TEACHING EMERGENT LITERACY SKILLS IN ENGLISH
TO A CHILD WITH DOWN SYNDROME
WHOSE HOME LANGUAGE IS ARMENIAN

A thesis submitted in partial fulfillment of the requirements
For the degree of Master of Arts in Special Education,
Early Childhood Special Education

By
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DEDICATION

This work is dedicated to the focus family for allowing me into their lives, and for sharing with me their hopes and dreams and daily life. I would like to extend special thanks to the focus child, without whose participation this research would not have been completed.

California State University, Northridge
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ABSTRACT

TEACHING EMERGENT LITERACY SKILLS IN ENGLISH TO A CHILD WITH DOWN SYNDROME WHOSE HOME LANGUAGE IS ARMENIAN

By

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Master of Arts in Special Education,
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Children with Down syndrome learn differently than their typically developing peers. These learning differences create challenges for meeting the required educational standards of achievements throughout the academic life of the student. Differences in learning are apparent as early as preschool, in the emergent literacy skills of pre-reading, and in kindergarten when pre-reading acquisition and literacy comprehension are educational standard expectations. Teaching reading to children with Down syndrome poses challenges in that the skill acquisition stages of children with Down syndrome do not align with the prescribed teaching practices for typically developing children.

The No Child Left Behind (NCLB) act of 2001 mandates that all children be taught reading skills, using evidence-based approaches that include phonological awareness and literacy comprehension. Children with Down syndrome present learning differences from typically developing peers, and commonly fail to respond to comprehension and phonologically based reading strategies, especially in the primary grades.
This case study is the result of one year of field research (2010-2011) under the Culture in Early Childhood Special Education Project at California State University, Northridge. The study examined a functional language experience approach designed within the zone of proximal development of a particular child [focus child] with Down syndrome, in the naturalistic setting of the focus child’s home to introduce emergent literacy and pre-reading activities to scaffold the focus child’s level of abilities prior to the second year of preschool. The intervention was designed with the intention of encouraging an interest in literacy at the emergent level, and in preparation for pre-reading instruction scheduled to take place in the preschool classroom the following school year. Data was collected during each session, on three areas of ability, (visual attention, oral response, and physical attention), to determine emergent literacy interest and pre-reading skills development.

Results indicate that the focus child showed an increased ability to attend to the lessons in all three areas over the period of three weeks of intervention in the naturalistic setting of the home when distractions were limited and when accommodations were made for the focus child’s needs. Evidence of distractibility was found to reduce the focus child’s ability to attend to the lesson materials being presented, causing a sharp decrease in the numbers of successful responses in all three areas of opportunities.

This case study suggests the importance of recognizing the different learning styles of children with Down syndrome, while teaching within the individual student’s zone of proximal development. The study also found that the focus child’s level of distractibility played a significant role in how many times responses could be recorded when opportunities were made available to demonstrate attention.
Chapter One

Introduction

The literature review discusses the requirements for teaching reading to preschool children, and investigates several of the most widely accepted strategies used to teach typically developing children, and the implications for children with Down syndrome. The focus of the case study documents the emergent reading intervention strategies selected for a particular child with Down syndrome, (the focus child), and the implementation of the intervention that took place over a 15-day period in the focus child’s home. Data collected during the intervention is graphed and analyzed, with a discussion and implications in conclusion. Findings are discussed with implications for practice.

Cause of Down Syndrome

Down syndrome occurs during the process of cellular division, known as meiosis, and is evidenced by the faulty distribution of the 21st chromosome. The types of errors that may occur at any stage of chromosomal division during meiosis, and result in Down syndrome are identified as nondisjunction, translocation, and mosaicism, (Skallerup, 2008). The degree to which the individual is affected depends on how the affected cells are distributed throughout the developing fetus. Nondisjunction is the most common form of Down syndrome. Nondisjunction is the failure of one pair of chromosomes to separate evenly during meiosis, causing one daughter cell to receive 24 chromosomes, and the other daughter cell to receive 22 chromosomes. The daughter cell with two few chromosomes does not survive. The daughter cell with the extra chromosome continues its development through fertilization of the egg with the sperm. The resulting fertilized
egg has 47 chromosomes, instead of the normal 46 chromosomes. This condition is called trisomy, as it refers to the fertilized egg having three copies of chromosome 21, instead of two. The extra chromosome appears in all of the developing baby’s cells.

When a piece, or all of chromosome 21 breaks off and attaches itself to another chromosome it is called, translocation. Translocation occurs in about 4 to 5 percent of babies with Down syndrome. Three-fourths of incident of translocation occur spontaneously during fertilization, while only one-fourth are the result of a carrier parent. Because the developing baby has an entire extra chromosome in all the cells, the effects on the child are generally the same as nondisjunction Down syndrome, with the exception of rare cases of partial trisomy 21. Partial trisomy 21 is distinguished by the presents of only part of an extra chromosome 21 along with two complete number-21 chromosomes. There may be fewer physical characteristics and developmental delays resulting from the extra chromosome parts, or there may be no difference from a child with typical trisomy 21 (Skallerup, 2008).

Mosaicism is the least common form of Down syndrome, and affects about 1 percent of people with Down syndrome. In mosaicism, there are some cells with the correct number of chromosomes and some cells with an extra chromosome 21. The failure of chromosome 21 to separate correctly can occur at any point in meiosis. Although trisomy 21 most commonly occurs early in meiosis after fertilization, it can take place within the second or third cell division, and result in only some of the cells containing the extra chromosome. The developing baby may have fewer of the usual physical features, as well as higher intellectual abilities. The incident of losing the extra chromosome 21 during mitotic division is also a possibility, and would still be identified...
as mosaicism. How a baby is affected by mosaicism depends on where the extra genetic material is used in the body. As science continues to research the causes for the occurrence of Down syndrome, the only known correlate at the present time, is the maternal age of the mother. It is speculated that, because the eggs a woman carries are created at her own fetal stage, the chromosomes may become sticky with age, and fail to separate correctly at the time of fertilization. The occurrence of Down syndrome affects 1 in 732 live births. Eighty-five percent of individuals affected by Down syndrome present with mild to moderate cognitive impairment, (Cleland, Wood, Hardcastle, Wishart & Timmins 2010).

