is still making connections. When learning takes place, connections are created between neurons that are near and more distant from others in the brain (Genesee, 2000). When children hear another language they do not know, they tend to ignore it because to them it comes off as "nonsense." The brain filters these sounds, and at first "ignores" what it does not know or understand. With more exposure and understanding, the brain begins to differentiate between sounds and registers these with the auditory cortex (Genesee, 2000). With this in mind, exposure and practice come into play when learning a second language, creating a schema for that language.

If children are able to differentiate between the voices of a familiar caregiver and a stranger, the question could be raised as to whether they are able to understand familiar sound patterns, as well. New research suggests that children as young as infancy have the ability to recognize sound patterns that are similar to words (Gómez et al., 2014, as cited in Language Structure, 2014). These authors discuss how brains may be wired to favor certain syllable combinations, as most, if not all, words in certain languages begin with particular sounds (e.g., *bl* for "blink" versus *lb,* which is only found in a few Russian words). With this specific language ability in mind, it could be gathered that even if another language is being spoken around the child, they could still recognize similar word

and syllable patterns to those of their native language, and code them as word-like, even without fully understanding the meaning. This is supported by findings of research conducted with newborn infants in Italy whose brains reacted differently to various sound combinations (word-like: *blif* versus "nonsense": *lbif*). This suggests that even without much prior language exposure and experience, the infants still innately understood how words should sound (Language Structure, 2014).

Researchers (Birdsong, 2006) have argued the idea of a critical period for second language learning, meaning that once the window has passed, generally after five years of age, it will become increasingly difficult to learn and become native-like in second language acquisition. Other researchers suggest that the critical period spans from infancy toward the end of puberty (Johnson & Newport, 1989; Snow & Hoefnagel-Höhle, 1978). During infant and toddler stages, children are taking in many aspects of language, from voices they recognize to sounds and patterns, leading up to vocabulary practice and acquisition, increasing as they age.

Birdsong (2006) discusses the notion of a critical period and notes how there are well over a dozen variations in terms of critical ages and the factors (e.g., brain development, cognitive capacity, and speed of processing) that help or hinder learning of a second language. Although age of exposure and age of acquisition, and the effects they have on learning a second language, do seem to be important, it appears that individuals can still acquire additional languages well into adulthood. The bigger issue is how natural, or native, the speaker will sound in that second language (Birdsong, 2006). Learning at younger ages will allow for more development in the pronunciation and general fluency with a second language, as compared to waiting until the junior or high

school years.

National Preschool Standards

In some ways, the foundation is already set in early childhood to begin the acquisition of a second language. Quality early childhood programs abide by the early learning content standards within their states, as most states have standards for preschool classrooms. For example, in 2012, West Virginia met eight of the ten benchmarks on the National Institute for Early Education Research (NIEER) Quality Standards Checklist. Several of these benchmarks included the utilization of the early learning standards, specialized training for teachers, continuing education (teacher in-service), and staff-child ratios (Barnett, Carolan, Fitzgerald, & Squires, 2012). The West Virginia Early Learning Standards Framework consists of content standards that were developed based on the universal Common Core, which many states are in the process of implementing. Common Core standards focus on mathematical and language arts and literacy skills that children should be developing from kindergarten through grade 12 (Porter, McMaken, Hwang, & Yang, 2011). With these educational goals for the future, a 37% increase in four-year-old enrollment in public early childhood education from 2002-2012, and access to a universal preschool system for all four-year-olds currently in place (Barnett, Carolan, Fitzgerald, & Squires, 2012), teachers of preschool students are better able to support children and build upon skills needed for language and communication.

The Early Learning Scale (ELS), developed by the National Institute for Early Education Research (Riley-Ayers, Garcia, Frede, & Brenneman, 2011a, 2011b), is utilized to measure how West Virginia preschools are meeting the early childhood standards. These standards provide a guide for extending learning experiences and

promoting school readiness for all learners. Most states have similar measures of child

progress. One section of the ELS framework that emphasizes language and literacy

development provides specific examples of what the children should be able to do, such

as "shows growing ability to hear and discriminate separate syllables in words" (p. 33)

and "recognizes words as units of print that are separated by spaces" (p. 35; Riley-Ayers

et al., 2011b). The acquisition of phonological awareness, part of the language and

literacy domain in this framework, is the foundation for learning a language, including a

second language. Linking the early learning standards to the West Virginia Content

Standards, phonological awareness was taught within the current study through a variety

of different activities incorporating English and Spanish words across a variety of

modalities. Some specific content standards from the Language and Literacy (LL) and

Social Emotional Development (SE) domains that were addressed through the activities

in this study included: comprehending and expanding on oral language (LL 1.4), taking

turns in speaking (LL 1.6), recognizing a word as a unit of print (LL 2.12), showing

awareness of beginning and ending sounds of a word (LL 2.11), persisting in completing

a task (SE 4.4), following routines and rules in play (SE 2.11), and understanding

different cultures and languages (SE 3.3; West Virginia Department of Education, 2010).

Methods of Teaching

Through years of experience, early childhood educators have discovered and

become comfortable with their favored teaching techniques. Developmentally appropriate

practices have been the norm or "mantra" for years in the field of early childhood

education (Copple & Bredekamp, 2009). However, mixed methods of instruction within

the realm of developmentally appropriate practice are becoming more acceptable and

common. Head Start developed a range of strategies on a teaching continuum, recommending teacher-directed instruction to support child learning (Warash, Curtis, Hursh, & Tucci, 2009). Although both child and adult interactions shape play and learning within a classroom social context, this continuum begins to question the rationales for direct instruction versus child-initiated instruction (Warash et al., 2009), leading to the conclusion that a combination of the two could provide the optimal outcome for child learning. Exploring the use of direct instruction in a developmentally appropriate classroom is a key basis for the present study and the model on which the lesson plans and activities were designed to incorporate child interests and exploration.

A study by Miller and Dyer (1971) provides a good historical example of the interest in comparing multiple types of instruction to enhance the learning of preschoolers in Head Start. Miller and Dyer compared four instructional strategies, looking at the first and second years of a three-year longitudinal study. Those methods included traditional (official Head Start program) teaching methods, the Bereiter-Engelmann program (a variant of direct instruction), the DARCEE program (Demonstration and Research Center for Early Education at George Peabody College), and the Montessori approach. The Bereiter-Engelmann program focused on the "acquisition of linguistic and numerical skills by use of verbal instruction, imitation, and reinforcement, and de-emphasized sensorial stimulation and manipulation" (Miller & Dyer, 1971, p. 5). On the other hand, these authors described the DARCEE program as focusing on the attitudes and motivation toward learning, although still incorporating stimulation and reinforcement. The focus in the Montessori approach, according to Miller and Dyer (1971), was on developing persistence, independence, and self-discipline, and de-emphasizes the use of

reinforcement and verbal instruction. Lastly, these authors described the traditional Head Start program as having a focus on social and emotional development, while incorporating role-play, and again, de-emphasizing reinforcement and verbal instruction. Miller and Dyer (1971) sought to determine which of these four methods had the greatest positive impact on preschool children when learning language and mathematical skills.

The results from Miller and Dyer (1971) were mixed depending on the outcome measure of interest. For example, the traditional and Bereiter-Engelmann methods, which differed on the use of reinforcement, both had higher scores on a measure of persistence than the other two groups. Both the Montessori approach, which emphasized intellectual curiosity, and the Bereiter-Engelmann method, showed equally high scores on a measure of curiosity. The Bereiter-Engelmann method also produced the highest scores on measures of arithmetic and sentence production, while the DARCEE method produced equally high scores on arithmetic and the highest scores on verbal-social-participation (Miller & Dyer, 1971). Although one might expect a Montessori approach to have resulted in more cooperative behavior among children, it was the Bereiter-Engelmann method that was associated with the least aggressive behavior in the children. One could conclude that the Bereiter-Engelmann method, which most closely resembled direct instruction of the methods studied, appears to have been the best at promoting certain verbal skills; other teaching methods had positive impact on related important areas of child development. As such, the argument for employing mixed methods when teaching is not a new one.

A specific program developed to teach reading skills utilizing direct instruction is DISTAR: Direct Instruction System for Teaching Arithmetic and Reading. The What

Works Clearinghouse (2007) described direct instruction as "teaching techniques that are fast-paced, teacher-directed, and explicit with opportunities for student response and teacher reinforcement or correction" (What Works Clearinghouse, 2007, p. 1). In an intervention report, the What Works Clearinghouse (2007) examined research comparing direct instruction, DISTAR, and Language for Learning and determined: (a) that, in general, the literature had poor quality research designs, and (b) that little difference could be found between methods of instruction. This appears to be a blow against reading programs in general; however, research by Williamson (1970) suggested otherwise. Williamson compared several reading programs, including DISTAR and Phonetic Keys to Reading (PKR). The overall findings, comparing four classrooms, found, as in the What Works Clearinghouse (2007) review, that there were no statistically significant differences in final reading scores by type of reading program. However, Williamson (1970) took the extra step of examining low, middle, and high-performing readers, based on their initial reading scores. She found that high-performing readers all improved equally regardless of program, but middle- and low-performing readers showed greater improvements under the DISTAR program (Williamson, 1970). This suggests that initial reading level is a good indicator of which children may benefit most from which programs. In considering works such as that by Miller and Dyer (1971), mixed methods may be important, but which methods work best for which children must also be considered. Good readers likely have the skills and motivation for learning language and tying in the other aspects of language that work together. That being said, readers with skills that are not as strong may need more reinforcement and verbal instruction to perform at similar levels.

