

INCREASING ORAL LANGUAGE FLUENCY AND SYNTACTIC
STRUCTURE THROUGH A BALANCED READING APPROACH: A CASE
STUDY OF A FIVE-YEAR OLD BEGINNING READER OF THE EDGE OF
THE AUTISM SPECTRUM

by

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ABSTRACT

In recent years, a significant surge has occurred in the amount of children who are being diagnosed with a disorder on the autism spectrum. Current statistics from the Center for Disease Control and Prevention (2011) show that 1 in 110 children in the United States have an Autism Spectrum Disorder (ASD) and that the diagnosis of such is estimated to grow prodigiously due to a variety of different aspects, such as an ever-increasing broadening definition of autism, an inclusion of autism as a disability category under the Individuals with Disabilities Education Act of 1990, improved diagnostic methods, and some other unknown factors (In Nickel's work as cited by Nickels in 2010). Also, because a lack of or weakness in communication skills is a common characteristic for students who have an ASD, receiving early intervention to increase communication is imperative for this population. In consideration of this premise, this study looks at whether using a blended, balanced mode of reading instruction, the Language Experience Approach (Stauffer, 1970; Van Allen, 1970) and the work of Patricia Oelwein(1995), through written means can improve oral language fluency output and syntactical structure concurrently for a student who has suffered from many of the symptoms of ASD, but has not been clinically diagnosed.

Along with the collection of qualitative data aggregated throughout this study through observational means, quantitative data was also collected before, during, and after the intervention to measure the effects on the subject. Quantitative data was obtained from a Letter-Identification Assessment (Clay2005), the QRI-5 (Leslie & Caldwell,2011), the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997) , and Mean Length of Utterance (MLU). Results

obtained from this study showed that the interventions had a positive effect on the subject in terms of listening, speaking, reading, and writing where the fluency and complexity of the subject's speech patterns and ability to read and write improved over the course of the intervention period.

DEDICATION

To my daughter “Paulita” who has inspired me every day to become a better person, to fight for what I believe in, and to never settle for less!

To my family, and especially my “Everito,” thank you for your ever-increasing support and for your much needed enthusiasm especially when I was feeling overwhelmed.

To my mentors, Dr. Sherron Killingsworth Roberts, Dr. Taylar Clements, and Dr. Maria Reyes, thank you for taking on this project and pushing me to achieve my highest potential. Without your support I could have never dreamed of completing this undertaking.

To all the children who suffer from autism or who might be on the verge of a diagnosis of autism, I wish you the best and only together can we ever hope to achieve all that is possible. In the most important ways, you are the wonder and hope of a future in the making!

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This study could have never taken place without the input and support of many others who have inspired me to both complete this project and to triumph over my own personal feelings as a parent with a child who may be on the autism spectrum. The most influential of these people is my daughter who has influenced me to see the world in a completely different light by showing me the true meaning of love and respect for all people. I will never view the world in the same way again. I could also have never asked for more from my family who have always stuck by me no matter what I was going through. I know that I may not have been the easiest person the past couple of months. In addition, I could not have asked for better mentors, Dr. Sherron Killingsworth Roberts, Dr. Taylar Clements, and Dr. Maria Reyes, to help guide me and support me as I completed this undertaking. I have been fortunate enough to have all three of these profound individuals as professors, model educators, and advisors. You have shaped me in more ways than I can count. I look forward to stepping into the world as an educator to touch the lives of the children I teach much like you have touched mine. You have truly inspired me.

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CHAPTER 1: INTRODUCTION

This thesis seeks to examine the effects of literacy interventions in a case study of one. While the student has suffered from many of the symptoms of ASD, but has not been clinically diagnosed as such, the researcher collected quantitative and qualitative data before, during, and after the interventions to measure the effects. Quantitative data was obtained from a Letter-Identification Assessment (Clay 2005), the QRI-5 (Leslie & Caldwell, 2011), the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997) , and Mean Length of Utterance (MLU).

What is ASD?

Autism Spectrum Disorders (ASD) are a group of disorders that impair brain functioning, perception and, may affect ones ability to communicate, to socially interact with others, and may cause an individual to take part in repetitive and stereotypical movements depending upon the severity of the disorder (American Psychological Association, 2000, p. 69-84). The disorders of the spectrum include Autistic Disorder, Rett's Disorder, Childhood Disintegrative Disorder (CDD), Asperger's Syndrome, and Pervasive Developmental Disorder- Not Otherwise Specified (PDD-NOS). While the implications of having one of the disorders on the autism spectrum can have dire consequences on one's ability to take part in everyday activities, broad differences exist between the disorders and that of higher functioning and lower functioning individuals.

In recent years, the diagnosis of autism in school-aged children in the United States has skyrocketed. What used to be a rare, somewhat unknown disorder 20 years ago is now

commonplace. Statistics from the Center for Disease Control and Prevention (2011) show that 1 in 110 children in the United States have an ASD, and between the years of 2002 and 2006, the number of confirmed autism cases in eight year-old children rose by 2500 cases on average in eight states alone. This number is astounding, and it is expected to grow exponentially in the years to come due to a variety of factors including an ever-increasing broadening definition of autism, an inclusion of autism as a disability category under the Individuals with Disabilities Education Act of 1990, improved diagnostic methods, and some other unknown factors(Nickels, 2010). Given this information, aside from the diagnosis standpoint, we as a society must ask ourselves how we can improve the quality of life and educational opportunities for this population. Apparently, to ensure these students achieve all they can, special consideration must be made concerning the learning objectives of these students when they are in the primary grades of elementary school so that they may actively build upon these literacy skills in the intermediate grades, middle school, high school, and beyond (Rubin & Laurent, 2004). While many of these higher- functioning students are mainstreamed into general education classrooms through the Individuals with Disabilities Education Act (IDEA), many are unable to participate fully in this curriculum and may or may not encounter overwhelmed teachers, lack of parental support or teacher support, lack of the necessary skills to be part of the general curriculum, or may receive instruction that is either below their abilities to perform or above these same abilities to perform. A study byNickels (2010) indicates that the perceptions of parents, special education teachers, and general education teachers found seven common barriers and challenges when working with one another to improve the educational standards of the ASD population (Nickels, 2010). These barriers and challenges included lack of training and knowledge to assist these students, lack of

time, special challenges caused by characteristics of ASD, problematic teacher attitudes, problematic parent attitudes, transition issues, and the need for additional services and therapies.

Through this thesis, my intention is to address literacy concerns in ASD students, not by casting blame, but rather by drawing attention to what can be done for high-functioning students on the autism spectrum to increase their educational needs and their literacy skills in order to become active members of society. One may ask how educators can do this, and it is my belief that the ability to communicate, both receptively and through the active transmission of the spoken word and written word, holds the utmost importance. Therefore, through an intense literacy focus, students on the autistic spectrum may begin to achieve all they are able to be. By placing special emphasis on the early literacy development of these students through listening, speaking, reading, and writing activities, these students will increase their communication and literary skills and likely be more prepared to meet the challenges of the school system and society as a whole.

No doubt, the challenges faced by students on the autism spectrum are significant. Furthermore, with such a large epidemic of students being diagnosed with one of the disorders on the autism spectrum along with the growing trend of this diagnosis nationwide, these students need to receive ongoing academic support to ensure that they do not fall behind their peers. This is especially true in terms of literacy development because listening, speaking, reading, and writing form the backbone of what these students will need to know to further their learning in any future endeavors they encounter.