**Impact on Development**

Cognitive impairment in Down syndrome is evidenced by a weakness in short term memory, and impairment in the processing of information; that is, how information is received, organized, stored, and retrieved (Oelwein, 1995). For many children with Down syndrome, there is commonly a range of cognitive impairment along with physical differences in the facial structure, including; a small mouth, low muscle tone, and weak tongue strength, which impairs the ability to manipulate oral sounds (Cuskelley, Jobling & Buckley, 2002, Skallerup, 2008). These physical differences often delay oral language development to such a degree that another method of communicate becomes necessary in order to participate in a typical classroom setting. Typical children entering preschool are able to participate in oral language lessons to practice the pre-reading strategies of orally isolating phonemic utterances, such as singing, playing, rhyming, alliteration games, and clapping out the syllables of names or words. For children with Down syndrome, the ability to orally articulate phonemes is often delayed by several years. Therefore, the use
of alternate strategies will allow the child to access the curriculum and remain at grade level. These oral differences as well as hearing, cognitive processing, and delayed musculature development of both oral and fine motor skills, significantly impact the effectiveness of phonics based strategies for teaching reading to children with Down syndrome (Jarrold, Thorn, & Stephens, 2009, Laws & Gunn, 2004).

Statement of the Problem

Understanding the learning differences of children with Down syndrome, as well as recognizing the learning style needs of the individual student, presents a challenge to educators that create new opportunities for educational strategy implementation that may otherwise not be tried. The current research in the field of teaching emergent literacy skills to children with Down syndrome suggests lessons that work well in tandem with the use of the child’s zone of proximal development. The scaffolded lessons and implementation of each activity continue to be applicable in the naturalistic setting of the child’s home, and allow for an increased experience of joy for the student, and participation by the family.

During the first year of preschool the focus child was observed to be developing increased abilities, albeit at a steady yet slower rate than some peers in the classroom. The development and readiness for emergent literacy skills appeared to be comparatively delayed when factored with the focus child’s ability to visually attend, orally respond, and physically attend to lessons in the classroom. These delays concerned the family and were ultimately addressed through this case study.
Chapter Two

Literature Review

The No Child Left Behind (NCLB) act of 2001, and the extended and amended authorization in 2002 (H. R. 1., P.L. 107-110) requires the use of evidence-based approaches for the education of children in reading, mathematics, and science. Major features of the NCLB act require states to implement standards-based assessments in reading, mathematics, and science for pupils in grades three through eight. A goal for all states is for students to achieve an academic ability level of proficient or higher by the end of the 2013 – 2014 school year. To provide adequate support for reaching these goals, the federal government provides funding for assessment development, increased standards for paraprofessionals, recruitment and professional development programs for teachers, and new reading programs for students. Although there is no explicit reference to any specific reform models for schools failing to meet adequate yearly progress standards under Title I-A, the NCLB act does require the use of scientifically based research and effective practices. Subpart 2-Early Reading First, SEC. 1221 defines its purpose as, to demonstrate language and literacy activities based on scientifically based reading research that supports age appropriate development, recognition of letters, knowledge of letter sounds, blending of sounds, understanding phonemes, syllables, words and sentences, understanding spoken language and oral comprehension, and knowledge of the conventions of print in reference to preschool children.

Major Reading Approaches

Five major approaches used to teach reading to young children are: the basal reading approach, the language experience approach, the individualized approach, the
linguistic approach, and the psycholinguistic approach. All of these approaches are designed for the general education of young children (Oelwein, 1995). These general education approaches are designed with the expectation that the learner is capable of mastering the age appropriate developmental milestones for their age group, and require typical cognitive development. Most of these approaches require typical oral-language development, and some also require that typical fine-motor skills develop on time, for printing practice lessons, in conjunction with reading acquisition skills. With the inclusion of children with special needs in general education classrooms, effective educational strategies for a range of learners becomes imperative in order to meet the requirements of inclusion as required by the Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004).

In 2002, the National Early Literacy Panel (NELP) partnered with the National Institute for Literacy (NIFL) and cooperating agencies from the Partnership for Reading, to gather and synthesize the scientific research on the development of early literacy skills in children ages zero to five. Their key findings include the domains of early literacy skills important to the future development of successful literacy achievement. Early literacy skills are defined as the precursors predictive of foundational, and/or emergent skills that lead to the ability to engage in the conventional literacy skills, which are clearly the focus of reading, writing and spelling, and have a consistently strong relationship with later conventional literacy skills. The joint panel report identified research that provided correlational evidence between early literacy skill attainment and later literacy growth in decoding, reading comprehension, or spelling. The panel sought to identify interventions, parenting activities, and instructional practices that promote the
development of children's early literacy skills. Four questions focused on the skills and abilities considered predictive of later reading, writing, or spelling outcomes, programs and interventions and other institutional approaches or procedures that have contributed or inhibited gains in children's skills and abilities as linked to later outcomes in reading, writing or spelling, environmental settings which have contributed or inhibited children's skills and abilities in reading, writing or spelling, and child characteristics which contribute or inhibit children's outcome in reading, writing or spelling, (National Early Literacy Panel, 2008).

The *California Preschool Learning Foundations* Volume I identifies four domain areas as key knowledge that three to five-year old children need to be competent in before entering a general education kindergarten classroom. These domains include: social-emotional development, language and literacy, English-language development, and mathematics. The language and literacy domain includes: development in pre-reading skills, such as, concepts about print, phonological awareness, alphabetics, word and print recognition, comprehension and analysis of age-appropriate text, literacy interest, and response to literacy based questions (California Department of Education, 2008.)

Children with special needs enter preschool with challenges specific to their disability, and with the need to learn the expected foundational skills. The Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004) mandates a free and appropriate public education, with the inclusion of children with special needs in general education classrooms when appropriate, as the least restrictive environment. The achievement of the preschool learning foundations for general education classroom inclusion in kindergarten is an important goal for the special education preschool student,
and the teacher. Each student with special needs has an individual education plan (IEP) that requires the teacher to implement strategies that will allow the student to achieve the IEP goals in the least restrictive environment.

The California Department of Education (CDE) kindergarten reading standards for literature include a strong base in comprehension of the elements of the story, as well as the foundational skills of phonological awareness of letters and words. Because of the learning differences of children with Down syndrome, there is a disparity in what is valued by the CDE and in what is scientifically supported by NCLB act of 2001, and what the individual child with Down syndrome will be able to achieve as pre-reading skills.