In early childhood education, large groups, one-on-one time, peer helpers, interactive activities versus drills, or natural teaching moments and modeling are all acceptable methods of teaching. Vocabulary, however, is best acquired when the learner is active in their exploration, creating more opportunities for the child to use and remember the words (Jalongo & Sobolak, 2011). To strengthen learning and recall of vocabulary, Rowe, Silverman, and Mullan (2012) reported that verbal (naming objects) and non-verbal (showing pictures or objects) examples, although processed separately by children, help to achieve this outcome. Similarly, developmentally appropriate practice suggests using language models that help shape language learning and skills, also influenced by the environment (Copple & Bredekamp, 2009). By incorporating visual prompts throughout the classroom (text and pictorial representations of common vocabulary words or short commands, i.e., *table, wash hands*) the meaning of spoken words is reinforced, allowing for another connection to process and link all forms of the word and language together.

With regard to direct instruction, Ramirez and Jones (2012) included an overview of three studies and the preferred methods of teachers and students learning various aspects of grammar and vocabulary for those learning English as a second language. Comparing communicative- and grammar-based approaches, Ramirez and Jones (2012) obtained mixed results and could not determine which method was preferred. These authors concluded there was a need for further research on this topic and the usefulness of direct instruction.

As discussed above, to build upon vocabulary, it is more beneficial to include multiple means of representation: verbal, visual, audible, and haptic. Sibold (2011)

discussed how to build vocabulary for English language learners and noted that the most

effective strategies involved direct instruction. Logically, direct instruction might be the

most effective for learning any language, or a second language, such as English speakers

learning Spanish. Incorporating learned vocabulary throughout the day, emphasizing the

utilization of the means of instruction, would provide all learners with *something* that will

work for them. As previously mentioned, adult models support child learning by simply

listening to conversation, hearing oral exchange, and picking up on the "unspoken" rules

of communication. Developmentally appropriate practice highlights the benefits of

carrying on a more adult-like conversation, allowing for expansion on vocabulary (here,

in both English and Spanish), and allowing opportunities for the introduction of new

words (e.g., expansive vocabulary, such as synonyms), which can also be easily

incorporated into play.

Direct instruction, although generally individualized, can also be beneficial when

done in small, interactive groups. With each child's learning on varying levels,

cooperative learning can act as a motivator for children's involvement. For children in

Taiwan, the idea is supported that motivation for involvement and speaking are enhanced

when learning takes place in a cooperative environment (e.g., Kao, 2003, as cited in

Alghamdi & Gillies, 2013). The cooperative learning setting allows those children who

may be behind others to benefit from more advanced peers, as well as all taking part in

discussions about tasks (Alghamdi & Gillies, 2013), using relevant vocabulary.

Through a form of direct instruction and attention paid to phonological patterns,

younger children can take their current knowledge of the English language and apply it to

learning Spanish. In an experiment using a mnemonic technique, the child takes a

familiar English word and uses it as a base for the new Spanish word (Pressley, Samuel,

Hershey, Bishop, & Dickinson, 1981). These authors provided an example of this, using

the English base word "cart" to remember the Spanish word for "letter," which translated,

is *carta*. Code-mixing, or code-switching, consists of switching between languages,

generally words within a longer phrase (Greene, Peña, & Bedore, 2012). For example, a

native Spanish speaker begins a sentence in English, yet cannot think of a specific

vocabulary word, and switches to Spanish, where she is able to find the correct

terminology. It could be concluded that between the two noted techniques, Spanish

language would become more expansive and serve as a more meaningful experience for a

child, especially when tied to their native language.

Another method that could potentially be used in a direct instruction setting is the

interaction approach. Through this approach, language is used as a means of

communication, but instead of focusing on accuracy, the main idea is to relay meaning

(Philp & Tognini, 2009). In reference to the above-mentioned ideas of code-mixing or

code-switching by Greene et al. (2012), it is discussed that when code-switching, there is

generally a pause between languages to find the right words again (Amir, 2013). In this

case, the authors discuss students learning English as a second language, but the concept

of the pause could be reversed to English speakers learning Spanish, because even in

your native language, there are times when it becomes difficult to find the words you

want, this is increasingly so in a combination of two languages.

In conclusion, although there are many approaches to learning not only a native

language, but a foreign one, direct instruction certainly warrants a further look. The

benefits of learning a second language overall, but starting at a younger age, surpass

anxiety or learning challenges as there are now various ways to accommodate all

learners. It could be surmised that strategies used to teach those learning English as a

second language would also be beneficial to those learning Spanish as a second language.

With the Spanish language becoming more prevalent in the United States, acquiring a

second language to be able to communicate more with others is becoming a critical skill.

As for young children starting out, learning another language through the connection of

school and home, can increase self-confidence in the second language, among other

academic benefits and cross-domain learning (Hummel, 2013).

Summary

In summary, there are many components of language and communication that rely

on each other when a child is learning a first or second language. As rates of Spanish

speakers within the United States are on the rise, it is important to take into account the

second language learning opportunities for young children. Beginning second language

learning within the preschool years, rather than waiting until adolescence, allows the

child to make more connections and retain the information better, as well as sounding

more native-like in their speech. This is certainly feasible and would benefit the children

greatly, with a new and growing focus on diversity and multiculturalism.

The argument of a critical period for language development is on going, especially

as to what age ranges encompass that critical period; regardless, it appears easier to learn

language at a younger age. It is important to keep in mind that the domains of learning all

interact with each other. As such, direct instruction in early childhood education would

likely benefit second language learning when utilizing visual, verbal, auditory, and haptic

cues in an interactive and engaging set of activities. As has been shown, direct instruction

within a developmentally appropriate learning context is a method of choice teaching language to young children.

The findings presented in this study are evidence that children can learn a second language and retain the information over time. This knowledge provides the basis for understanding how language programs can be implemented and benefit preschool children learning a second language, which is an area of importance in the Early Learning Standards. In addition, the findings help teachers of young children, who are required to use a developmentally appropriate approach, understand how to incorporate direct instruction within their classrooms and still abide within the philosophy of developmentally appropriate practice.

CHAPTER III

Method

Participants

The participants were preschool children from the afternoon class at the West Virginia University Child Development Laboratory School, also known as Nursery School. This classroom is a universal preschool classroom that operates under the auspices of the West Virginia State Department of Education (WV DoE), the West Virginia Department of Health and Human Resources (WV DHHR), and the College of Learning Sciences and Human Development at West Virginia University.

The ages of the afternoon class range from four to five years. The majority of the children enrolled at the Nursery School are Caucasian. The children of the afternoon class are typically developing. Many of the families with children enrolled have at least one parent or family member affiliated with the university, including siblings who have attended the Nursery School in previous years. The majority of the parents with children in this classroom are considered professional, with approximately 71% holding a Bachelor's degree or higher. Of the remaining parents, an estimated 29% had obtained some type of specialized training or had partially completed college (at least one year). The aforementioned status of families was determined from a previous research study (DeVito, Warash, Root, & Curtis, 2013); for the present study, more specific demographics were gathered at the start of data collection (Fall of 2014). There were few differences between these two studies in the family demographics, except the estimated number of parents who completed college was higher in the present sample.

Six children were purposively selected from the afternoon class: three girls and

three boys. Originally, the selection was to allow for each child to have an equal chance

of being selected, regardless of gender, performance level, or other differentiating

characteristics. However, the final six were chosen based on several attributes, including

the limited number of boys in the classroom. Children were ruled out as potential

participants if they had communication difficulties or behavioral issues, such as the

inability to participate in an ongoing task. A consideration for inclusion was the expected

ability to focus on an activity or short-term task.

The selected children were: (a) April, a four-year, seven-month-old girl; (b) Lynne,

a four-year, six-month-old girl; (c) Sara, a four-year, five-month-old girl; (d) Cole, a

four-year, six-month-old boy; (e) Ethan, a four-year, nine-month-old boy; and (f) Thad, a

four-year, five-month-old boy (names are fictitious). All participants were Caucasian and

had from one to three siblings. Mothers completed the consent forms and demographic

questionnaires, all reporting being Caucasian, married, and having a Bachelor's,

Master's, or law degree, with household incomes ranging from $50,000 to over $100,000.