CHAPTER 2: LITERATURE REVIEW

Since this thesis will deal with literacy programs that might provide a successful intervention for a child on the autism spectrum disorder (ASD), this chapter will review the definitions and work surrounding ASD as well as two approaches known as Oelwein's research and Language Experience Approach (LEA).

Although a wide breadth of reading programs are out on the market today, the work of Patricia Oelwein and Language Experience Approach (LEA) stands out among Best Reading Practices as being very effective among both with students with disabilities and students with non- disabilities.

Oelwein's Research

In the early 1970s, a prominent researcher of exceptional student education by the name of Patricia Logan Oelwein, worked on a model for teaching reading to children with Down Syndrome at the University of Washington. This model promotes a visual and kinesthetic approach to teaching these students to read that utilizes matching words, selecting words upon prompting, and naming words that are presented visually both within and out of the context of a sentence, paragraph, or story depending upon the ability of the student (Oelwein, 1995). This program is ideal for students who have limited vocabularies or who have had a significant delay in the transmission of their communication skills because the students are able to see the word, manipulate the word, and identify the word within a context. Furthermore, more recent research

suggests that this visual, hands-on approach to learning to read also works extremely well with students on the autism spectrum (Broun, 2004). More specifically, Broun (2004) has found that using this model for teaching reading to children on the autism spectrum has shown just as much promise as when she implemented the program to her students with Down Syndrome (Broun, 2004). Students in Broun's school fared extremely well with learning sight vocabulary and some were even able to increase their oral language output as measured through anecdotal records as a result of being exposed to language through the program.

Because a weakness in communication skills is characteristic of students on the autism spectrum, these visual and kinesthetic cues to learning words are paramount to continued success in reading and learning to incorporate literacy. Furthermore, this approach to teaching reading remains innovative in that it allows the educator to address the needs of the student more aptly. Instead of applying all of the principles of the program in order (teaching meaningful sight words, the alphabetic principle, word families, matching, selecting, and naming), the educator can employ this program along with whatever reading program is being used in the student's classroom or as a stand-alone practice (Oelwein, 1995).

Best Reading Practices

A tremendous amount of debate exists as to how best to teach reading, period. Many professional educators today would agree that a combination of the methods, more commonly referred to as Balanced Reading Instruction, is necessary to ensure the needs of these students are met (DeVries, 2008, p. 11). Even in a purely phonics-based curriculum like that of the SRA Open Court (Bereiter, Brown, Campione, Carruthers, Case, Hirshberg, Jage, McKeough, Pressley,

Roit, Scardomalia, Stein, & Treadway, 2002), certain elements of whole language will take place within the classroom and are indeed a common staple of the 90-minute reading block (Betsy Theis, Personal Communication, February 22, 2011). The essential elements of a Balanced Reading Block include shared reading, read alouds, guided reading, paired reading, and taped reading. In some form, these essential elements provide students with an overview of the language and how what we say can be put into print and vice versa.

Language Experience Approach (LEA)

While misunderstandings related to whole language come from its lack of explicitly teaching phonic concepts, one strategy within the whole language theoretical framework known as the Language Experience Approach, contends that phonics and whole text be taught as dictated by the students based off of students' experiences (Stauffer, 1970; Van Allen, 1976). A further argument is that when students dictate the stories or sentences to be written, they are expressing ownership of the story and the words they dictated or contributed become their own; therefore, these words are the ones they are more motivated to learn. Within these dictated stories, students become familiar with the words in the story and through individual readings, retellings, and sharing students begin to engrave the words within their memories as functional units as a means to convey a message (Stauffer, 1970). This literacy strategy also emphasizes word attack skills and further elicits syntax construction through the discovery of moving words around to form sentences through large charts, pocket charts, or word holders. Pointing out that students use these words to make new sentences through this discovery and oftentimes search out new words to add their word lists is important. In this sense, the students' own search for

discovery fuels their desire for new vocabulary and their use orally and in print solidifies the words for the learner (Stauffer, 1970).

In addition to implementing the Language Experience Approach (LEA) with beginning readers, Dorr (2006) found that this approach could also be implemented effectively with older students as a means to build schema and to foster connections between background knowledge and grade level curriculum. In the science unit she implemented with her students on plants, Dorr found that the background knowledge her students had about different types of plants and where they came from increased after she implemented the Language Experience Approach with her students in order to build their schemas on this particular topic.

This thesis seeks to use both Oelwein's strategies and the LEA to provide balanced literacy instruction to a five-year old beginning reader who is on the cusp of ASD. This study is designed as a case study of one and focuses on an interesting case in order to intervene and hopefully, create a positive increase in the learner's literacy and thus, communication, skills.

CHAPTER 3: SUBJECT OF THE STUDY, METHODOLOGY, AND RESEARCH QUESTIONS

The subject of the study has been provided a pseudonym: Emma. The premise surrounding this study was to determine whether Emma's ability to orally communicate fluently and with correct syntactic structure increased as a result on the planned interventions (the Language Experience Approach (LEA) and the work of Patricia Oelwein), which are based on all basic language modes of listening, speaking, reading, and writing. Therefore, this chapter attempts to introduce the subject, illustrate the methodology that the study was constructed around, and to describe both the research questions and hypotheses that were investigated as part of the study.

Meet Emma

For the purposes of this study, the subject will be known under the pseudonym of Emma in order to protect the privacy of the subject. The primary researcher responsible for this study held the position of a participant observer of Emma during this time. As a participant observer, the researcher planned activities for Emma to complete, interacted with Emma during these planned activities, and observed Emma completing these activities.

Emma is a five-year old little girl. She likes Hello Kitty, playing with friends, and looking at her books, all familiar activities that many children her age enjoy; however, what is not immediately recognizable about Emma is that she has suffered from a speech delay for most of her life and has a notable amount of trouble adjusting to new people and situations. While both of these characteristics are red flags for diagnosis on the autism spectrum experts have

withheld the diagnosis partly because her guardians have made the decision not to pursue such a diagnosis and partly because the frequency of the symptoms Emma has experienced are not strong enough where a diagnosis of autism may be given; therefore, Emma has not been diagnosed with an ASD. Emma has received an evaluation from a specialist, but because she does not completely conform to the definition of autism as outlined by the DSM-IV-TR (American Psychological Association, 2000), she has not been given a diagnosis. Despite the lack of strict diagnosis of ASD, specialists have recorded incidents and behaviors that Emma reflects and that are also many of the common symptoms that students with autism must live with. As Broun (2004) reported, many of the strategies Oelwein employs with Down Syndrome can help students with ASD and perhaps would help Emma. In fact, it was my intention, as the principal investigator, author, and parent of Emma, to attempt an intervention using both the LEA and Oelwein's research to investigate if using such a blended, balanced intervention to increase oral language fluency and syntactical structure for Emma who has experienced significant speech delays, and who may or may not be, between the lines in terms of a diagnosis.

By the time Emma was three-years old, she had only rarely and intermittently spoken two words. Furthermore, her pronunciation and articulation of these words made it extremely difficult to understand what she was trying to communicate. In addition, Emma had difficulty reciprocating a desire for play and would often avoid eye contact with others when they were speaking to her. A vivid example of this occurred during a trip to a local bookstore; there Emma who thoroughly enjoys playing with a train exhibit became very shy and adamantly refused to go play when a group of children were also over at the table prompting her to join them. At that

time, this was a common event for Emma when she was exposed to unfamiliar people and situations.