Learning Differences

Children with Down syndrome pose unique learning differences from their typical peers. Down syndrome includes cognitive impairment, identified as mental retardation. Cognitive impairment in Down syndrome is evidenced by a weakness in short term memory, and impairment in the processing of information; that is, how information is received, organized, stored, and retrieved. Individuals with Down syndrome may also have hearing difficulties, differences in the musculature structures of the face, which impact oral language development, and slower than typical development of the fine motor skills in the hands, required for functional manipulation of writing instruments. These differences in hearing, cognitive processing, and the delayed musculature development of both oral and fine motor skills, limits the effectiveness of the five major reading approaches mentioned, and significantly impact the effectiveness of phonics based strategies for teaching reading to children with Down syndrome.
Phonological Awareness

Phonological awareness refers to an individual’s ability to detect and manipulate the sounds in language at three levels: syllabic, onset and rhyme, and phonemic. Phonological awareness skills include: the ability to detect rhyming words and similar consonants, the ability to segment words into smaller units, the ability to blend separate sounds into words, the understanding that words are made up of sounds represented by symbols or letters, and the ability to manipulate sounds in words by adding, deleting, or substituting sounds. Cognitive processing, oral enunciation, and short term memory difficulties challenge learners with Down syndrome when attempting new word and novel word sound learning involved in phonological awareness. These learning difficulties impact children with Down syndrome ability to learn to read using phonics based strategies (Jarrold, Thorn & Stephens, 2009; Lemons & Fuchs, 2010).

Short-Term Memory

Laws and Gunn (2004) recorded the language and memory progress of thirty individuals with Down syndrome, over a five-year period, to investigate the role of phonological memory abilities and language comprehension. Although participants were five to nineteen-years of age, the researchers noted that the early development of oral language requires access to short-term memory for phonological looping and vocabulary acquisition. Interestingly, this study identified sixteen of the participants as readers, and stated that only these sixteen participants with reading skills showed evidence of having acquired a level of phonological awareness. These participants also scored better on vocabulary tests, and on non-word repetition tests, indicating a relationship between reading, vocabulary and memory. Because phonological measures were not available at
the onset of the research, this relational hypothesis could not be tested at the conclusion of the study (Laws & Gunn, 2004). The implication may be that, although these children with Down syndrome did not initially learn to read using phonological strategies, these children showed an increased understanding of phonological knowledge and increased vocabulary comprehension after learning to read using a sight-word reading method.

**Reading Comprehension**

Another skill difference for children with Down syndrome is reading comprehension. Reading comprehension is influenced by decoding skills, and listening comprehension abilities. Decoding is based on phonological ability, while listening comprehension is based on language comprehension. As has been discussed, children with Down syndrome are challenged at phonological awareness, and are less skilled at decoding. They also demonstrate lower linguistic listening comprehension, such as poor sentence comprehension (Roch & Levorato, 2009). What do these learning differences mean for teaching pre-reading skills to children with Down syndrome? The first implication is that phonological awareness may not be achieved at the preschool level. If phonological awareness is acquired after reading skills are established, then teaching reading using a phonics-based approach may be a poor match for many early learners with Down syndrome, in the preschool setting. Secondly, if linguistic listening skills have not developed because of limited language comprehension, the learner’s vocabulary must be supported to increase listening comprehension. What strategies can be implemented to support language acquisition and prepare children with Down syndrome for reading instruction?
Teaching parents a naturalistic approach to language acquisition strengthens weak linguistic listening comprehension and increases expressive language skills for the child with Down syndrome (Vilaseca & Del Rio, 2004). Teaching listening skills prior to the introduction of a reading instruction program, may be an important scaffold to the pre-reading instructional strategies that are a part of the preschool classroom. Vilaseca and Del Rio (2004) identified two types of naturalistic interventions: The indirect or mediated naturalistic approach, which is easily utilized by the parent, and the direct naturalistic approach, utilized by the professional. These approaches contrast with the rehearsal and repetition approach of a formal teaching-learning situation typical in many therapeutic settings. Vilaseca and Del Rio (2004) investigated whether language gains through an indirect approach were maintained better if the parent received instruction on the strategy at home. The findings showed gains in verb usage in the therapeutic setting, although language skills were not generalized.

**Reading Strategies for Children with Down Syndrome**

According to Roch and Levorato (2009) the simple view of reading theory identifies decoding and language comprehension as the components necessary for successful reading skills. The components are broken down into the equation: decoding (D) x language comprehension (LC) = reading comprehension (RC). These researchers investigated the specific contributions of the two components in reading comprehension for children with Down syndrome, and found that listening (language comprehension), not word reading (decoding) ability, influenced reading comprehension. The simple view of reading formula accurately measures typically developing individuals' reading
comprehension. However, for individuals with Down syndrome, only listening comprehension appears to predict reading comprehension (Roch & Levorato, 2009).

Boudreau and Chapman (2000) compared the linguistic and cognitive aspects of narrative abilities of a group of children with Down syndrome. The results indicated dissociation between linguistic and cognitive aspects of narratives for children with Down syndrome. These children used linguistic structures and cohesive devices that were disparate from the complexity of the event content. The researchers hypothesize that the results indicated that individuals with Down syndrome have a limited ability to map linguistic structures to communicate more complex relationships in narrative contexts.

A journal discussion by Margaret Farrell and John Elkins (1994) iterates the lifelong learning abilities of individuals with Down syndrome, and refers to these learners desire to learn to read as increasing as they mature into their mid-teens when traditionally, vocational training becomes the focus rather than academic instruction. This argues against the research data, which shows a plateau in adolescence, with some test participant’s results including negative scores (Laws & Gunn, 2004). Farrell and Elkins (1994) comment that teachers may fail to recognize their students’ limited metalinguistic and metacognitive knowledge in relation to their chronological ages early on during literacy instruction, and that it is only when the child matures that comprehension of increasingly complex ideas is possible, which in turn makes reading a meaningful endeavor. The research findings of Lemon and Fuchs (2010) indicate that some children with Down syndrome do learn phonological awareness, albeit, at a delayed rate. For these children, systematic reading instruction that incorporates elements of
phonological awareness, letter-sound knowledge, and decoding may hold promise as effective strategies.