Setting

The study took place at the Nursery School, a laboratory school environment for

college-level students to observe and work with children, as well as refine their own

teaching skills through observation and hands-on experiences. The children at the

Nursery School experience a child-directed free-play environment, with specified times

for student teacher-led activities (45-60 minute centers) on a daily basis. The morning

class consisted of 20 three-year-olds, while the afternoon class was made up of 20 four-

and five-year-olds, predominately girls. The Nursery School has an open floor plan, with

labeled areas broken up for various child interests, such as blocks, art, and housekeeping

(dramatic play). The materials and furnishings are child-sized and age-appropriate. There is a separate office for staff and a kitchen area. The class participates in individual and small group activities, depending on the number of children participating at each activity during center time. Video recordings and data were only collected on the six selected participants.

Design

The pre- and post-tests took place during regularly scheduled school hours. For this, the children were taken to a private area in the classroom. The intervention took place during the normal classroom routine of teacher-led activities three days a week, on Mondays, Tuesdays, and Fridays. The original plan was to use a variation of a changing criterion design, in which children would need to demonstrate knowledge and use of five vocabulary words within a theme before moving on to the next set of themed words. This was determined not to be practical within this setting due to the need to fit the design into the standard instructional center format that is used at the Nursery School. Instead, each child attended three themed activities each week, each activity providing a different context for learning and using the Spanish vocabulary words (see the section titled *Learning Activities*, below, for a discussion of the activities). The theme and related words changed each week, regardless of the level of proficiency each child attained on the prior themed words.

Procedures

Overview of procedures. West Virginia University Institutional Review Board approval was provided for this research study. Children were ruled out as potential participants if they had communication difficulties or behavioral issues, such as the

ability to participate in an ongoing task. Again, six children were selected to participate;

three girls and three boys. The researcher provided a letter describing the study and a

schedule of activities and discussed it with the parents. Parents had the opportunity to ask

questions and agree to or decline participation of their child. Once parental consent was

received for the six children asked to participate, the researcher individually gave each

child a pre-test in English and Spanish. After this, the baseline phase began, where

children identified family members in English. The children were questioned by the

researcher during baseline as to what they thought the Spanish words for the family

members were. Responses ranged from "I don't know" to made up nonsense words. This

demonstrated that the children did not use Spanish unless prompted or taught. The five-

week intervention consisted of direct instruction activities, conducted in English and

Spanish. Each week consisted of five themed words, which the children practiced and

used throughout the planned activities. After the intervention was completed, the children

took a post-test, again, in English and Spanish.

  Pre-test and post-test. A pre-test and post-test were individually given to each of

the six participants in a combination of English and Spanish (see Figure 1 for an example

of a pre- and post-test picture card). The pre- and post-tests were made up of words from

the intervention; words chosen to be identified in English and Spanish were randomly

selected. The pre- and post-tests required the children to identify the word by pointing at

the correct picture (receptive language). For each picture card, the researcher asked the

child to identify three of the six vocabulary words in English and the other three in

Spanish, giving no feedback. The researcher video recorded the testing and recorded the

child's responses on a score sheet (see Appendix A for a sample score sheet). The videos

were later reviewed for accuracy. Time taken to answer after the researcher prompted the child was also calculated from the video recordings.

Learning context. The researcher conducted the Spanish activities within the regularly scheduled center rotation time, usually lasting 45-60 minutes. During the center rotation, the researcher completed the same activity three to five times, while children were coming and going. When arriving to Nursery School, children first complete their *Play Plans,* a short writing and drawing task, that helps them solidify their pretend roles for socio-dramatic play. Centers begin after children are engaged in free-play for around an hour. Center rotation allows the children to look at a *contract*, which visually displays the center choices for the day, allowing each child to choose which center to go to and in which order. Children may travel from center to center individually and at their own pace or with a *center buddy,* typically another child with whom they may not regularly play. Purposively choosing a child's center buddy is used as a method to make new social connections, expanding everyone's friendships within the Nursery School environment. There are generally between one and four children at a center at one time. For the purpose of this study, the six participants were paired with another child in the study and brought to the Spanish center to complete the activity. On some days, depending if a child was absent or still engaged in another center, the other child completed the activity individually with the researcher. All children in the study were paired with each other at least once, except for April and Sara; all children had at least one individual session except Lynne.

Learning activities. The study took place over eight weeks: one week pre-test, one week baseline, five weeks of intervention, and one week post-test. Spanning the five-

week intervention period, the researcher was at Nursery School three days a week, for 45 minutes to an hour; this is the allotted time for daily center rotations. During this time frame, the researcher conducted the planned Spanish activities with all children who wanted to participate, as it was be presented on the children's daily contract. Video recordings and data were collected on only the six consented participants, however; all parents had signed a media release during initial enrollment at Nursery School. Children were not at the Spanish center for the entire duration of centers, as all children flowed in and out based on their personal choice of which centers to visit and when. This is the normal procedure for children at the Nursery School, as recommended by the National Association for the Education of Young Children (NAEYC), in concurrence with DAP (NAEYC, 2009). The six children participating, however, were encouraged to remain at the Spanish center until the activity was completed, generally lasting about 10 minutes; all of the children complied with this. Again, children typically moved from center to center with their center buddy, chosen by convenience based on the six consented participants. This made it easier for the researcher to video record the activities on only the children participating in the study.

Throughout the intervention, the participants learned words from five themes, each with five common vocabulary words, typically already known by preschoolers in their native language. Themes included: *family* (baseline)*, numbers, colors, body parts, household,* and *food* (see Table 1 for the complete list of vocabulary words). The activities were designed to incorporate modeling, leading, repetition, and testing (not in the typical sense of the word, but more of a recall and practice manner). These components of direct instruction worked well and could naturally be embedded into the

activities, while still engaging the children with the researcher, each other, and in their own self-motivation for learning.

The learning activities for the lessons implemented the direct instruction technique and were a mix of English and Spanish. During these activities, individuals or small groups (typically two children) came and went to the researcher's Spanish center. At this center, the researcher had hands-on, interactive activities that engaged the children in various means of representation for both English and Spanish, in visual (pictures and words) and audible manners (see Appendix B for an example of a lesson plan). The activities were designed so the researcher was able to interact with the children and provide examples and connections in both English and Spanish, allowing the children to interact with each other, ask questions, and practice the vocabulary.

All children at Nursery School were able to attend and participate in the Spanish center; the six selected children were specifically brought to the center to ensure participation. The children and researcher played using materials designated for that theme and specific activity, practicing the use of the learned Spanish words. Feedback and praise were given to each child for pronunciation and use of the Spanish words, with corrections given for mispronunciation.

Data collection and scoring procedures. Data collection based on the activities was broken down into *trials*, in which the researcher prompted the children in English or Spanish to practice pronunciation of the Spanish vocabulary words. One complete trial included a prompt by the researcher (and sometimes by a child), a response by a child, and feedback by the researcher. If a child responded, they were scored on *pronunciation* and *use*. If there was no response, the child automatically was scored 0. Trials could be

initiated by the researcher's prompts (Levels 1, 2, 3, and 4) or another child's

independent use (Level 5); pronunciation and use were scored for any level of prompting.

Table 2 provides definitions and examples for the five prompt levels, use, feedback, and

what constituted a trial. Appendix C provides a blank data sheet used when scoring video

recordings of the activities.

During intervention, the researcher collected data on each child's correct

pronunciation and use of the learned Spanish vocabulary words. To do so, daily Spanish

activities were video-recorded and later reviewed by the researcher and a trained

assistant. Pronunciation and use were recorded from the videos using score sheets (see

Appendix C) for each session the child was present. The reviewers counted the number of

correct pronunciations and usage, as well as prompt levels and feedback or praise,

recording the child's verbal pronunciation and actions.

Full credit for correct pronunciation and use was scored 2, while partial credit

(mispronunciation) was scored 1, and no response (not speaking or using the word) was

scored 0. The researcher and assistant reviewed videos together to reach agreement on

definition of correct pronunciation and use, along with prompt level and feedback or

praise. The researcher and assistant jointly coded all videos, reaching consensus on each

data point.

Research Questions

It was predicted that the six children would learn the Spanish words when linked to

familiar English vocabulary through hands-on and engaging activities, using the direct

instruction technique. The recall and retention of the words was predicted to be higher if

a child used them in a peer-group environment during activities. Research Question 1

asked whether there would be a significant improvement in correctly identified Spanish vocabulary words from pre-test to post-test, after the five-week intervention of engaging, hands-on, direct instruction activities were completed. Research Question 2 asked whether the children would learn and use the Spanish words, introduced within the direct instruction intervention, themed for each week, as evident from single-subject data displays. In addition to these specific questions, it was of interest to note whether direct instruction has a place in a developmentally appropriate preschool classroom.

CHAPTER IV

Results

Intervention Fidelity

An important measure of intervention fidelity is the percentage of trials on which the researcher gave feedback to the participants, either as correction, example, or praise. Overall, 80% of the 1,656 trials included feedback from the researcher. However, the percentage of trials with feedback varied by the theme: (a) Numbers averaged 50.7% (range 46.3-53.5%), (b) Colors averaged 84.6% (range 70.2-98.4%), (c) Body Parts averaged 92.5% (range 89.2-94.7%), (d) Household Items averaged 94.0% (range 89.0-98.0%), and (e) Food averaged 93.8% (range 80.0-100.0%). Although the overall percentage of trials with feedback was more than acceptable, there was a clear difference between Numbers and the other themes due to the number of successive trials in a row, such as counting, without interrupting to give feedback each time (e.g., "*Uno*, *dos*, *tres*, *cuatro*, *cinco*," "Good job!").