Throughout her life, Emma has always been encouraged to interact with others. From the time she was very young until the present time, Emma has been surrounded by family, neighbors, and classmates. Throughout her experiences within these social situations Emma seldom, if ever, was discouraged from interacting with others within the social contexts she was exposed to. Further, although Emma's typical independent play has changed significantly from the time she was two or three years old to the present, she has always been a little hesitant to interact with new people on new occasions.

Upon evaluation by the local public school system at the age of three, Emma qualified for Early Intervention, an intense intervention service for at-risk students who are in danger of becoming or are developmentally delayed or handicapped (*First Signs*, 2010). The Early Intervention Program that Emma was put into was a preschool environment in a local public school with other children who were also having difficulties. This particular program paired preschool and kindergarten children in a class of eight students who met five days a week for 2 ½ hours while receiving academic instruction and special services one day a week for 20 minutes depending on the students' needs (i.e., physical therapy, behavioral therapy, speech therapy). Emma spent two years, from the ages of three to four, in this program and made significant gains socially and through oral language, although she is still in the process of working on her oral language development. Emma is now in Pre-K and attending a private school in a mainstream classroom. In many students with speech delays, common practice is to

begin with an auditory test to determine whether speech-language difficulties are due to hearing loss. Emma has had her hearing tested several times throughout the years and each time the results have always come back negative for hearing loss.

Research Questions and Related Hypotheses

The basic premise of my study begged the question as to whether using the Language Experience Approach (Stauffer, 1970) in conjunction with Oelwein's (1995) literacy strategies improves Emma's ability to form sentences that convey proper structure orally. Therefore, several questions and sub-hypotheses are made below as noted.

1. Do students have to communicate orally within their developmental age group before learning to read through decoding words and the comprehension of text?

H1: Emma's evidence of syntactic cues during oral reading will be greater after intervention than before intervention, as measured by the miscue analysis component of the QRI-5.

2. Is there a relationship between the blended method of reading instruction utilized in this study (the LEA and the work of Oelwein) and the Mean Length of Utterance (MLU) score?

H2: Emma's receptive vocabulary, as measured by the Peabody Picture Vocabulary Test, will increase from the expressive vocabulary as measured by the Mean Length of Utterance.

H3: Data gathered from the post-assessment of the Peabody Picture Vocabulary Test will increase positively from the pre-assessment of the Peabody Picture Vocabulary Test.

3. Can the syntax learned through written language be transferred to oral language and occur in spontaneous utterances in new occasions as the student communicates wants and needs?

H4: Emma's summative Mean Length of Utterance will increase positively from her pre Mean Length of Utterance after the planned intervention has been completed.

Since both of these programs take advantage of visual and auditory elements to teach reading, my hypothesis was that Emma would acquire more sophisticated and proper syntax through seeing text and how it is constructed and transfer this knowledge when she is communicating her wants and needs orally.

Although the study addressed the possible impact of how syntactic patterns might be communicated orally and taught through the modeling of the written word through a blended method of teaching reading, via the Language Experience Approach (Stauffer, 1970; Van Allen, 1976) and the research of Oelwein (1995), likely Emma's ability to read orally might improve as she learns and reads new vocabulary words to dictate and make new sentences through the Language Experience Approach (Stauffer, 1970; Van Allen, 1976) to teaching literacy as well as Oelwein's strategies for teaching reading. This could be suspected because Emma would gain experience in decoding when she read, Emma would also improve her fluency, phonemic

awareness, her knowledge of phonics, and comprehension of what she read. However, only data pertaining to syntactic structure, fluency, and vocabulary was collected in terms of the five components of reading (comprehension, fluency, vocabulary, phonics, and phonemic awareness). An additional Letter-Identification Assessment of recognition of print will be given (Clay, 2005).

Methodology and Data Collection Methods

A case study is a methodology in which the research study focuses exclusively on one individual to provide in-depth, contextualized information. Therefore, case study methodology was used in this study in order to determine the effectiveness literacy interventions with Emma with both qualitative and quantitative data. The data was qualitative because observational records and anecdotal notes, taken by myself, were made while observing Emma explore literacy events and complete reading and writing activities. The data were also quantitative because scores from assessments to collect baseline data will be given to Emma before the intervention (the pre-assessment), during the intervention (as part of an ongoing formative assessment), and after the intervention (the post assessment).

To establish baseline data, several assessments were given to Emma. The first assessment that was given was the Letter- Identification Score Sheet to assess print awareness of the alphabet in both upper and lower- case letters (Clay, 2005, p. 85-6). The second assessment given to Emma was the QRI-5 (Leslie and Caldwell, 2011). This assessment gave a clear indication of oral vocabulary Emma is able to read by sight and her fluency in reading the selected text within the QRI. Then, Emma was given the Peabody Picture Vocabulary Test

(Dunn & Dunn, 1997). Finally, due to the fact that this study focused on syntactic structure, observational records of her mean length of utterances (MLU) were collected. MLU is a systematic process where an evaluator records, reviews, and interprets the number and kinds of morphemes the student being evaluated uses (Speech Therapy Information and Resources, 2009). According to develop hierarchal speech patterns, in terms of morphemes used as they progress is age. Current research has shown that gathering the MLU of a subject is a valid predictor of language acquisition and linguistic competencies of a particular age group of a subject (Rice, Smolik, Perpich, Thompson, Rhytting & Blossom, 2010). This data has been organized into a table with corresponding dates and time length of observations respectfully.

Formative assessments that were given include the Letter- Identification Score Sheet (Clay, 2005), the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997), and MLU (Rice, Smolik, Perpich, Thompson, Rhytting & Blossom, 2010). While Summative Data included the Letter- Identification Score Sheet (Clay, 2005), the QRI-5 (Leslie & Caldwell, 2011) the Peabody Picture Vocabulary Test, and a MLU.

Observational records and direct teaching took place three times a week for a period of five months wherein both qualitative and quantitative data were collected. An exception to providing instruction were days when an assessment was given. Observations and direct teaching took place independent of one another meaning that during the time the student was being observed no direct influence was made on behalf of the researcher.

CHAPTER 4: ANALYSIS AND RESULTS OF THE DATA

An Overview:

During the course of this study, Emma was actively engaged in a variety of activities that provided her with a means to actively explore the complexities of language through its written form visually, auditorily and most of all kinesthetically. This was accomplished in a number of ways: through shared readings, paired readings, choral readings, independent reading, shared writing, independent writing, word boxes, and books, through the use of syntactic cueing cards, and through the manipulation of words to complete written sentences orally. Through these activities, the researcher has determined that Emma has shown remarkable progress in her ability to decode and comprehend text, has developed a sense of herself as a successful, confident writer, and has shown tremendous progress in her expressive and receptive language skills. The following chapter provides documentation of Emma's progress.

Assessment Results and Interpretations of Data:

Through the implementation of this study, Emma was given a variety of formal and informal assessments. Each assessment was administered at specific, predetermined time periods to accurately measure independent growth in specific areas. Each assessment administered to Emma was done so to measure a specific ability or skill at a certain point in time. Baseline data was collected from a variety of assessments during the first week of the study before any intervention took place to determine any abilities or skills that were already possessed by Emma

before any intervention took place. More detailed information and results for these assessments over time are noted below.