What are the important child characteristics that are predictive for determining who will benefit from a systematic reading intervention program? Lemons and Fuchs (2010) analyzed the individual growth curve of 24 children with Down syndrome between 7 and 16 years of age to examine predictive relationships between individual child characteristics and responsiveness to reading intervention. The qualifying factor under consideration for systematic reading instruction was a readiness for reading, (i.e., the ability to read one word, or identify one letter sound). Other requirements of the study, but of importance developmentally for instruction, include: the ability to participate in one-to-one instruction, hearing and seeing well enough to benefit from typical classroom instruction, and speech that is understandable. During the 30 hours of one-to-one intervention, delivered daily for 30-minute sessions, scores were assessed to determine benefit from instruction. Not all students benefited from the strategy. To better understand how to effectively modify instruction to meet the needs of these and other children who fail to respond to this type of instruction, more research was deemed necessary.

Sue Buckley answers the question regarding the predictability of who will benefit from reading instruction by stating that, “[t]he only way to find out what level of literacy each child is able to achieve is to give him or her every opportunity to learn with well planned teaching activities from preschool years to adult life” (Buckley, 2001, p. 2). In another article by Buckley and Bird, the implementation of the errorless learning approach is advocated for children with Down syndrome to keep learning fun. Errorless
learning builds the experience of success and increases the child’s self-confidence as the teacher supplies guidance at each step of learning, until that support can be faded, at which point the child does the whole task independently (Buckley & Bird, 1993).

The Functional Language Experience Approach

The functional language experience approach, adapted for children with Down syndrome suggests that auditory memory limitations negatively impact these children’s verbal language skills (Oelwein, 1995). Because of this limitation the approach uses visual discrimination skill building to teach reading. Oelwein lists the stages of learning as: acquisition, practice to fluency, transfer, and generalization, and recommends creating an experience of success by breaking the task of reading down into small, simple tasks. If the task is too difficult, go back to a simpler level to practice at that level, or change the reading material. If the child is not demonstrating success, or is not showing interest, put the lesson away for a few weeks or months and start fresh later. According to Oelwein, the experience of failing creates a dislike for reading and a resistance to instruction, which may persist.

Differences in the Development of Children with Down Syndrome

The Swiss developmental psychologist, Jean Piaget (1896-1980) recognized that children influence their cognitive development through exploratory activity, which he identified as the information processing approach. In this regard, Piaget recommended that children be given learning materials appropriate to each stage of growth. He emphasized the relationship between biological maturation of the individual and mental processing. Piaget’s theory of child development arose from his observations of typically

“...We must all be able and willing learners, if we are going to be effective in teaching the child with special needs. We must learn to learn from the child: to learn to respond to and adapt to his cues (rather than expecting the child to always respond and adapt to ours); to learn how the child learns best—through visual or auditory stimuli—and develop materials and techniques to maximize his learning; to learn to teach him how to compensate for his impairments, (rather than to try to fix them or ignore them); to learn to recognize when our instruction is ineffective or inappropriate for the child, and be willing to change our approaches; to learn what we can teach the child that will be most useful and meaningful to him, and be willing to change his curriculum to meet his needs; and to learn how to apply basic learning and behavioral principles to the individual, given his differences....”

It is clear from Oelwein’s research on children with Down syndrome that the teacher needs to be familiar with the child’s areas of interest, learning styles, and readiness to learn the materials being presented.

**Vygotsky’s Theory on Thought and Language**

Vygotsky found it important to argue his theoretical findings on the development of speech as foundationally different from Piaget’s by iterating the point that language
develops in relationship with thought, and thought is influenced by social and cultural experiences. He reasoned that to the child, the use of a single-word utterance was as meaningful as a complete sentence. Vygotsky explained that to the child, each word has its meaning, and the word formed the complete thought. "A child’s thought, precisely because it is born as a dim, amorphous whole, must find expression in a single word." (Vygotsky, 1986). He contended that the development of longer sentences arose out of the child’s need to express more complex ideas. Thus, the single-word’s relationship with the object would change, and require the use of separate semantic units, as in longer sentences, which the child would continue to develop by engaging in the act of speaking. He based his arguments on the function of inner speech in relation to the child’s egocentric development, and the process of socialization as it relates to the development of external speech in social communication. He used these concepts as his foundation to elaborate on his theory that a word’s meaning changes as the object it identifies interacts with the environment. He contended that words have dynamic meaning, rather than remaining static, as egocentric speech develops into inner speech, and evolves into external speech, with the social use of syntax for clarity of meaning. Social and cultural influences were at the forefront of Vygotsky’s theory on the development of thought and language (Vygotsky, 1986).

Developmentally Appropriate Instruction

Following the research of Vygotsky, when considering the appropriate curriculum for the child, it is not only important to consider the individual child’s current mental development, it is equally important to consider the child’s zone of proximal development. This is defined as the discrepancy between a child’s actual mental age and
the level he reaches in solving problems with the assistance of the teacher (Vygotsky, 1987). This means that the teacher needs to consider the child’s current developmental abilities, and make use of the child’s knowledge and abilities when structuring the lesson and materials. Because development unfolds with the continuous interaction of instruction, when the lesson is taught within the child’s zone of proximal development, the child may learn the concept presented, or achieve understanding of two, three or four concepts beyond the expectation of the intended lesson. Although development and instruction are interconnected, they have different rhythms, making it impossible to set a rule for what step in a lesson is the significant step that determines understanding, (Vygotsky, 1987).

Further study of Vygotsky’s research into learning disabilities indicates that primarily, children with intellectual impairments demonstrate an increased number of pauses and engagements in accessory activities during the process of saturation, (saturation is referenced as the phenomenon experienced when a word or object looses its meaningfulness when concentrated on to the exclusion of other related information). Secondarily, if a preferred activity is interrupted, the need to return to the work is more sharply pronounced. The child with intellectual disability will have an impulse to return to the interrupted activity 100% of the time. Substitution of the activity with one similar proves not to be an effective solution, indicating pedanticism on the part of children with intellectual disability. Comparatively, the typically developing child may demonstrate this need for completion of the interrupted activity 80% of the time, (Vygotsky, 1986). These specific variants in the learning styles of children with intellectual disability, coupled with the developmental differences of children with Down syndrome, previously
identified as challenges with short-term memory formation, delayed oral language acquisition, and a limited mastery of phonological awareness, create an obvious distracter from the general laws of child development found in typically developing preschool children.