As verification that the participants did not receive dramatically different numbers of trials, the mean number of trials that each child received was calculated across all their days of participation. Three of the participants, Lynne, Ethan, and Thad, missed one activity each and April missed two activities over the course of the five-week intervention. Four of the participants had a very similar mean number of trials per activity, with April receiving a mean of 32.1, Lynne receiving a mean of 33.6, Cole receiving a mean of 32.6, and Ethan receiving a mean of 32.9. Sara and Thad, however, received a mean of 41.9 and 41.4 trials per activity, respectively, because on two days that they were partnered (Numbers, Day 3 and Colors, Day 1), the number of trials

exceeded 70 (see Table 3). The duration of each activity with each child, the number of

trials, and the number of seconds per trial (s/t) were determined and are displayed in

Table 3. The length of activities ranged from just under 5 minutes to just over 15 minutes.

The mean number of seconds that each trial took to complete ranged from 5.8 to 36.2

seconds, with Activity 3 for Numbers taking less time due to sequential counting during

Uno, and Activity 3 for Body Parts taking the most time due to creating their own Mr.

Potato Head and talking more casually than during other activities.

Analysis of Individual Participants

For each of the six participants, two graphs were created for each of the five

themes, one for pronunciation score and another for prompt level (a total of 10 graphs per

participant, Figures 2a through 7j). Data from each of the three activities for each theme

were cumulatively graphed across the number of trials for that activity, with a limit of 40

trials graphed per activity as most sessions did not exceed 40 trials. Cumulative graphs

for pronunciation of Spanish words on each trial were created by adding the scores (0, 1,

2) on each trial to the total score of the preceding trials in that activity. This method of

graphing allows for easy visual inspection of a child's progress on pronunciation each

day and across the week. Steeper slopes indicate more accurate pronunciation and flat

slopes indicate trials with no response. A "perfect line" is included to provide a visual

representation against which to base the child's performance; "perfect" would be

receiving a pronunciation score of 2 on all trials. Generally, it was expected that

performance over each successive day within a theme would move closer and closer to

the "perfect line."

Similarly, cumulative graphs for the prompt level needed to elicit a response on a

trial were created by adding the scores (0, 1, 2, 3, 4, 5) on each trial to the total score of

the preceding trials in that activity. This method of graphing allows for easy visual

inspection of the change in prompt level needed on each day and across the week. Steeper

slopes indicate more independence (Levels 4 and 5) and flat slopes indicate trials with no

response from the child. Use (verbal and non-verbal) was also included in the cumulative

graphing of prompt level if the child did not already receive credit for pronunciation. A

"perfect line" is included to provide a visual representation against which to base the

child's performance; "perfect" would be receiving a prompt level score of 4 on all trials.

As with pronunciation, it was expected that performance over each successive day within

a theme would move closer and closer to the "perfect line."

April. Figures 2a through 2j provide the cumulative pronunciation and prompt level

graphs across the five themes for April. Figure 2a shows that April's cumulative

pronunciation scores for the Numbers theme were higher on Day 3 than Day 1, with Day

2 somewhat higher than the other two days. The slopes for all three days indicate

consistently good pronunciation, except for brief breaks in the middle of the sessions,

likely influenced by more interaction between the other child and researcher on those

trials. Figure 2b shows a higher level of independence on Days 2 and 3 than Day 1. For

the Colors theme, April's level of pronunciation was better on Day 1 than Day 2 (Figure

2c), while the level of prompting needed was similar on both days (Figure 2d). The same

performance for pronunciation and prompt level is seen in Figures 2e and 2f for the Body

Parts theme.

The graphs for the Household theme show more of the expected performance, with

better pronunciation on Day 3 than Days 1 and 2 (Figure 2g) and more independence on

Days 2 and 3 than one Day 1 (Figure 2h). The same pattern of improving pronunciation and independence is seen in Figures 2i and 2j for the Food theme. Overall, April showed improving performance in pronunciation and prompt level needed to elicit a response. The exception to that more general trend was with the Colors and Body Parts themes. Potentially, Day 3 could have shown higher performance, but April was absent on Day 3 for both of these themes.

Lynne. Figures 3a through 3j provide the cumulative pronunciation and prompt level graphs across the five themes for Lynne. Although Lynne's pronunciation scores improved over three days for the Numbers theme (Figure 3a), her overall level was moderate, with no steep slopes. Similarly, she did not show a strong trend toward increasing independence for prompt level (Figure 3b), needing somewhat more prompting on Day 3. Lynne did much better, however, with the Colors theme, showing a high level of performance for pronunciation (Figure 3c) and prompt level (Figure 3d) on Day 2 as compared to Day 1. A pattern similar to the Numbers theme was evident for both Body Parts and Household themes in that there were no clear improvements in pronunciation (Figures 3e and 3g) and prompting (Figures 3f and 3h) across the three days for these themes.

On the Food theme, Lynne showed more of the expected pattern of results with higher performance on pronunciation (Figure 3i) and independence of prompt level (Figure 3j) on Day 3 than Days 1 and 2. Overall, Lynne's performance somewhat fit the expected pattern of results for Colors and Body Parts. She otherwise showed a similar moderate level of performance across days for the other three themes.

Sara. Figures 4a through 4j provide the cumulative pronunciation and prompt level

graphs across the five themes for Sara. For the Numbers theme, pronunciation (Figure 4a) and prompt level (Figure 4b) were higher on Day 2 than Days 1 and 3. The slopes on Day 2 for both graphs are also steeper than the slopes on Days 1 and 3, showing better pronunciation and more independence. Pronunciation (Figure 4c) for Sara on Day 1 of Colors demonstrates the attainment of the "perfect line." Days 2 and 3 fall below this, but are following a very similar slope. Figure 4d, however, shows Sara's prompt levels were similar for all three days, but Day 1 is still higher than the other days. Another example of the expected pattern of results is the Body Parts theme for Sara. Day 3 was higher for both pronunciation (Figure 4e) and prompt level (Figure 4f) than Days 1 and 2. The slopes for these days are relatively similar, but the slope of Day 3 is somewhat steeper than the other two days.

Sara's results for pronunciation and prompt level for the Household theme (Figures 4g and 4h) show steep slopes on all three days across both graphs, with Day 2 lower overall than Days 1 and 3. Most days on both graphs are also closely following the "perfect line," except for Day 2 of pronunciation. For the Food theme, Day 1 shows a steeper slope and is higher than Days 2 and 3 (Figure 4i). On prompt level (Figure 4j), however, Day 3 is higher than Days 1 and 2, which follow a similar slope. Overall, Sara's performance on the Colors, Body Parts, and Household themes follows the expected pattern of results and also runs parallel to the "perfect line." The other themes show no consistency in increasing pronunciation or prompt level, as Day 2 of Numbers is higher on both graphs than the other days, and Day 1 is higher on pronunciation for Food, but Day 3 is higher for prompt level.

Cole. Figures 5a through 5j provide the cumulative pronunciation and prompt level

graphs across the five themes for Cole. Cole's performance on pronunciation and prompt level (Figures 5a and 5b) of the Numbers theme were similar, with Day 2 being higher than both Days 1 and 3. Moderate slopes were shown. For all three days of Colors on both pronunciation and prompt level (Figures 5c and 5d), performance closely paralleled each other, with no difference among the three days for pronunciation; however, independence for Day 3 in the second half of the activity was higher than Days 1 and 2. Performance on the Body Parts theme follows the expected pattern of results, with an increasing slope over Days 1, 2, and 3 for both pronunciation (Figure 5e) and prompt level (Figure 5f).

Performance on the Household theme shows similar patterns for all three days, with Day 3 being slightly higher than the other two days for pronunciation (Figure 5g). For prompt level, Days 2 and 3 are overlapping and are also higher than Day 1 (Figure 5h). Figures 5i and 5j for Cole show very little difference or increase in performance and a lower slope than most other themes. Overall, Cole showed little improvement over the days within each theme, with the exception of the Body Parts theme, which did follow the expected pattern of results.

Ethan. Figures 6a through 6j provide the cumulative pronunciation and prompt level graphs across the five themes for Ethan. Pronunciation and prompt level for the Numbers theme are undifferentiated in Figures 6a and 6b. Colors, however, followed the expected pattern of results for both pronunciation and prompt level (Figures 6c and 6d), with prompts on Day 3 surpassing the "perfect line" due to independent use (score of 5) of previously learned number words at the beginning of the activity. Pronunciation (Figure 6e) and prompt level (Figure 6f) for Body Parts also met the expected pattern of

results, with Day 2 being higher than Day 1, which showed a fairly flat slope. Ethan's

pronunciation (Figure 6g) and prompt level (Figure 6h) for the Household theme reverse,

rather than follow, the expected pattern of results with Day 3 being lower than both Days

1 and 2. For the Food theme, Days 1 and 3 were slightly higher than Day 2 for

pronunciation (Figure 6i) and overlapped each other. For prompt level, in Figure 6j, all

three days overlap, showing a steady, moderate slope. Overall, Ethan's performance on

pronunciation and independence or prompt level shows little consistency as the progress

on each theme switches from week to week. For example, Colors and Body Parts

followed the expected pattern of results, but Numbers and Household reversed that

pattern.