The Letter-Identification Score Sheet (Clay, 2005) was used to determine Emma's ability to identify upper and lower case letters, grapheme to phoneme correspondence, and the ability to identify beginning sounds in words. The Qualitative Reading Inventory-5 (Leslie and Caldwell, 2011) was used to determine Emma's ability to decode graduated words at specific levels, to comprehend the graduated text passages at specific levels, and to determine her ability to read at an appropriate rate and with prosody. This assessment also gave valuable information in the form of the four cueing systems (semantic, syntactic, graphemic, and pragmatic) and how Emma utilized these four cueing systems when she was decoding text. The Peabody Picture Vocabulary Test (PPVT) (Dunn and Dunn, 1997) was used primarily to determine Emma's receptive language skills at specific points in time, but was also used to measure Emma's critical thinking skills as she was selecting pictures in response to an oral cue. The Mean Length of Utterance (MLU) assessment was used to determine expressive language skills through Emma's recorded use of speech phrases and the quantity and types of morphemes Emma used. Further examinations of Emma's speech patterns were also conducted to determine the maturation of her oral language patterns. This chapter will emphasize the assessment results and the measures of these assessments at specific points in time throughout the study in the following order: Letter Identification Score Sheet, the Qualitative Reading Inventory (QRI5), the Peabody Picture Vocabulary Test (PPVT), and Mean Length of Utterance (MLU).

Please note that each individual assessment that was administered was given a pre-determined number of times as detailed in each subsection of this chapter, and was done so to measure the Emma's growth in certain areas over a period of time. In particular, the Qualitative Reading Inventory-5 (QRI-5) was administered on three separate occasions where reading levels measured within this assessment are denoted in the following order from lowest to highest: Pre-Primer 1, Pre-Primer 2, Pre-Primer 3, Primer, and First. Therefore, Emma was administered versions of a Pre-Primer 1 level text and a Pre-Primer level 2 text more than once over the course of the study.

Letter Identification Score Sheet:

This assessment was given to Emma three different occasions to determine her strengths and weaknesses in the above mentioned areas. Some of the errors Emma made at different time periods included mistaking the uppercase and lowercase Y with the phoneme /w/, mistaking the uppercase Z for the phoneme /s/, and giving the word goat when prompted to give a word that began with J. More detailed information is noted below in reference to each individual assessment.

- A Word about the Letter Identification Score Sheet: When given this assessment, Emma was presented with 54 letters (both uppercase and lowercase where two of those letters were denoted as being typeface letters) on a sheet of paper where the letters were not in alphabetical order. She was then asked if she could provide the name of the letter, its sound, and a word that began with the letter. It was not a requirement to name all three of these; however, viewing each individual assessment in each area gives the

administrator interested individual a glimpse into the way Emma most associates each letter that was presented.

Table 1 Letter-Identification Score Sheet (Letters)

Date:	# of Letters Identified	Letters Identified	# of Letters Not Identified	Letters Missed
May 23 rd	12	A,F,K,Z.B.J.L.D.N.S. I,i	41	P,W,H,O,U,C,Y,Q,M X,E,G,R,V,T,a.f.k,p,w z,b,h,o,j,u,a,c,y,l,q,m, d,n,s,x,e,r,v,t,g
June 16 th	54	All Uppercase and Lowercase Letters were identified	0	N/A
July 23 rd	54	All Uppercase and Lowercase Letters were identified	0	N/A
August 16 th	53	All Uppercase and Lowercase letter were identified with the exception of the Lowercase l which was mistaken for the Uppercase I.	1	L
September 16 th	54	All Uppercase and Lowercase letters were identified.	0	N/A
October 22 nd	54	All Uppercase and Lowercase letters were identified.	0	N/A

Copies of all testing instruments are available upon request.

When this assessment was first given, Emma willingly named 12 of the 54 letters that were presented. From the second occasion Emma was given this assessment she willingly named all 54 letter characters that were presented. It is important to point out at this juncture that just because Emma named only 12 of the letters that were presented to her during the baseline collection phase does not necessarily mean that the intervention that she received provided any means for her to master this skill. This is due to the fact that Emma was not required to name each letter but was told to name either a letter, the phoneme associated with the letter, or a word that began with the letter being presented. However, Emma was able to name more than one of these required contexts for each letter presented. Specific data concerning what letters and how often they were named and missed per assessment are given in the table above.

Table 2 Letter-Identification Score Sheet (Phonemes)

Date:	# of Phonemes Identified	Phonemes Identified	# of Phonemes Missed	Phonemes Missed
May 23 rd	44	A,F,K,P,W,Z,B,H,J,U C,L,Q,M,D,N,S,E,G,R V,T,a,f,k,p,w,z,b,h,u,a c,y,q,m,d,n,s,r,v,t,g	10	O,Y,X,I,o,j,x,i,e
June 16 th	52	A,F,K,P,W,Z,B,H,O,J,U,C Y,L,Q,M,D,N,S,X,I,E,G,R V,T,a,f,k,p,w,,z,b,h,o,j,u, a,c,q,m,d,n,s,x,I,e,r,v,t,g	2	y,l
July 23 rd	52	A,K,P,W,Z,B,H,O,U,C,Y,L Q,M,D,N,S,X,I,E,G,R,V,T a,f,k,p,w,z,b,h,o,j,u,a,c. y,l,q,m,d,n,s,x,I,e,r,v,t,g	2	F,J
August 16 th	50	All phonemes were identified with the exception of the phonemes /Z/, /Y/, /z/, and l.	4	Z, Y, z, l
September 16 th	53	All phonemes were identified with the exception of the phoneme /Q/	1	Q
October 22 nd	52	All phonemes were identified with the exception of /Z/ and /l/	2	Z, l

Copies of all testing instruments are available upon request.

The baseline assessment given shows that Emma willingly named 44 of the phonemes presented to her. Subsequent assessments in this area show that Emma gradually began to name more phonemes that were presented to her as time moved forward. One common error that Emma continued to make throughout the study in this specific area from baseline to post assessment included mistaking the lowercase l for the lowercase I. This is something that Emma will have to continue to work towards in the future. At this juncture, it is important to point out that just because Emma willingly named more grapheme to phoneme relationships presented to her over time using this assessment does not necessarily mean that the intervention that she received provided any means for her to master this skill. This is due to the fact that Emma was not required to complete each task this assessment sets out to measure, but rather was often engaged in ways that had her name either a letter, the phoneme associated with the letter, or a word that began with the letter being presented. However, Emma was able to name more than one of these required contexts for each letter presented.

Table 3 Letter-Identification Score Sheet (Words)

Date:	# of Words Identified	Words Identified	# of Words not Given	Words not Given
May 23 rd	50	N/A	4	N/A
June 16 th	54	N/A	0	N/A
July 23 rd	54	N/A	One for the letter J. The word goat was given	N/A
August 16 th	53	N/A	No word was given for the letter z.	N/A
September 16 th	54	N/A	0	N/A
October 22 nd	54	N/A	Emma misidentified the lowercase l for the lowercase I and gave the word igloo when prompted.	N/A

Copies of all testing instruments are available upon request.

A Word Concerning the Word Section of the Letter Identification Score Sheet: Although individual words were given for each letter, the words themselves were rarely recorded, only a checkmark was made to conclude that an appropriate response was made by Emma. Also in many instances, Emma gave multiple responses when prompted to give words that began with a specific letter.