**Aim of Research**

The aim of this research was to conduct a study of the emergent literacy and pre-reading skills ability of a four-year-old girl, with Down syndrome, [the focus child] whose home language is Armenian, and to implement the appropriate instructional strategy in English, to increase her emergent literacy skills, in preparation for pre-reading instruction intended to take place during her concluding year of preschool.

The focus child’s intellectual disability, and overall developmental delays in all domains, along with a significant oral language delay affected her ability to attend to the relevant emergent literacy lessons as presented in the context of the classroom setting. She was not demonstrating development in emergent literacy skills or in the pre-reading skills being taught in the small group setting of the preschool classroom as lessons took place daily. She had difficulty visually attending to significant learning materials, responding orally to modeled verbal prompts, and remaining physically present in the learning environment for the duration of the lesson presentations. These learning challenges created an opportunity for the introduction of alternative learning strategies to determine how to better serve this particular child in achieving emergent literacy skills.
Chapter Three

Methods

The field research for this case study took place over a period of one year (2010-2011) under the Culture in Early Childhood Special Education Project at California State University, Northridge, funded by the United States Department of Education Award No. H345K055139. The researcher for this case study was also the preschool teacher.

This case study began with an observational play-based assessment when the focus child began attending the researcher/teacher’s preschool classroom, during the first few weeks of the field research. Additionally, observations were made during each preschool day as the focus child engage in play with peers, and in academic lessons with the preschool teacher. These observations were used to fill in the Desired Results Developmental Profile (DRDP) assessment. The daily classroom observations of the focus child’s academic abilities, along with the play-based assessment data, and the DRDP results helped the researcher to determine the focus child’s zone of proximal development. Over a period of several months the researcher visited the focus family’s home to learn about their ethnic culture, and their family culture, and the parents’ educational choices for their children. The researcher referred to the questionnaire “Characteristics Of The Caregiving Environment” (Chen, 2006), when making home visits to ask relevant questions.

Participants

The focus child is a four-year-old, Armenian girl, with Down syndrome. She lives at home, with her mother, father, and older brother. Her parents are from Armenia. They immigrated to the United States six years prior to the birth of their second child, [the
focus child]. Both parents attended college in Armenia, and have been able to continue their educations in the United States. The father holds a doctorate in psychiatry from a university in Armenia. He is majoring in psychology at a university in Los Angeles, while working in the field of psychology. The mother is a music graduate from a University of Armenia. She teaches music lessons, and composes and organizes musical performances. She is currently a graduate student in a program at a California State University. The focus child’s brother is eleven-years old, and attends a magnet school for gifted students. He speaks fluent English, and takes classes in Armenian to maintain his cultural knowledge and second language skills. The parents are fluent in Armenian and Russian. Their English skills allow them to communicate academically, and socially within the community. They continue to strive to increase their English language skills by asking questions and engaging in social interactions with English speaking people. At home, the family typically speaks in Armenian and in Russian.

Their home is in a middle class neighborhood, with a low level of traffic, and quiet surroundings. Overall, the living environment in the home is child-friendly, happy, healthy and nurturing. The family room is spacious and contains a basket of developmentally appropriate toys. A high chair, child-size table and study chair are moved in and out as needed.

**Preschool Interventions and Implementations**

At the beginning of the school year, the parents and teacher chose to place the educational emphasis on improving self-help skills so that the focus child could eat independently, and sit in a cube chair without adult physical assistance during group lessons. Secondly, the teacher wanted to increase the focus child’s ability to imitate
modeled behavior to improve her access to the curriculum materials. By the third month of preschool the focus child was demonstrating development in social emotional and cognitive skills.

Just prior to the winter break the focus family began discussing their concern for the child's oral language delay. Because grasping skills appeared developmentally delayed as well, the preschool teacher requested assessments in speech and language, and in fine motor skills by the visiting specialists in these fields. Results indicated a need for speech and language therapy services to develop oral articulation skills, and fine motor skills intervention therapy to develop increased use of a functional grasp when using a writing instrument.

During this same time period the focus child was conditioned to respond to photographs in a picture book that used photographs of the classroom materials, to communicate her needs and wants. To implement use of this picture book, the researcher/teacher created specific opportunities for the focus child to choose a photo card in association with the desired object or activity. By the end of the school year the focus child demonstrated an increased frequency to choose a photo card from the picture book. She learned to lift the photo card from the book, and carry it to the matching picture card located with the object or in the activity area, and attach the matching cards together. To implement shaping this behavior, access to the areas and objects represented in the picture books were restricted unless the focus child chose the corresponding photo and matched it correctly. The focus child initially needed one hundred percent physical support throughout the tasks to achieve success in four out of five opportunities. By the end of the school year she was able to choose a photo card with one hundred percent
accuracy, and take it to the matching photo card with sixty percent physical support in four out of five opportunities. Meaning that she was able to choose the correct picture indicating her desired action every time, but that she needed physical assistance more than half the time to complete the task of attaching the picture card to the matching photo card before engaging in the desired activity. This result indicates a challenge in impulsivity. Implementation of this picture exchange system worked as a scaffolding step toward emergent literacy skill building by increasing the focus child’s attention to book format, and to the meanings of pictures and their functionality. In conjunction with the implementation of the picture book as a tool for communicating non-verbally, the researcher/teacher supported the focus child’s choice with verbal modeling, and prompted oral approximations to encourage the development of verbal communication. By the end of the school year, the researcher determined that the focus child showed a readiness for direct instructional intervention with the intention of developing increased visual attention, oral approximations, and physical attention in preparation for the emergent literacy skills lessons to take place in the preschool setting the following school year.

Selecting Emergent Literacy Skills

The emergent literacy skills lessons developed were selected after a review of the California Preschool Learning Foundations Volume I, language and literacy domain requirements, and by making observations of the focus child’s interests, and reviewing the assessment results of the second DRDP assessment data collected in the spring of 2011. The literacy skills chosen for intervention included: word and print recognition, alphabetics, and literacy interest. Acquisitions of these skills are viewed as significant to
emergent literacy skills and are typically learned in tandem with the following skills: concepts about print, phonological awareness, comprehension and analysis of age-appropriate text, and response to literacy. But, for the focus child, a need to scaffold these select emergent literacy skills incrementally appeared more appropriate. As a scaffold for the chosen emergent literacy skills the researcher focused on visual attention, oral responding, and physical attention. It was hoped that by developing these skills there would be an overall increase in the focus child’s listening skills, found to be important for the acquisition of pre-literacy instruction (Vilaseca & Del Rio, 2004).