 Thad. Figures 7a through 7j provide the cumulative pronunciation and prompt level

graphs across the five themes for Thad. Both improved pronunciation and increased

independence for Thad were evident, in the expected pattern for Days 1, 2, and 3 of

Numbers (Figures 7a and 7b), as Day 3 was higher than both Days 1 and 2. Day 1 of

pronunciation for Colors (Figure 7c) followed the "perfect line" then plateaued about half

way through the activity, resting lower than Day 3, but slightly higher than Day 2. Day 1

of prompt level (Figure 7d) shows a similar plateau; however, Days 2 and 3 intertwine at

a higher point than Day 1, showing similar progress for those days. Days 1 and 3 of

pronunciation for Body Parts (Figure 7e) show a steeper slope, parallel to the "perfect

line," but leveling off toward the end of the activity. On the other hand, Day 2 shows

moderate improvement at a slower rate and plateauing off about half way through the

activity. Day 3 of prompt level shows more independence than Days 1 and 2 in Figure 7f;

there is little difference between Days 1 and 2 for Body Parts.

Days 2 and 3 of the Household theme show little difference for both pronunciation and prompt level in Figures 7g and 7h. Thad's pronunciation (Figure 7i) for the Food theme is slightly higher than the prompt level (Figure 7j), but all three days on both graphs do not show much difference in the progress that was made. Overall, Thad showed minimal progress or differentiation, with the exception of the Numbers theme, which did follow the expected pattern of results.

Trials with Use

In addition to analyzing pronunciation and prompt level, trials were scored for use as a 0 or a 2, with a description of the motion or verbalization noted as reference to the use. *Use* is defined in Table 2, as demonstrating knowledge of a word (verbally or non-verbally) by various forms of identification. Figure 8 displays the percentage of the total number of trials on which each child was scored as demonstrating use of the vocabulary words. On average, 14.0% of the trials, across children, included use, ranging from 9.8% for Cole and Thad, to 21.7% for Sara. Figure 9 breaks down the trials with use into the prompt level after which they occurred. An average of 68.1% of the trials with use occurred in response to a Level 4 prompt (range 46.3-75.0%). An average of 23.7% of the trials occurred in response to a Level 5 prompt, which is independence (range 10.7-50.0%). As can be seen in Figure 9, Sara differed from the other five children in that her usage trials were split between Level 4 and 5 prompts, while the other children primarily had use in response to a Level 4 prompt.

Pre-Test and Post-Test

The pre-test and post-test consisted of five picture cards, each with six pictures. The children were to point to the picture corresponding to the English or Spanish word spoken

by the researcher; three words were presented in English and three in Spanish for each

picture card. As can be determined from the data displayed in Table 4, the children

correctly identified a mean of 14 English words (range 12-15) on the pre-test, with all 15

correct on the post-test. For the Spanish words, the children had a mean of 4.7 words

(range 3-7) correct on the pre-test and a mean of 8.3 words (range 3-12) correct on the

post-test. All of the girls showed clear improvement in the number of Spanish words

learned from pre-test to post-test, doubling or tripling the number of words they identified

correctly. Two of the boys (Cole and Ethan) essentially showed no change in words

learned, while Thad showed a small improvement.

Due to the small sample size ($n = 6$), the Wilcoxin Signed Rank Test, a non-

parametric statistic for small samples, was used to compare pre-test and post-test scores.

There was a statistically significant increase in the number of Spanish words correctly

identified from pre-test ($M = 4.7$) to post-test ($M = 8.3$), $W = 1.5$, $p < .05$ (one-tailed,

critical value for $n = 6$ is $W = 2$). In addition to looking at correct answers, the time it

took to provide an answer (i.e., fluency) was also calculated (again, see Table 4). At pre-

test, identifying Spanish words (whether correct, $M = 4.3$ s, or incorrect, $M = 3.7$ s) took

significantly longer than identifying English words correctly ($M = 1.8$ s), $W = 1$, $p < .05$.

At post-test, English words identified correctly ($M = 1.0$ s) still took less time than

identifying Spanish words correctly ($M = 1.7$ s), $W = 1$, $p < .05$; however, identifying

Spanish words correctly took less time than when the wrong answer was selected ($M = $

4.8 s), $W = 1$, $p < .05$. Lastly, identifying correct Spanish words took significantly less

time at post-test ($M = 1.7$ s) than at pre-test ($M = 4.3$ s), $W = 0$, $p < .05$.

As a last step in the descriptive analysis of these data, Table 5 displays each

child's correct responses for each themed Spanish word on the pre- and post-tests. The

last line labeled "Total" describes the total words correct on pre- and post-tests, as well as

indicating how many words on the post-test were also correctly identified on the pre-test;

this value is in the parentheses.

CHAPTER V

Discussion

It was predicted that the children would retain and use Spanish words when presented with familiar English vocabulary through engaging, hands-on activities in a direct instruction format. The first research question asked whether there would be a statistically significant improvement in Spanish vocabulary (number of correctly identified words) from pre-test to post-test. It was evident from the pre-test and post-test comparison that there was an overall statistically significant increase in the number of words that the six children correctly identified. It is also clear that the three girls, April, Lynne, and Sara, showed the greatest improvements. Two of the boys, Cole and Thad, showed a small improvement, and one, Ethan, showed no improvement on the post-test. Despite this unexpected variation by gender in the number of Spanish words correctly identified on the post-test, all children improved on a measure of fluency, that being the time it took to identify each Spanish word correctly.

The second research question asked whether it would be evident from single-subject data displays that the children in the study would learn and use the themed Spanish words each week. The expected pattern of results for the single-subject data was to see improved pronunciation and increased independence from prompts (Levels 4 and 5) over the three days of activities within each theme. Approximately one-third of the single-subject displays supported this expected pattern. More often, two or three of the activities within a theme were overlapping, similar in slope, and undifferentiated from each other.

An original design consideration was to have two days of teaching vocabulary

words and one day of generalization to play activities. This would have allowed

evaluation of whether the children were pronouncing and using the words independently.

In lieu of this, data were collected on the number of trials during which the children used

the themed words in some manner, such as repeating, pointing, or asking questions about

the words. The data indicated that all children used the words in some manner on about

15% of trials with about two-thirds of those being in response to Level 4 prompts (e.g.,

"What is the Spanish word for *leg*?" or "Show me *mano*."). On about one-third of the

trials, such use was independent (Level 5), that is without any prompting by the

researcher. For one subject, Sara, a little over 20% of the trials included use, with about

half being independent. This use of the themed words was not prompted or trained; as

such, it provides evidence of the children generalizing their newly acquired vocabulary.

Overall, these findings support the use of direct instruction of Spanish vocabulary

within the unique preschool setting of the West Virginia University Nursery School. Not

only were improvements in pronunciation and independence noted, the children

demonstrated usage of the vocabulary words without this being directly taught. It was

also shown that even when there were not large increases in the number of vocabulary

words known, all children were more fluent after the five weeks of direct instruction, in

that they identified the correct words more quickly than incorrect words on pre- or post-

test. It is notable that the three girls performed at a much higher level than the three boys.

This result might have been expected, given that girls generally score higher on tests of

language and communicative skills than do boys at this age and younger, as well as

throughout the school years (Burman, Bitan, & Booth, 2008; Huttenlocher, Haight, Bryk,

Seltzer, & Lyons, 1991). Of anecdotal interest, two of the girls (April and Sara) would

correct the pronunciation of their center buddies, particularly the boys (e.g., "It's not pronounced *que-sa,* it's *que-soooooo*.").

Limitations and Future Directions

As in any research study, limitations present themselves as an afterthought to the intervention or were considered, but unattainable during the intervention. With this study, one of the first, and possibly most important, limitations is the small number of participants. For single-subject research, this number is generally acceptable, but to generalize to the wider population of preschool children, this study would have to be replicated with more participants and in other settings, both regionally and educationally. The West Virginia University Nursery School is a setting that holds education and the experiences involved in education to a very high esteem. Parents with children enrolled are all highly educated themselves and their children already have a "jump" on many components of preschool and kindergarten curricula.

Another limitation of this study was the pre- and post-tests. Originally, the pre- and post-tests were supposed to have opposite words, minimizing any practice effect in the test-retest. Distracter pictures would have been beneficial for the pre- and post-tests because during intervention, a few children would notice pictures they had not identified, but were prompted in Spanish and chose an incorrect picture. Also, it was noticeable that some children were keeping track of pictures they had or had not identified, so one or two distracters would account for using a process of elimination.