Qualitative Reading Inventory-5 (QRI-5):

This assessment was given to measure Emma's progress in the ability to decode words at graduated levels, the ability to comprehend text at these same graduated levels, and to determine her ability to read at an appropriate rate and with prosody. This assessment also offers valuable information in terms of the four cueing systems (semantic, syntactic, phonemic, and pragmatic) and how Emma utilizes these cueing systems in the type of errors she made and how often she made these errors.

This assessment was given a total of three times. The first occasion was on May 17th, 2011 and was administered to collect baseline data in the above mentioned areas before any intervention took place. In the interim, the assessment was administered again on July 9th, 2011 to collect data on what Emma was able to do as the intervention was taking place. Finally, a summative assessment was given on October 25th, 2011 to collect data after the intervention. Complete data and interpretation from each administration of this assessment is denoted in the tables below.

Table 4 Word List for the assessment given on May 17th, 2011

Level of Word List:	Pre-Primer 1	Pre-Primer 2/3
Number of Words Automatically Identified:	13	4
Number of Words Identified:	1	1
Number of Words Not Identified:	3	14
Total Number Correct:	14	5
Level of Proficiency:	Instructional	Frustrational

Copies of all testing instruments available upon request.

The table above is divided into specific levels of word lists that were given to the subject on May 17th, 2011. This was given to collect baseline data on the types of words the subject was able to both recognize automatically (within 2 seconds) and was able to identify (after 2 seconds). The administration of the word lists on this date encompassed both the Pre-Primer 1 and the Pre-Primer 2/3 lists. Data that was collected and recorded while administering Emma the Pre-Primer word list put Emma's ability to identify and decode these words at an instructional level- meaning that her score of 82% ranged within the 70-85% of correct responses required to be placed within the instructional range as noted by the QRI-5. Some of the errors that Emma made when decoding the words in the Pre-Primer list included mistaking the word "of" for the word "for" and mistaking the word was "for" the word "has". Emma also asked for assistance when trying to identify the word "with"; therefore, no credit was given for this response.

For the Pre-Primer 2/3 list, Emma received a score of 25% of correct responses which put Emma in the frustrational range of anything below 70% as noted by the QRI-5. Emma was only able to decode five of these words (like, my, play, look, and too) and she asked for help on the others; with the exception of the word people which she gave an automatic response of purple.

Table 5 Passage results for the assessment given on May 17th, 2011

Level of Text/ Title:	Pre-Primer 1 “ I Can”
Types of Miscues:	Graphemic Miscues with Self-Correct
Number of Total Miscues:	0
Number of Ideas Retold:	6/12 or 50%
Number of Explicit Questions Answered:	4/4
Number of Implicit Questions Answered:	0/0
Level of Student (Comprehension):	Independent

Copies of all testing instruments available upon request.

- The Pre-Primer 1 section of the QRI-5 was the only assessment given on this date.

According to the Qualitative Reading Inventory- 5 (QRI-5), Emma’s ability to comprehend text at this level is measured as independent because she was able to correctly answer all four of the comprehension questions she was presented with after reading the text.

Emma’s ability to read and decode text however was hampered by some of the miscues she made while she was reading. She often made graphemic miscues in that she would decode the word can as the ”an” but would quickly self-correct herself and pronounce the word as “can.” Emma made this miscue and subsequent self-corrections twice and asked for teacher assistance a total of six occasions when reading the text. During this time, Emma asked for teacher assistance when she encountered the words eat, sleep, and dream. Emma asked for teacher assistance for each of these three words twice when she encountered them in the text.

Table 6 Fluency Section of the Passage administered May 17th, 2011

Level of Text/ Title of Text:	Pre-Primer 1 “ I Can”
Total Time Read:	2 minutes, 15 seconds or 135 seconds
Words Per Minute (WPM):	16.44
Correct Words Per Minute (CWPM):	16.44
Prosody:	Smooth, somewhat choppy and drawn out when encountering words that were unable to be decoded.
Articulation:	Clear pronunciation of words that were read.

Copies of all testing instruments available upon request.

The text, “ I Can” found in the Pre-Primer 1 portion of the Qualitative Reading Inventory-5 (QRI-5) contains a total of 37 words. Emma read approximately 16.44 words per minute (wpm) when reading the text. Further, since Emma made no miscues that were not self-corrected she read approximately 16.44 correct words per minute (cwpm) and was able to read the entire text within two minutes and fifteen seconds. In addition, Emma was able to smoothly articulate the words she was reading and made no errors that the primary researcher was able to detect. The prosody of which Emma read was often choppy and rather drawn out especially when Emma encountered words that she was not able to decode. At this time, there would be long pauses of time where she would stare at the words until she would finally ask for assistance in decoding the word.

Table 7 Word List for the assessment given on July 9th, 2011

Level of Word List:	Pre- Primer 1	Pre-Primer 2/3
Number of Words Automatically Identified:	17	12
Number of Words Identified:	0	1
Number of Words Not Identified:	0	7
Total Number Correct:	17	13
Level of Proficiency:	Independent	Frustrational

Copies of all testing instruments available upon request.

The second administration of this assessment was given seven weeks later on July 9th where Emma was given both the Pre-Primer and the Pre-Primer 2/3 word lists again to measure the effect of the intervention on Emma's ability to decode words with these word lists. On this administration with the Pre-Primer 1 word list, Emma received a score of 100% of correct responses which put Emma in the independent range of 90-100% as noted by the QRI-5. There were no errors made by Emma nor did she ask for any assistance decoding any of the words. All words within this word list were automatically identified (within 2 seconds). The administration of the Pre-Primer 2/3 word list also showed growth in the ability to decode words on Emma's Part. The second administration showed that Emma was able to correctly automatically identify twelve (within 2 seconds) of the twenty words and correctly identify (more than 2 seconds) one of the twenty words. This would bring Emma's total of correctly decoded words using this word list at thirteen correctly identified words out of twenty- the rest of the words were not counted as being correct as Emma asked for assistance in reading the words. These totals of correctly decoded words from this word list brings Emma's score to 65% of correct responses out of 100%; therefore, this still puts her at a frustrational level for this word list. One thing to be noted however, is that Emma's growth over the course of baseline development until July 9th shows an 18% increase in her ability to decode words on the Pre-Primer 1 word list and a 40% increase in her ability to decode words on the Pre-Primer 2/3 word lists. Due to the frustrational level that Emma received for the Pre-Primer 2/3 word list, no further attempts were made to administer any other word list.

The QRI-5 given on July 9th, 2011 encompassed two sections, the Pre-Primer 1 and the Pre-Primer 2 section. This differs from the assessment given May 17th, 2011 because there are two sections of reading passages being assessed. Naturally, the passages themselves are graduated where Pre-Primer 2 is a higher level reading passage in which more complex words are used and the ideas within the passage are more intricate and require more effort to internalize and recall than Pre-Primer 1. This is true for all reading passages in the QRI-5 as the assessment stands to identify where a student's ability to decode words, read fluently, and comprehend text are at specific levels and at specific points in time. Therefore, due to Emma's results on the Word Lists given May 17th, 2011, a decision was made to only administer a Pre-Primer 1 level text as her ability to decode the words on the Pre-Primer 1 word list was measured at an Instructional level and a frustrational level on the Pre-Primer 2/3 word List.