It should be noted that the picture exchange book used in the classroom may have served to develop some concepts about print in that the format of the book modeled a typical book with a cover, and the skills the focus child developed of turning each page in order, one at a time, also demonstrated an understanding of the concept of how to use a book. The focus child’s experience with the picture exchange book helped the researcher establish the zone of proximal development and determine the support needed for scaffolding to the next level of knowledge.

**Summer Intervention Procedures**

The intention of the summer intervention lessons would be to increase the focus child’s listening skills by increasing an overall ability to attend to lessons in three modalities: visually, orally, and physically. In order to implement the intervention in a naturalistic setting the focus family’s family room was the chosen location for the instructional lessons. The expectation was that the focus child would be more willing to vocalize her responses in the home setting. The family purchased a small child-sized table and two chairs, and placed them in the family room, prior to the researchers arrival
each day. Lessons were conducted for one-hour each day for fifteen days: Mondays through Fridays, from 10:00am to 11:00am. No lessons were conducted on Saturdays or Sundays. On days were illness or appointments interfered, the lessons were postponed, until the following day. Lessons to be learned were presented as teacher-directed, one-to-one activities, with visual cues, verbal prompts, and physical assistance when necessary. Lesson materials were familiar to the focus child from the classroom setting (see Appendices B through J). The familiar lesson materials had been introduced in the classroom, in small-group settings, composed of 6 to 10 students per group. Although the lesson materials were familiar to the focus child, the mode of instruction was altered, and the expectations of engagement in the three areas of data collected were increased. To scaffold the focus child’s development and encourage attention and response success over time, the researcher sat close to the focus child and gave direct instruction. Because the focus child had no modeling from peers to rely on, and was expected to respond to every opportunity in three modalities, (visually, orally, and physically), the researcher used each visual, oral and physical prompt offered during the lessons as the reference for which the expected attention or response given by the focus child was collected as the data used for documentation on the charts and graphs.

Implementation

The daily one-hour teaching session consisted of four direct instruction lessons in which data was collected on the three areas of intervention, with one 5-minute break occurring at the 20-minute mark, and a 10-minute reinforcement activity at the end of the session, for a total of 45 minutes of instructional intervention services per session, over a 1-hour period including the break and reinforcement activity.
Each session began with the focus child sitting down in the chair across from me at the table. I then introduced the initial activity: To begin, I would ask the focus child the question, “Are you ready?” and wait for her to give me her visual attention. She would be seated, giving me her physical attention. Then I would wait for her oral approximation. She typically said, “Ye_,” leaving off the last letter sound. This introduction to the lesson response was not collected as data. Then, I would say, “Look whose here, it’s the little old lady,” (see Appendix B.) “What did she do?” “Do you remember?” “Help me take out the animals from inside,” (see Appendix C). During the first five days of this activity, I would remove the animals from the mouth of the puppet, lay them on the table and identify them one at a time. I would wait for 3-seconds after saying the animal’s label. If the focus child made an oral approximation I would repeat the animal’s label with enthusiasm and show an increased positive affect. If the focus child did not repeat the animal’s label, I would repeat it once and move on to the next animal. This activity lasted approximately 20-minutes. When completed, the focus child would typically jump up and run to the middle of the family room and sit down or dance around for a five-minute break.

During her break, I would pull two items out of my bag of instructional materials. I would ask the focus child what she would like to do, giving her a choice between two highly desired activities. The activities offered a varying number of possible opportunities for response. The focus child might pick a book to read with me. The book choices included a book of colors, offering ten interactive opportunities, or a book of sounds, offering 24 interactive opportunities, or a book of sizes, offering seven interactive opportunities, and a book of baby faces, offering fifteen interactive
opportunities, (see Appendix I). When reading the books we moved to the couch to sit together and turn the pages side by side. The focus child needed to give visual attention to each page, make an oral approximation of my verbal prompt, and remain seated during the book reading to achieve all the possible opportunities available. At one time I introduced the book “Go Away Big Green Monster” only to find the focus child ran away every time I read the words, “go away.” This book was removed from the lesson plan due to the misunderstanding the book created.

To maintain the focus child’s interest a variety of developmentally appropriate lessons were used during the sessions. The focus child was always given a choice between two activities for each activity lesson, after the initial activity. There were a total of four interactive lessons on most days. Some days there were three interactive lessons in which data was collected. And on other days there were a total of five interactive lessons in which data was collected. These lessons included interactions with sensory materials requiring the oral approximations of words describing how things feel to the touch, (see Appendix D), and listening to one’s own voice as one repeats verbal prompts in a telephone, (see Appendix H). Another activity included a picture flash card identification activity using a variety of pictures, and an alphabet letters flash card activity, (see Appendix J). The focus child showed her interest by maintaining visual attention, and by making oral approximations in relation to the flash cards. She also maintained physical attention during these activities. I learned that the focus child would show me her level of disinterest in an activity by turning away from an activity when she did not want to engage in it. This occurred during a tracing activity on two occasions. On the third presentation of the tracing book I asked the focus child, “Do you like
tracing?” She responded with a clear verbal response, “No.” I took this to mean that the task was not within her zone of proximal development, and put it away completely as I was not actually working on this skill development and had introduced it as one of the reinforcement activities at the end of the session.

Another emergent literacy skill building activity included the presentation of three activity boards, (see Appendices E, F, and G), in which the focus child had the opportunity to respond numerous times. These activities boards were familiar to her from the preschool classroom setting. Her ability to respond to these activities was high, and created a sense of success for her. Because she experienced success with these activity boards I typically introduced them near the end of the lesson period to increase her overall positive experience to the intervention.

I wrapped up each session with a free coloring period in which we worked together on a big coloring page, (see Appendix K), that we filled in as we chose with colors of our liking. Upon completion of this coloring activity, I offered the focus child a selection of stickers for her to choose one. She was then able to adhere the sticker to her hand or to the picture we had just colored. Then, I would give her the picture and tell her to take it to her mother to show her. For many days, the focus child would randomly toss the picture down, maybe tearing it inadvertently or maybe crumpling it up. After a week or so she learned to show her work to her mother.