Another limitation during the study was with the video recordings. At some points, it was difficult to see the faces of the children to determine which child was saying what. There were also technological issues with the memory on the video camera, so some

videos were recorded on the researcher's cell phone, where camera angle was also an

issue. During Week 6, the Household Items theme, the camera was bumped by another

child not participating in the study and fell to the ground. The fall made the recording

blurry. The researcher and trained assistant had to rely on knowing the children's voices

and the dialogue between the researcher and children to score them on pronunciation and

use. These videos were viewed multiple times and voice clips were replayed to determine

what was happening during the activity. No data was lost due to these technological

setbacks.

It would be useful in future studies to do an initial general language assessment to

evaluate proficiency in English vocabulary to establish a baseline level that might be

predictive of how well children would then acquire Spanish vocabulary. This would be

particularly useful when comparing girls and boys and could help explain the gender

differences seen in this study. Burman et al. (2008) noted that females perform better on

language tasks than males, even in children as young as two to three years of age. In their

review, Burman et al. (2008) discussed that girls begin speaking at an earlier age, learn

vocabulary at a faster rate, and have more spontaneous use of language. Depending on

the study, these gender differences vary from small to moderate, but they are persistent

from infancy through the school years. Burman and colleagues showed differences in

pre-pubescent boys and girls in the areas of the brain that were activated during language

tasks, with girls showing more general activation throughout the brain. Huttenlocher et al.

(1991), however, suggested that the degree to which mothers talk with their children

plays an important role in early language development; even so, the gender differences

persist. Given these gender differences in early language learning, it would be important

to also investigate how these differences show up in the acquisition of second language learning. The limited data here suggest easier learning of Spanish by the girls than the boys.

Application in Preschool Education

This research study, although single-subject, provides positive insight as to whether a combination of direct instruction, developmentally appropriate practices, hands-on and engaging activities, and peer interaction has a place in other preschool classrooms. From my perspective, the answer is most certainly *yes*. These components of education are adaptable within most classroom settings. Multiple times during the study, I found myself following the children's lead within activities, answering their questions, expanding on their statements, and allowing them to communicate with each other and even give feedback to each other, not necessarily focusing on the defined activity for the entire time. This is an important part of teaching because if the child is not interested and involved in the task at hand, it will show, which a few times it did. Instead, to engage the child and a peer or two, is to bring the instruction to their level, while supporting them enough to push them to the next level of learning and performance.

The learning environment at the West Virginia University Nursery School is certainly a unique and exceptional one. As many as 10 to 15 teachers, including observers, student teachers, and interns completing their practicum, are in the classroom at the same time on any given day. This is certainly not a "real world" setting when compared to how more typical preschools are staffed. However, the amount and degree of learning and interaction within the Nursery School is something that *should* be conducted in every classroom. In the classroom, and during this intervention, activities

are set up for child exploration and engagement, not only with the materials, but with those involved in the activity as well, whether it be other children or an adult. Interaction and exploration are key for children to learn and maintain interest within an activity or long-term project; as such, following the child's lead and responding to their questions benefits all involved. For this research study, interactive activities where the children could be hands-on and fully participating in an activity, rather than rote learning or "drill and skill," where the child must respond multiple times in a row to "learn" the material, is more beneficial for learning. Allowing the child to not respond a few times and take in information in their own way, such as by listening to another child respond, lets them explore their own materials and understanding and make connections, pushing themselves to the next level of learning in an important way.

For this intervention, the activities were kept relatively short, although some lasted over the more typical five to ten minutes, based on child engagement in the activity. The activities were just long enough to obtain sufficient data and keep the child's interest. However, at some points this was more difficult than others, as would be expected due to outside factors that the researcher was unable to control for, such as tiredness or events at home that might be affecting the child, their mood and attitude, and participation level. During this intervention, it was consequential to give as much feedback and praise as possible. This is because these frequent instances of feedback, whether in the form of correction, example, or praise, allowed the children to hear the word again, reflect on and adjust their pronunciation, as well as provide a "social reward" for the effort they were putting into the activity. Another way in which feedback and praise can motivate a child who may not be participating as much is in their hearing praise given to the other child in

the dyad for answering correctly and then wanting that recognition as well. This can increase the motivation for the child to respond to the next prompt.

Although this intervention was set up in a free-play choice setting, there were multiple opportunities throughout the day to engage children in constructive play. Combined with a naturalistic approach, such as slipping various vocabulary word pairings in English and Spanish into a play and conversation could also benefit their learning. An example of this would be children playing in the dramatic play or housekeeping area where various vocabulary words for household items could easily be incorporated. In this context, instead of using pictures or drawings as in this study, the realistic play items would provide a visual representation that could be manipulated and actually used during play. Another example would be directing children with short phrases as to what they are supposed to be doing, such as washing their hands before lunch or snack. Combining the English phrase with the Spanish phrase, as well as doing hand-washing motions or pointing to the hand washing directions would allow the child to hear both linguistic forms of the directions, along with pairing the directive with visuals. These are just a couple of examples of many possible opportunities where Spanish vocabulary could be used and incorporated into the daily activities and routines of the preschool setting. The intensive intervention design of this study with multiple discrete trials per activity may not be practical for only one teacher and an aide in a typical preschool setting. However, as noted previously, prompting of vocabulary words and phrases in English and Spanish, along with use, throughout more naturalistic daily activities and routine would still be beneficial for learning.

Conclusion

This study demonstrated the successful use of direct instruction, combined with engaging hands-on activities, in teaching Spanish vocabulary to preschool children. As such, it replicates similar work of Griva and Sivropoulou (2009) and further supports the usefulness of direct instruction (Ramirez & Jones, 2012; Sibold, 2011) and active exploration (Jalongo & Sobolak, 2011). There are some important limitations, but these are addressable with future research that will replicate and extend these findings.

Instruction not only occurs across domains for the child, but across settings, so extending their learning of a second language to the home would be beneficial for the child's overall learning experience. An example of this would be the Family Backpack Project (Rowe & Fain, 2013), which extends literacy between home and school contexts and engages the parents in learning both languages as well, by listening to audio books in both languages and pulling out relevant vocabulary. Another similar project, the Bilingual Journaling Approach (Caesar & Wolf Nelson, 2014), takes the lives of the learners and makes the simple events of their daily routine the activity material. At home, the parent and child are to describe what they did, such as going to the park or store, in their native language, again illustrating the events. Once at school, teachers work with the children to translate their personal stories into English, focusing on literacy and print knowledge.

With the number of Spanish speakers in the United States on the rise, education is likely to become increasingly bilingual, making it necessary to adapt their curriculum. The lessons learned in this study are applicable to teaching both English and Spanish to native English and native Spanish speakers. Direct instruction is a promising method for

bilingual education beginning in the preschool classroom. Considering the children

progressed greatly in pronunciation and independence over only a five-week period, for,

on average, thirty minutes of instruction time per week, imagine what could be

accomplished when incorporating second language instruction into a more naturalistic

play environment, leisurely, interactively, and routinely.

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Table 1

English and Spanish (in italics) Vocabulary Words for the Baseline Condition and the Five Themes

Family (Baseline)	Numbers	Colors	Body Parts	Household Items	Food
mom	one	red	arm	house	milk
	uno	*rojo*	*brazo*	*casa*	*leche*
dad	two	pink	head	bed	bread
	dos	*rosa*	*cabeza*	*cama*	*pan*
sister	three	green	eyes	table	cheese
	tres	*verde*	*ojos*	*mesa*	*queso*
baby	four	blue	leg	chair	meat
	cuatro	*azul*	*pierna*	*silla*	*carne*
grandma	five	black	hand	bathroom	candy
	cinco	*negro*	*mano*	*baño*	*dulce*

Table 2

Definitions and Examples for Instructional Trial Terms

Terms	Definitions	Examples
Prompt Levels		
One	Pairing the English and Spanish words together	"The Spanish word for *one* is *uno*."
Two	Saying the Spanish word without pairing with the English word	"Can you say *leche*?"
Three	Giving the starting sounds of the Spanish word	"What is the Spanish word for *leg*? P-p-pier-…"
Four	Asking what the Spanish word is for an English word	"What's the Spanish word for *house*?"
"Reverse" Four	Asking what the English word is for a Spanish word	"Can you point to *queso*?"
Five	Spontaneous, independent use of the Spanish word (no prompting from researcher)	"That one is what? *Cabeza*." (points)
Use	Demonstrating knowledge of the word by pointing to a picture, pairing a word card and picture card, asking a question about the word, correcting a classmate, independent use, or another form of identification that may not be spoken	Pointing to the correct picture when asked, "Can you find a *cama* on the map?" or "What is *mano* again?"
Feedback	A response at the end of a trial by the researcher, such as a correction, example, or praise	"Close, *que-so*," "Good job," "Right, *casa* is *house*."
Trial	The full "cycle" of prompt, response (pronunciation and use), and feedback and praise based around a Spanish word *A trial could also emerge from the spontaneous word use of a child **Whether directed to an individual child or started by a child, all participants have an equal opportunity to respond to the prompt	"This one is *mano*, can you say *mano*?" "*Mono...*" "Very close, *maaaa-no*." "*Maaaa-no*." "Great job! *Mano* is *hand* in Spanish."