Table 8 Passage results for the assessment given on July 9th, 2011

Leveled Text/ Title:	Pre-Primer 1 “I See”
Types of Miscues:	Syntactic
Number of Total Miscues:	2
Number of Ideas Retold:	7/10 70% of the ideas retold.
Number of Explicit Questions Answered:	4/5 80% of the comprehensions questions answered.
Number of Implicit Questions Answered:	0/0
Level of Proficiency (Comprehension):	Instructional

Copies of all testing instruments available upon request.

Emma’s ability to read a Pre-Primer 1 level text was measured to be at instructional level because she was only able to answer four of the five explicit questions (80%). Therefore, Emma’s ability to comprehend text at this level, as determined by the QRI-5, was at an instructional level. In addition, Emma was able to retell 7/10 or 70% of the ideas that were related when she was reading she was reading the text. This differs from the assessment given on May 17th, 2011 because Emma was determined to be at an independent level in terms of comprehension at the Pre-Primer 1 level and was only able to recall 6/12 or 50% of the ideas related in the text while she was reading. This means that Emma went up by 20% in her ability to retell ideas in a text and yet went down a level in terms of comprehension.

Also, within this section Emma made two syntactic miscues. Emma made her first syntactic miscue when she pronounced the word “a” for the word “the” at the fourth line in “I See.” This is a syntactic miscue because Emma was aware that “a” and “the” can have the same place in the sentence she was reading as “the.” Emma made another syntactic miscue when she pronounced the word “doing” for the word “do” at the fifth line in the text “I See.” This is a graphemic miscue because although the words “do” and “doing” are related, Emma’s response to the word “doing” as the word “do” indicates that she was attending to the graphemic qualities in the word “do.”

Table 9 Passage results for the assessment given on July 9th, 2011

Leveled Text/ Title:	Pre-Primer 2 “Just Like Mom”
Types of Miscues:	Semantic
Number of Total Miscues:	3
Number of Ideas Retold:	8/15 53% of the ideas recalled.
Number of Explicit Questions Answered:	4/5 80% of comprehension questions answered correctly.
Number of Implicit Questions Answered:	0/0
Level of Proficiency (Comprehension):	Instructional

Copies of all testing instruments available upon request.

The administration of the QRI-5 given on July 9th, 2011, was the first occasion that a Pre-Primer 2 text was rendered. Although, Emma received a frustrational level on the Pre-Primer 2/3 word list given the same day, the primary investigator made a decision to give Emma a Pre-Primer 2 text from the QRI-5 to examine her ability to read and comprehend the text using the four cueing systems (syntactic, semantic, graphemic, and pragmatic) as well as the associated pictures within the text as cues of developing meaning. In doing so, Emma was able to answer 4/5 or 80% of the comprehension questions correctly which puts her at an instructional level of the Pre-Primer 2 text as determined by the QRI-5. Emma was also able to recall 8/15 or 53% of the ideas presented within the text. This differs considerably from the number of ideas recalled at

the Pre-Primer 1 level by a 17% increase given the same day. However, what one must remember is that the Pre-Primer 2 level text is considerably more difficult in the words that one must be able to decode, the syntactic patterns within the text, the more complex ideas associated within the text, and the comprehension questions that are asked of the student taking the assessment.

In addition, while reading the text Emma made three semantic miscues that did, in fact, change the meaning of what she was reading. The first one occurred in the first line on the text “Just Like Mom,” where Emma substituted the word “read” for the word “write.” This miscue changed the meaning of the text in the sense that to read something and to write something are two different things. The second miscue occurred on line 7 where Emma substituted the word “read” for the word “work.” This miscue changed the meaning in that the words “read” and “work” are two completely different things. The third miscue that Emma made occurred when she was reading the eleventh line of the text. Here she substituted the line, “lots of things” with the word “to.” This miscue changed the meaning of the text because the idea being related in the text and the utterance of Emma did not coincide at all.

Table 10 Fluency Section of the Passage Administered July 9th, 2011

Level of Text/ Title:	Pre-Primer 1 “I See”	Pre-Primer 2 “Just Like Mom”
Total Time Read:	54 seconds	1 minute, 35 seconds
Words Per Minute (WPM):	38.8 WPM	27.78 WPM
Correct Words Per Minute (CWPM)	36.6 CWPM	25.89 CWPM
Prosody	Smooth stress on words at the beginning and ending of the sentences within the text.	Choppy, rough. No intonation.
Articulation:	Clear articulation of words read. No mispronunciation detected.	Clear articulation of words that were easily decodable.

Copies of all testing instruments available upon request.

With careful observation of the table below, one will notice sizeable differences in just about every section between the numerical values associated with the Pre-Primer 1 scores and the Pre-Primer 2 scores. Right away one will notice that the time it took Emma to read the Pre-Primer 1 and the Pre-Primer 2 text differed by an additional margin of 41 seconds. This is also noticeable if one would look closely at the WPM and CWPM scores where there was a difference between the Pre-Primer 1 and Pre-Primer 2 scores in that Emma was able to read 11.02 wpm more at the Pre-Primer 1 level and 10.71 cwpm at the Pre-Primer 1 level than the Pre-Primer 2 level. Furthermore, the prosody at which Emma read was also significantly better considering the considerable stress she used in reading at the Pre-Primer 1 level than the Pre-

Primer 2 level. This could be due, however, to the fact that Emma was unable to decode some of the words and that there long pauses which could signify that she was not exactly sure what she was reading at times. This is evidenced by Emma's articulation between the two levels. At the Pre-Primer 1 level, Emma was able to articulate every word smoothly and without hesitation; whereas at the Pre-Primer 2 level Emma had good command of her articulation for every word that she was able to easily decode. Therefore, at times her smoothness or prosody seemed rough and choppy at the Pre-Primer 2 level.

Because Emma was not administered the Pre-Primer 2 assessment of the QRI-5 on May 17th, 2011, no comparisons can be made between her scores of Pre-Primer 2 text at this time and at the baseline collection period. However, comparisons between her Pre-Primer 1 scores at this juncture and the baseline collection period administered on May 17th, 2011 can be made. The difference between the scores of the Pre-Primer 1 assessments on May 17th, 2011 and July 9th, 2011 are pronounced on many different fronts. First, there is a margin of 81 seconds between the total time it took Emma to read the Pre-Primer 1 section administered on May 17th, 2011 (135 seconds) and the total time it took Emma to read the Pre-Primer 1 section administered July 9th, 2011 (54 seconds). Secondly, an increased margin (22.36 wpm) between the amount of wpm Emma was able to read at the Pre-Primer 1 level text administered May 17th, 2011 and the Pre-Primer 1 level text administered July 9th, 2011. Next, Emma also demonstrated a wide difference of cwpm (20.16) she was able to read at the May 17th, 2011 (16.44) administration and the July 9th administration (36.6) of the QRI-5. Finally, the prosody of which Emma read the Pre-Primer 1 level text at the May 17th, 2011 administration of the QRI-5 and the July 9th, 2011

administration of the QRI-5 also differed substantially. On the May 17th, 2011 administration of the QRI-5, Emma's reading was choppy and drawn out with long pauses and no intonation; whereas on the July 9th, 2011 administration of the QRI-5, Emma read the text smoothly, her voice rising at the beginning of the sentences within the text and lowering at the endings. Emma's articulation remained the same with no obvious mispronunciations of any of the words that Emma read that were detected by the administrator between the May 17th, 2011 administration of QRI-5 and the July 9th, 2011 administration of the QRI-5.