On one occasion, the focus child’s brother sat in during the lesson. Although this skewed the results of the visual and physical attention, she appeared to be quite pleased with his participation. On another occasion, a friend of the family brought over their child for the session. This resulted in lower than average responses overall.
Data Collection

Initial data on the focus child’s level of development upon entry into the preschool classroom was collected using a digital video display (DVD) recorder to capture the play-based assessment as a means of determining the focus child’s zone of proximal development. The Desired Results Developmental Profile (DRDP) was also used to determine current skill levels and to aide in choosing what lessons seemed appropriate to scaffold with adult support. To determine progress in the four preschool domain areas of social/emotional, language, cognitive, and motor developments continued classroom observations were made, and a second DRDP assessment was evaluated after six months of preschool services. This data was used to determine the appropriate services to be implemented for the summer intervention of emergent literacy skills meant to support the pre-reading skills lessons to be taught during the second year of preschool.

During the summer intervention, data was collected daily on three areas of interest: visual attention given when prompted with finger point, oral approximations in response to modeled cues, and physical attention during visual attention prompts. The number of prompts was not predetermined, as the entire intervention was highly interactive with possible prompt opportunities being dependent on the materials and pacing of the instruction. The focus child typically required one 5 to 10-minute break per lesson period. This break was considered appropriate and built into the lesson period at the 20-minute mark. The reinforcement activity took place the last 10-minutes of the period and included the fine motor activity of coloring with crayons. This was not
counted as part of the data, but did serve to increase the pre-writing skill also associated with pre-reading skill acquisition.

Data was collected on the numbers of times the focus child was offered opportunities to attend visually to lesson materials, the number of times the teacher gave oral prompts for responses, and the number of times the focus child was expected to be giving physical attention to the lesson materials by remaining in the chair. To record visual responses, the researcher observed the focus child’s visual gaze in association with the objects as they were presented during the lessons. To record oral responses, the researcher listened to the focus child’s oral approximations for consistency in association with the objects being presented, without evaluating correctness of enunciation of the attempted words, to establish that a relational association had been made between the objects and the words, as a means of determining response to oral opportunities. To record physical responses, the researcher observed the focus child’s physical position in the chair and/or on the couch, depending on where the lesson was taking place, for each object presentation, including page turning during book readings, to determine physical attention.
Chapter Four

Findings

The focus child’s development in the four domains was collected through observation and documentation using the DRDP twice during the school year. Positive developmental growth in the areas of social/emotional development, general cognitive development and gross motor development indicated that the preschool classroom environment was supporting the focus child in these areas. The lower progress results in the language domain and fine motor skills domain informed the teacher to seek additional intervention services. At the end of the school year, data analysis of the speech and language intervention by the service provider showed a slower than typical increase from the implementation of services in the spring of that year. To support the positive growth, and encourage emergent literacy skills development the researcher chose to implement a summer intervention plan.

A comparison of the 15-days of summer intervention showed positive growth in the focus child’s ability to visually attend to teacher-lead direct instruction when comparing the number of responses to opportunities on the first day and the last day (see figure 1). The data shows a dip on the seventh day, when the brother participated. But, a spike on the eighth day, with the following days achieving positive increases in visual attention until the thirteenth day, when a peer joined the session.
Oral responses are more greatly varied over the period of data collection. The responses are lower than 20% on the first and second day, and increase from there up to near 90% by the forth day. There is a wide range of oral response successes throughout the intervention, but the overall increase remains above 40%, and concludes with the number of responses at near 80% on the last day (see figure 2).
Oral responding was not influenced by the presence of the focus child’s brother or the peer. Other distracters may have included background noises, such as mowing the lawn, large trucks in the neighborhood, and telephone calls. The focus child’s ability to attend physically is at 40% on the first day, and climbs to 100% on the second day. This indicated to the researcher a high level of interest in the materials and lesson presentation. Data shows a drop in physical attention on the third and forth days, with an increase on the fifth day up to near 100% again. The graph shows two more fluctuations, but with the focus child showing her developing ability to attend. By the eleventh day of intervention, the focus child achieves 100% physical attention to the lessons. The data does show a negative change in physical attention when the brother and peer are present. On the forth day, the focus child cried and demanded to eat near the end of the session,
which informed both the researcher and the mother that this need was not negotiable
(see figure 3).

Figure 3. Daily Average of Physical Responses

![Physical Response Graph]

Although the focus child left her seat on the forth day for more than 70% of the opportunities, she remained near the teacher, visually responding. Her oral response on this day was higher than had previously been recorded. This may have been due to her need to communicate her internal feelings.

When comparing the data there is remarkable disparity between the types of attention the focus child was able to give during the interventions. There did not appear to be a correlation between oral response and either visual attention or physical attention (see figure 4). By the seventh day, the focus child met all modes of attention and response with just over an 80% average for the day. By the ninth day, the focus child succeeded in visual and physical attention to an average of 80% and better throughout the
remainder of the intervention, demonstrating an improved ability to attend to the emergent literacy instruction lessons from a range of 60% to 80% visually during the first half of the intervention to a range of 80% to 100% during the second half of the intervention.

Figure 4 Collated Graphed Data

This range of improvement is evident for the focus child’s physical attention as well, with the beginning intervention data showing a wild variance in ability to attend during the first eight days of implementation, and a nearly perfect ability during the second half. As discussed, oral responding remained highly varied, which may be indicative of other factors for which data was not collected.
Chapter Five

Discussion

When choosing the types of data to collect, the researcher took into consideration the focus child's zone of proximal developmental, and recognized a need for an increased ability to participate in one-to-one instruction that needed to be addressed before the introduction of pre-reading instruction could begin. To show growth over time in the one-to-one teaching setting, the researcher chose to document the three identified modalities as evidence that would not require correction, but would show development. These choices were made in respect to the errorless learning approach. These modalities included: visual attention to lesson materials, oral approximations in response to verbal prompts, and physical attention to the lesson. The results indicate the focus child showed an increase in her ability to visually attention to the lesson materials, increasing oral responsiveness to verbal prompts with approximations, and an increase in ability to remain physically attentive to the lessons. To remain true to the intension of teaching emergent literacy skills while scaffolding the development of the child's abilities to participate in a one-to-one naturalistic educational setting, the researcher selected the pre-reading skills that the child had shown an interest in while in the preschool classroom during the previous school year. These skills included word and print recognition, alphabets, and literacy interest.