Table 3

Themes and Activities for Each Week, with the Times, Number of Trials, and Seconds per Trial (s/t) for Each Child

Week and Words	Day and Activities	Child					
		April	Lynne	Sara	Cole	Ethan	Thad
Week 2: Family (baseline)	1. Roles of the Family Members	6:25 m	6:25 m	4:47 m	6:29 m	4:47 m	6:29 m
	2. Family Member Memory	3:50 m	5:05 m	(absent)	5:05 m	5:05m	5:05 m
	3. Family Fill-In Book	7:35 m	(absent)	(absent)	(absent)	8:28 m	7:03 m
Week 3: Numbers	1. Number Roll	8:24 m 52 trials 9.7 s/t	5:33 m 33 trials 10.1 s/t	7:48 m 49 trials 9.6 s/t	5:33 m 33 trials 10.1 s/t	8:24 m 52 trials 9.7 s/t	7:48 m 49 trials 9.6 s/t
	2. Pom-Pom Math	5:37 m 21 trials 16.0 s/t	7:47 m 41 trials 11.4 s/t	8:05 m 41 trials 11.8 s/t	7:01 m 41 trials 10.3 s/t	5:30 m 34 trials 9.7 s/t	8:05 m 41 trials 11.8 s/t
	3. Uno	5:55 m 35 trials 10.1 s/t	5:39 m 31 trials 12.9 s/t	6:44 m 70 trials 5.8 s/t	5:55 35 trials 10.1 s/t	5:39 31 trials 12.9 s/t	6:44 m 70 trials 5.8 s/t
Week 4: Colors	1. Pom-Pom Color Patterns	7:50 m 42 trials 11.2 s/t	7:50 m 42 trials 11.2 s/t	11:13 m 79 trials 8.5 s/t	10:34 m 57 trials 11.1 s/t	10:34 m 57 trials 11.1 s/t	11:13 m 79 trials 8.5 s/t
	2. Go Fish!	7:48 m 39 trials 12.0 s/t	7:30 m 23 trials 19.6 s/t	10:35 m 49 trials 13.0 s/t	10:35 m 49 trials 13.0 s/t	6:25 m 32 trials 12.0 s/t	7:48 m 39 trials 12.0 s/t
	3. Twister	(absent)	(absent)	5:14 m 36 trials 8.7 s/t	5:14 m 36 trials 8.7 s/t	5:40 m 32 trials 10.6 s/t	5:40 m 32 trials 10.6 s/t

Week and Words	Day and Activities	Child					
		April	Lynne	Sara	Cole	Ethan	Thad
Week 5: Body Parts	1. Body Parts Puzzle	7:34 m 38 trials 11.9 s/t	9:53 m 47 trials 12.6 s/t	4:57 m 26 trials 11.4 s/t	4:57 m 26 trials 11.4 s/t	9:53m 47 trials 12.6 s/t	7:34 m 38 trials 11.9 s/t
	2. Go Fish!	10:17 m 33 trials 18.7 s/t	10:10 m 43 trials 14.2 s/t	9:40 m 51 trials 11.4 s/t	10:10 m 43 trials 14.2 s/t	10:17 m 33 trials 18.7 s/t	9:40 m 51 trials 11.4 s/t
	3. Mr. Potato Head	(absent)	7:18 m 15 trials 29.2 s/t	9:45 m 33 trials 17.7 s/t	7:05 m 21 trials 20.2 s/t	(absent)	15:05 m 25 trials 36.2 s/t
Week 6: Household Items	1. Household Hunt	7:43 m 22 trials 21.0 s/t	7:43 m 22 trials 21.0 s/t	7:40 m 41 trials 11.2 s/t	6:51 m 26 trials 15.8 s/t	6:12 m 19 trials 19.6 s/t	(absent)
	2. Household Bingo	11:21 m 22 trials 15.5 s/t	12:32 m 44 trials 17.1 s/t	12:32 m 44 trials 17.1 s/t	9:10 m 28 trials 19.6 s/t	9:10 m 28 trials 19.6 s/t	11:21 m 44 trials 15.5 s/t
	3. Household Memory	10:12 m 21 trials 29.1 s/t	10:12 m 21 trials 29.1 s/t	8:32 m 23 trials 22.3 s/t	6:37 m 22 trials 18.0 s/t	8:32 m 23 trials 22.3 s/t	6:37 m 22 trials 18.0 s/t
Week 7: Food	1. Food Puzzles	8:37 m 22 trials 23.5 s/t	6:32 m 21 trials 18.7 s/t	6:32 m 21 trials 18.7 s/t	6:46 m 24 trials 16.9 s/t	8:37 m 22 trials 23.5 s/t	6:46 m 24 trials 16.9 s/t
	2. Match and Spell	7:36 m 25 trials 18.2 s/t	7:33 m 32 trials 14.2 s/t	10:59m 33 trials 20.0 s/t	7:36m 25 trials 18.2 s/t	7:33 m 32 trials 14.2 s/t	10:59 m 33 trials 20.0 s/t
	3. Grocery List Match-Up Game	7:45 m 23 trials 20.2 s/t	6:12 m 18 trials 20.7 s/t	10:15m 32 trials 19.2 s/t	7:45 m 23 trials 20.2 s/t	6:12 m 18 trials 20.7 s/t	10:15 m 32 trials 19.2 s/t

Table 4

Results from the Pre-Test and Post-Test of English and Spanish Vocabulary Words for the Six Children, Including Number of Correct and Incorrect Words, and Mean Time Taken to Select Correct and Incorrect Words

Testing (Pre and Post)	Child					
	April	Lynne	Sara	Cole	Ethan	Thad
Pre-test						
English words						
Number of correct words	15	13	14	12	15	15
Mean time: Correct words	1.7 s	2.2 s	1.6 s	2.3 s	2.2 s	1.1 s
Mean time: Incorrect words		5.0 s	2.0 s	4.3 s		
Spanish words						
Number of correct words	6	3	3	5	4	7
Mean time: Correct words	5.2 s	3.3 s	3.0 s	2.0 s	5.5 s	6.9 s
Mean time: Incorrect words	3.4 s	4.0 s	3.5 s	2.6 s	4.4 s	4.5 s
Post-test						
English words						
Number of correct words	15	15	15	15	15	15
Mean time: Correct words	1.1 s	1.1 s	1.0 s	1.1 s	1.0 s	1.0 s
Mean time: Incorrect words						
Spanish words						
Number of correct words	12	8	11	6	3	10
Mean time: Correct words	2.0 s	1.8 s	2.1 s	1.0 s	1.3 s	1.9 s
Mean time: Incorrect words	9.7 s	3.7 s	2.0 s	1.9 s	2.9 s	8.8 s

Table 5

Correct Identification of Each English and Spanish Word on the Pre- and Post-Tests for Each Child

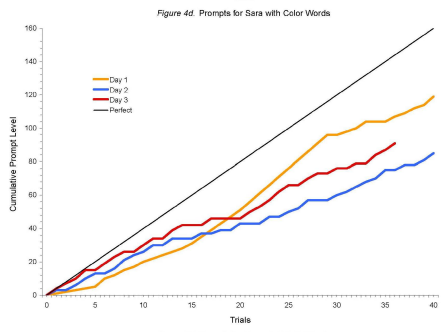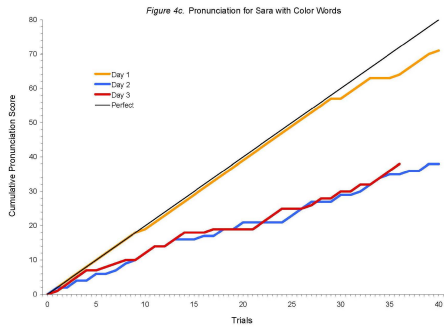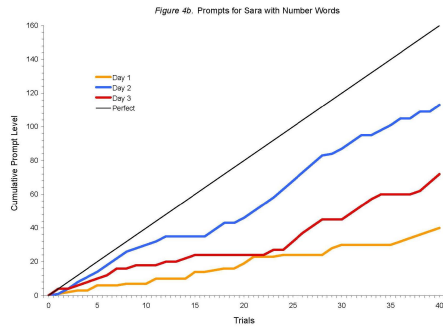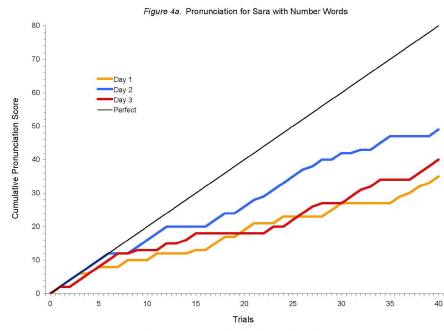| Words	April Pre	April Post	Lynne Pre	Lynne Post	Sara Pre	Sara Post	Cole Pre	Cole Post	Ethan Pre	Ethan Post	Thad Pre	Thad Post
Leche	X	X			X	X			X	X	X	X
Cuatro	X	X		X								
Pierna	X	X							X		X	X
Padre	X		X	X		X	X				X	X
Verde			X	X				X			X	X
Pan		X		X		X				X	X	X
Uno	X	X		X		X						
Casa	X	X			X			X	X			X
Rosa		X		X		X		X		X	X	X
Negro		X		X		X						
Baño		X				X						X
Carne		X		X		X	X	X	X		X	X
Rojo		X			X	X	X	X				X
Mano			X			X	X					
Dulce		X				X	X	X				
Total	6	12 (5)	3	8 (2)	3	11 (2)	5	6 (3)	4	3 (1)	7	10 (7)