The last administration of the QRI-5 occurred October 25th, 2011. At this administration of the QRI-5, Emma was administered a Pre-Primer 1, Pre-Primer 2, and Pre-Primer 3 level text to document her growth as reader of the course of the intervention period; a roughly five month period between baseline collection and summative data collection. Below are the results and interpretations of the results of the administration of the QRI-5 completed on this date.

The word lists and the actual text levels within the QRI-5 are numbered differently. The word lists within the QRI-5 are numbered Pre-Primer 1, Pre-Primer 2/ 3, Primer, First, and so on; however, Emma was only administered word lists to the Primer level. The actual texts that are given to individuals are numbered similarly with the only difference being that there is no Pre-Primer 2/3 level text but rather a Pre-Primer 2 level text and a Pre-Primer 3 level text.

Table 11 Word List for the assessment given October 25th, 2011

Level of Word List:	Pre-Primer 1	Pre-Primer 2/3	Primer	First
Number of Words Automatically Identified:	17	15	14	5
Number of Words Identified:	0	3	4	3
Number of Words Not Identified:	0	2	2	12
Total Number Correct:	17	18	18	8
Level of Proficiency:	Independent	Independent	Independent	Frustrational

Copies of all testing instruments are available upon request. For the Word List portion of the QRI-5, Emma was given four levels of word lists, one after the other to determine her ability to decode words. At this assessment period along with every other assessment periods of the QRI-5 that occurred between May 17th, 2011 and October 25th, 2011, Emma was first given the lowest of the levels contained within this assessment, the Pre-Primer 1 level. If Emma received either an independent or instructional level on a particular word list, she would be presented with the next word list in the sequence of the lists, which are presented with each one containing more and more complex words. Because Emma was able to decode all words on an instructional or independent level all the way up to the Primer level, Emma was administered the first level of

word lists until she reached the Primer level of which she was determined to be at a frustrational level as measured by the QRI-5.

The assessment given October 25th, 2011 differs from that given July 9th, 2011 in that it attempts to measure Emma's ability to decode words on four levels of words lists (Pre-Primer 1, Pre-Primer 2/3, Primer, and First) rather than the Pre-Primer 1 and Pre-Primer 2/3. Since Emma was only administered the Pre-Primer 1 and Pre-primer 2/3 word lists on the previous two administrations of the QRI-5 on May 17th 2011 and July 9th, 2011 no comparison data can be made for the Primer and First level of the QRI-5 given October 25th, 2011. However, the mere fact that Emma was able to move beyond receiving a frustrational level at the July 9th, 2011 administration of the Pre-Primer 2/3 word list on October 25th, 2011 to an Independent level of the Pre-Primer word list shows growth in her ability to decode words at this level. Aside from this, Emma was able to demonstrate her ability to decode words at an Independent level at the Primer level and her ability to decode words at a frustrational level on the First level of the QRI-5. This shows that she grew one complete level in her ability to decode words as determined by the QRI-5 in a 20 week period.

Table 12 Passage results for the assessment given on October 25th, 2011

Level of Text/ Title:	Pre-Primer 1 “I See”	Pre-Primer 2 “People at Work”	Pre-Primer 3 “Lost and Found”
Types of Miscues:	Syntactic	Semantic, Graphemic	Syntactic
Number of Total Miscues:	1	5	10
Number of Ideas Retold:	7/10 70% of ideas retold.	11/17 64% of ideas retold.	9/21 42% of ideas retold.
Number of Explicit Questions Answered:	5/5	4/4	5/5
Number of Implicit Questions Answered:	0	1/1	0
Level of Student (comprehension):	Independent	Independent	Independent

Copies of all testing instruments are available upon request.

Although Emma was administered the word list up to the First level, the researcher decided of the researcher to only administer running records up to the Pre-Primer 3 level. This decision was made as a result of Emma’s performance on reading the text at the Pre-Primer 3 level. Although she received a comprehension level of Independent after she had read the passage and correctly answered the comprehension questions, she had considerable difficulty reading the passage; in particular the words with the inflected ending”-ed” and the multiple syllabic words such as “outside” that she substituted with “out” and “inside” that she substituted with “in.” Emma also made syntactic miscues when reading the Pre-Primer 3 level text. Emma made syntactic miscues on lines 3, 4, 5, 8, and 9 of the text “Lost and found” where she

substituted the word “look” for the word “looked.” Emma also made syntactic miscues on lines five and ten of the text “Lost and Found” when she inserted the word “in” in the sentences. semantic Other syntactic miscues that Emma made included substituting the word “out” for the word “outside” on line 5, mistaking the word “in” for the word “inside” on line three, substituting the word “in” for the word “inside”, and inserting the word “in” in line 10. These are syntactic miscues because they the meanings between both of these words are nearly the same..

Further comparisons of the Pre-Primer 1 and Pre-Primer 2 texts that were administered on all three occasions (May 17th, 2011, July 9th, 2011, and October 25th, 2011) can be made to determine if and how much Emma grew over the course of the intervention. At the Pre-Primer 1 level, Emma was able to retell 20% more ideas from the time of baseline collection (May 17th, 2011) to summative collection (October 25th, 2011). However, she remained at the highest comprehension level (independent) from baseline data collection (May 17th, 2011) to summative data collection (October 25th, 2011).

At the Pre-Primer 2 level, from the second data collection period (July 9th, 2011) to the summative data collections (October 25th, 2011), Emma was able to recall 17% more details at the summative level than she was previously at the second data collection period. From a comprehension standpoint at the Pre-Primer 2 level, Emma rose from an instructional level to an independent one as determined by the Qualitative Reading Inventory-5 (QRI-5) at the summative data collection period.

Table 13 Fluency Section of the Passage administered October 25th, 2011

Level of Text/Title:	Pre-Primer 1 “ I See”	Pre-Primer 2 “People at Work”	Pre-Primer 3 “Lost and Found”
Total Time Read:	44 seconds	96 seconds	107 seconds
Words Per Minute (WPM):	47.72 wpm	30.63 wpm	35.89 wpm
Correct Words Per Minute (CWPM):	46.36 cwpm	26.88 cwpm	30.28 cwpm
Prosody:	Very smooth, excellent intonation.	Smooth, some hesitation at words that were more difficult to decode. Good intonation.	Somewhat smooth with moderate intonation
Articulation:	No mispronunciations were detected by the administrator.	No mispronunciations were detected by the administrator.	Mispronounced some words and left off inflected endings.

Copies of all testing instruments are available upon request.

As with the other components of the QRI-5 denoted in detail above, the fluency section shows tremendous growth from one administration of the assessment to the other. The first assessment of the QRI-5 conducted on May 17th, 2011 shows that Emma was able to read a Pre-Primer 1 text containing 37 words in 135 seconds. This differs considerably from the summative data collection assessment help October 25th, 2011, where Emma was able to read a Pre-Primer 1 level text in 44 seconds. This stands at adifference of 91 seconds from the baseline data collection period to the summative data collection period. Note the text used during the summative data collection period contained a total of 35 words, a difference of two words less than the baseline collection period. Along with the changes in the total time it took for Emma to read the Pre-Primer 1 level text from the baseline data collection period (May 17th, 2011) to the

summative data collection period (October 25th, 2011), so too did the wpm and cwpm increments at this same text level. At the baseline data collection period, Emma was able to read 16.44 wpm and 16.44 cwpm; however, at the summative data collection period Emma demonstrated her ability to 47.72 wpm and 46.36 cwpm at the Pre-Primer 1 level. This margin between these two assessment periods in terms of wpm and cwpm stands at an increase of 31.28 wpm and 29.92 cwpm at the Pre-Primer 1 level.