With a possibility of five different lessons, and a varying range of opportunities for interactions and responses, there was an overall positive increase in the three modalities, which suggests that the focus child had a high interest in the lesson materials and in the strategies used during the intervention. Implementing the intervention at the
focus family's home allowed for the researcher to practice a direct naturalistic approach as described by Vilaseca and Del Rio (2004). In comparison to the classroom setting, the focus child’s oral utterances noticeably increased in the home setting over the intervention time period. The oral response data collected on the first day was typical of the focus child’s classroom utterances.

**Limitations**

Although the use of familiar materials for instruction during the intervention made determining the focus child’s level of learning new knowledge undeterminable, the choice to use these materials was in accordance with the errorless learning strategy that reduced the possibility of a sense of failure, and allowed the researcher to begin the intervention at the focus child’s zone of proximal development.

The home environment created several challenges that may have skewed the results in the three modalities for which data was collected: on one occasion the older sibling participated in the lessons, which showed a decrease in the number of times the focus child was able to visually attend. This did offer the researcher the opportunity to note a was a spike in the graphed data on the following day, which may indicate that while the focus child was not visually attentive during the event of the sibling’s participation, peer modeling took place in the area of visual attention that was recognizable in the focus child’s visual attention the next day. Then on another day the young child of a family friend participated, which negatively affected the focus child’s ability to visually attend. The next day resulted in a return in visual attention to the previous level found during one-to-one instruction. In review of the oral response data, there were days where there was ambient noise that the researcher failed to document.
This noise level appears to have limited the focus child’s ability to orally respond, which may be an important aspect to consider in the classroom setting. Discovering the cause of the focus child’s limited oral responding in a noisy environment will require other assessments. Another limitation was the lack of parent involvement in the intervention. Parent involvement may have strengthened the child’s generalization of skills.

**Implications For Practice**

Based on the literature reviewed, the observations made, the intervention implemented, the results imply that the focus child benefited from the direct instructional approach in the natural setting of the home, while using both an errorless approach and positive reinforcement. Teachers working with children with Down syndrome need to recognize the importance of knowing the child’s areas of interest, the zone of proximal development and the educational support needed. In regard to the zone of proximal development, it is important for the child to experience repeated success at this level, and to practice the skills attained before being expected to advance to the next step in a task. The zone of proximal development is the child’s zone of development, and does not imply the mastery of incremental tasks, but rather the child’s understanding and development of knowledge. Therefore, it is important for the educator to watch for that moment when the child is developmentally ready for the next step, and supply the support for achieving that step successfully. For the child with Down syndrome, supporting learning so that each step is always a success is of great significance for continued learning.

Although the researcher implemented one-to-one direct instruction with the errorless learning approach as the overarching methodology to collect the specific data
while teaching emergent literacy skills to the focus child, future intervention strategies that include the participation of the family in emergent and pre-reading activities, such as story time and sight-word games, may be a more beneficial way of encouraging the focus child’s development in pre-reading activities.

The dip in visual attention on the graph during the sibling’s participation indicates that the focus child was distracted and not demonstrating the expected behavior to indicate learning. Further analysis of the visual data on the next day showed an increase in visual attention, which may imply that learning to maintain visual attention took place through peer modeling, even though the focus child appeared to be distracted. If this premise is proven then, although the situation resulted in a decrease of visual responses during the event, the focus child was learning. These observations may have implications for how differences in learning are measured with standardized tests, and how other modes of testing knowledge and skill development may be developed to better reflect learning.

Furthermore, the noise level in the environment may have been a factor in the oral responsiveness of the student on the days in which oral responses were low. When viewed in isolation, these dips on the graphs may indicate that the focus child was distracted, or unable to concentrate long enough to formulate a response. These changes in oral response also need further analysis to determine the significance of background noises, and how these environmental changes impact learning and communication.
References


California Department of Education (Prepublication Edition: January 2011). Kindergarten common core standards, What students learn in kindergarten,
Reading Foundational Skills, (p. K.4)


Language Teaching and Therapy, 20(2), 163-180. doi:
10.1191/0265659004ct269oa


Appendix A

Summer Intervention lesson material: “I Know An Old Lady Who Swallowed A Fly” puppet doll artifact used to begin each home intervention session.
Appendix B

Summer Intervention lesson material: “I Know An Old Lady Who Swallowed A Fly”
Insert Dolls artifacts used to begin each home intervention session.

- fly
- spider
- bird
- cat
- dog
- goat
- cow
- horse
Appendix C

Summer Intervention lesson material: “How Things Feel” lesson materials used to collect visual attention, oral response, and physical attention data.

```
How Things Feel

I feel something soft.     I feel something hard.
What is it?               What is it?
It is a feather.          It is a rock.

I feel something smooth.  I feel something rough.
What is it?               What is it?
It is plastic.            It is sandpaper.

I feel something round.   I feel something pointed.
What is it?               What is it?
It is a ball.             It is a star.

I feel something squishy. I feel something solid.
What is it?               What is it?
It is a pillow.           It is a block.
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Appendix D

Summer Intervention lesson material: “Five Little Monkeys Swing In A Tree” lesson material used to teach emergent literacy skills, and to collect visual attention, oral response, and physical attention data.
Appendix E

Summer Intervention lesson material: “The Wheels On The Bus” lesson material used to collect visual attention, oral response, and physical attention data.
Appendix F

Summer Intervention lesson material: “Old MacDonald Had A Farm” lesson material used to teach emergent literacy skills, and to collect visual attention, oral response, and physical attention data.
Appendix G

Summer Intervention lesson material: “Telephone” activity artifacts used to collect visual attention, oral response, and physical attention data.
Appendix H

Summer Intervention lesson material: Three of the books read to focus child used to teach emergent literacy skills, and to collect visual attention, oral response, and physical attention data.
Appendix I

Summer Intervention lesson material: Alphabet and picture flash cards, and alphabet sounds song booklet used to teach emergent literacy skills, and to collect visual attention, oral response, and physical attention data.
Appendix J

Summer Intervention Positive Reinforcement materials: “Free Coloring” activity books used as positive reinforcement at the end of each lesson.