Note. For the Total, the values in parentheses indicate the number of words that were identified correctly on both the pre- and post-tests.
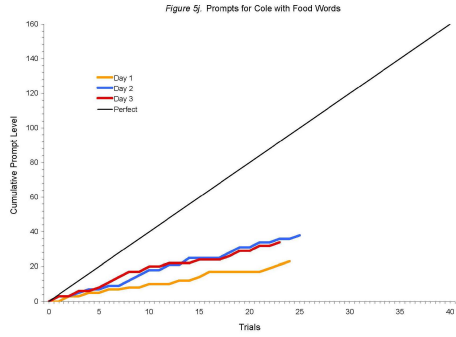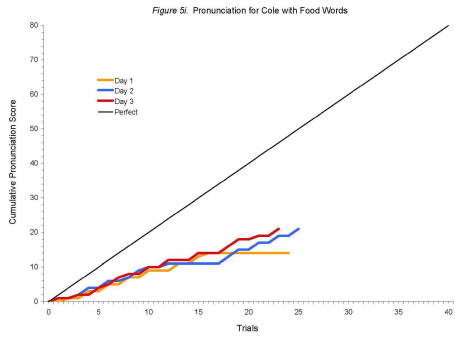
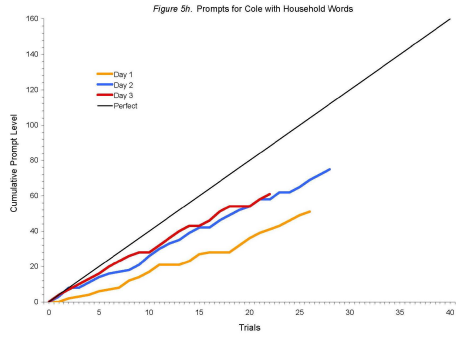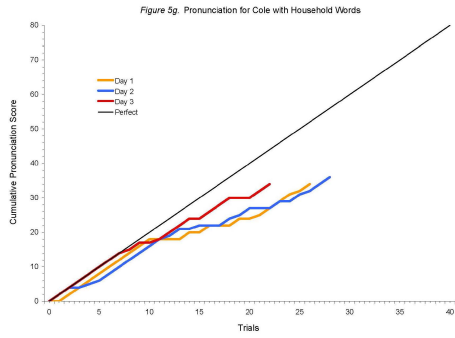*Figure 1.* Example of a pre- and post-test picture cards to assess receptive language in English and Spanish.

Figure 2a. Pronunciation for April with Number Words

Figure 2b. Prompts for April with Number Words

Figure 2c. Pronunciation for April with Color Words

Figure 2d. Prompts for April with Color Words

Figure 2e. Pronunciation for April with Body Words

Figure 2f. Prompts for April with Body Words

Figure 2g. Pronunciation for April with Household Words

Figure 2h. Prompts for April with Household Words

Figure 2i. Pronunciation for April with Food Words

Figure 2j. Prompts for April with Food Words

Figure 3a. Pronunciation for Lynne with Number Words

Figure 3b. Prompts for Lynne with Number Words

Figure 3c. Pronunciation for Lynne with Color Words

Figure 3d. Prompts for Lynne with Color Words

Figure 3e. Pronunciation for Lynne with Body Words

Figure 3f. Prompts for Lynne with Body Words

Figure 3g. Pronunciation for Lynne with Household Words

Figure 3h. Prompts for Lynne with Household Words

Figure 3i. Pronunciation for Lynne with Food Words

Figure 3j. Prompts for Lynne with Food Words

Figure 4a. Pronunciation for Sara with Number Words

Figure 4b. Prompts for Sara with Number Words

Figure 4c. Pronunciation for Sara with Color Words

Figure 4d. Prompts for Sara with Color Words

Figure 4e. Pronunciation for Sara with Body Words

Figure 4f. Prompts for Sara with Body Words

Figure 4g. Pronunciation for Sara with Household Words

Figure 4h. Prompts for Sara with Household Words

Figure 4i. Pronunciation for Sara with Food Words

Figure 4j. Prompts for Sara with Food Words

Figure 5a. Pronunciation for Cole with Number Words

Figure 5b. Prompts for Cole with Number Words

Figure 5c. Pronunciation for Cole with Color Words

Figure 5d. Prompts for Cole with Color Words

Figure 5e. Pronunciation for Cole with Body Words

Figure 5f. Prompts for Cole with Body Words

Figure 5g. Pronunciation for Cole with Household Words

Figure 5h. Prompts for Cole with Household Words

Figure 5i. Pronunciation for Cole with Food Words

Figure 5j. Prompts for Cole with Food Words

Figure 6a. Pronunciation for Ethan with Number Words

Figure 6b. Prompts for Ethan with Number Words

Figure 6c. Pronunciation for Ethan with Color Words

Figure 6d. Prompts for Ethan with Color Words

Figure 6e. Pronunciation for Ethan with Body Words

Figure 6f. Prompts for Ethan with Body Words

Figure 6g. Pronunciation for Ethan with Household Words

Figure 6h. Prompts for Ethan with Household Words

Figure 6i. Pronunciation for Ethan with Food Words

Figure 6j. Prompts for Ethan with Food Words

Figure 7a. Pronunciation for Thad with Number Words

Figure 7b. Prompts for Thad with Number Words

Figure 7c. Pronunciation for Thad with Color Words

Figure 7d. Prompts for Thad with Color Words

Figure 7e. Pronunciation for Thad with Body Words

Figure 7f. Prompts for Thad with Body Words

Figure 7g. Pronunciation for Thad with Household Words

Figure 7h. Prompts for Thad with Household Words

Figure 7i. Pronunciation for Thad with Food Words

Figure 7j. Prompts for Thad with Food Words

Figure 8. Percent of Total Trials with Use (Values in Bars are Number of Trials)

Figure 9. **Percent of Trials with Use by Prompt Level (Values in Bars are Number of Trials)**

Appendix A

Sample Score Sheet for Pre-Test and Post-Test

Child: _____   Code: _____

Pre-test: _____ Post-test: _____

Correct Identification = ✔; Incorrect Identification = Ø

Picture Card One   Date: Score: _____ / 6 correct

Picture Identified	blue	milk	mom	four	leg	table
Word Spoken						
blue						
leche						
mom						
cuatro						
pierna						
table						

Picture Card Two   Date: Score: _____ / 6 correct

Picture Identified	dad	eyes	green	bread	three	bed
Word Spoken						
padre						
eyes						
verde						
pan						
three						
bed						

Appendix B

Sample Lesson Plan for Themed Spanish Activities

Week Six - Food
milk-leche   bread-pan   cheese-queso   meat-carne   candy-dulce

Activity 3: Grocery List Match-Up Game   **Date of Lesson:** October 31, 2014

Description of Activity:
o The children will work individually or in a small group with the instructor
o The children will pick cards placed upside down to try to find two pictures that match; the cards are pictures of the vocabulary words with the English and Spanish labels written on them
o As the children match the cards, they put them in their "grocery bag" and mark the items off their grocery list with a dry erase marker
o Throughout the game, the children will identify the words in English and Spanish, repeating after the researcher

Goals of Activity:
o Following directions and steps in the game, while respecting other players
o Making connections between the matching pictures and the written English and Spanish words
o Engaging in play and peer interaction by helping each other identify words and commenting about vocabulary words and matches

Materials:
o Picture cards labeled in English and Spanish
o Paper "grocery" bags (2)
o Laminated grocery lists (2)
o Dry erase markers (2)

Objectives for Lesson (WV Content Standards)**:**
o *Social/Emotional Development* 2.8 - Begins to share materials and experiences and take turns
o *Language/Literacy* 2.12 - Recognizes a word as a unit of print
o *Mathematics* 1.5 - Uses comparative words such as more, less, fewer, equal to

Appendix C

Sample Data Sheet for Coding Video Recordings of Activities

Child: _____   **Date**: _____

Theme: _____   **Day**: 1   2   3

Time In: ___:___   **Time Out**: ___:___   **Time In**: ___:___   **Time Out**: ___:___

	Uno	Dos	Tres	Cuatro	Cinco
1	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N
2	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N
3	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N
4	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N
5	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N
6	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N
7	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N	Prompt: Y N P: 0 1 2 U: 0 2 W: _____ FB/P: Y N