Prosody is another area that Emma improved upon based on the results of the QRI-5 as compared to the baseline data collection period (May 17th, 2011) and the summative data collection period (October 25th, 2011). At the time baseline data was collected, Emma read the Pre-Primer 1 text smoothly, but somewhat drawn out when she encountered a word she was not sure of; whereas, in the summative data collection period she was able to read the text smoothly and with excellent intonation allowing her voice to rise at the beginning of her sentences and to lower itself at the ends of these same sentences. The articulation of which Emma read both at the baseline data collection period and the summative data collection period showed no change as there were no detected signs of mispronunciations on either of these occurrences at the Pre-Primer 1 level.

The first occasion a Pre-Primer 2 text was administered to Emma was the second data collection period (July 9th, 2011) and again subsequently at the summative data collection period (October 25th, 2011). Minimal signs of growth occurred between the two texts. The total time it took to read the Pre-Primer 2 level text containing 44 words on the second data collection period took Emma 95 seconds to read; whereas at the summative data collection period it took Emma

96 seconds to read a Pre-Primer 2 level text containing 49 words. The number of words between these two administrations stands at an increase of five words. In addition to the total time it took Emma to read both Pre-Primer 2 texts during the second data collection period and the summative data collection period, there were also minimal changes in the wpm and cwpm the Emma read at. During the second data collection period Emma read 27.78 wpm and 25.89 wpm. This differs minimally from the summative data collection period in that Emma read 30.63 wpm (a difference of only 2.9 wpm) and 26.88 cwpm (a difference of only 0.99 cwpm).

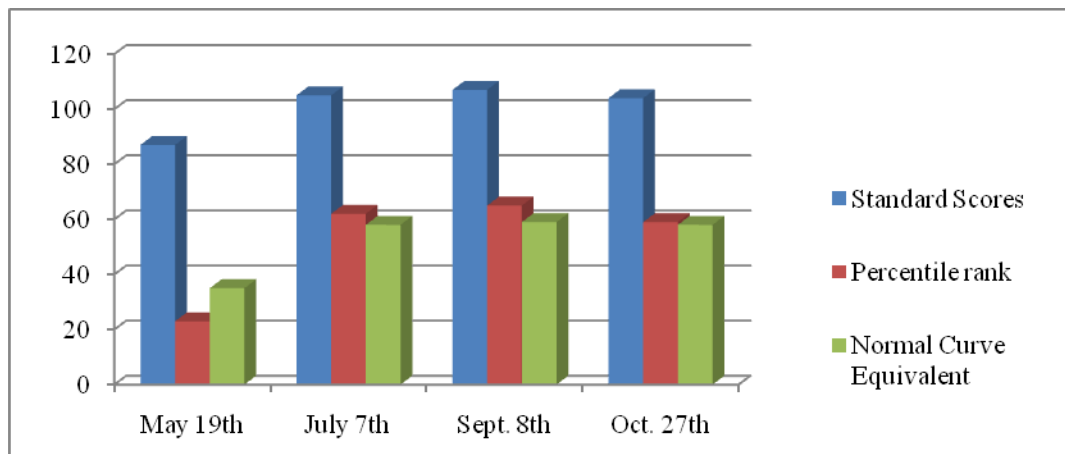
Prosody also improved during the second data collection period and the summative data collection period. During the second data collection period, Emma read a Pre-Primer 2 level text in a somewhat choppy manner and she read with no intonation. However, at the summative data collection period, Emma read a Pre-Primer 2 text smoothly and with good intonation for most of the period she was reading. Articulation between the second data collection period and the summative data collection period did not change. Emma read, on both these occasions, with the same pronunciation of any of the words she read at the Pre-Primer 2 level.

Because the summative data collection period was the first data collection period that Emma was administered a Pre-Primer 3 level text, no comparisons can be made. However, just reaching the Pre-Primer 3 level shows that Emma has grown as a reader. Emma was able to read the Pre-Primer 3 level text in 107 seconds, read 35.89 wpm, and read 30.28 cwpm.

Peabody Picture Vocabulary Test (PPVT)

Emma was administered the Peabody Picture Vocabulary Test (PPVT) to determine where her receptive language skills lied at predetermined points in time throughout the study. The PPVT was given a total of four times over the five month period Emma was partaking in the study. The baseline data collection period for the PPVT was administered on May 19th, 2011 with the summative data collection period being October 27th, 2011. Between the baseline data collection period and the summative data collection period, lie two other data collection periods where Emma was administered the PPVT. The second data collection period was held July 7th, 2011 and the third data collection period was held September 8th, 2011.

Figure 1 Scores of the PPVT Assessments Given from Baseline to Summative Data Collection Periods



Copies of all testing instruments are available upon request.

The Peabody Picture Vocabulary Test (PPVT) allows measurement in a number of different ways. First, the administrator of the assessment would have to determine the raw score of the participant, in this case Emma, by subtracting the ceiling item from the number of errors

the student made. In this assessment, the ceiling item is the highest number of items in a set where the student made at least eight errors. Once the raw score is determined, the administrator of the assessment can then determine the participant's standard score based upon the student's chronological age. The chronological age is determined by subtracting the date of testing from the participant's date of birth. From the standard score, the administrator can simply look at the normal bell curve to determine percentile rank at the time of testing, normal curve equivalents, and stanine scores.

The baseline data collection for the Peabody Picture Vocabulary Test (PPVT) was administered to Emma on May 19th, 2011. At this point, it was determined, as per the PPVT, that Emma was in the 23rd percentile of students her age in terms of where her standard score of 87 fell on the normal bell curve. The second data collection period of the PPVT was administered to Emma on July 7th, 2011. This was the first time Emma was given the PPVT after the intervention had taken place. Here, it was determined, as per the PPVT, that Emma was in the 62nd percentile of students her age in terms of where her standard score of 105 fell on the normal bell curve. The third data collection period of the PPVT was administered to Emma on September 8th, 2011. Here, it was determined as per the PPVT, that Emma was in the 65th percentile of students her age in terms of where her standard score of 107 fell on the normal bell curve. The summative data collection period of the PPVT was administered to Emma on October 27th, 2011. Here, Emma's standard score of 104 determined that she was in the 59th percentile of students her age in terms of where her standard score of 104 fell on the normal bell curve.

Upon further inspection of Emma's percentile scores between all administrations of the Peabody Picture Vocabulary Test (PPVT), one may note that her receptive language skills grew between the baseline data collection period (May 19th, 2011) and the summative data collection period (October 27th, 2011). The difference between these two periods, in terms of percentile rank, stands at 32. Therefore, as determined by the PPVT, Emma's receptive language skills between the baseline data collection period (May 19th, 2011) and the summative data collection period (October 27th, 2011) grew by a percentile rank of 32. Emma's normal curve equivalents between these two periods grew by 23.

Mean Length of Utterance (MLU)

Mean Length of Utterance (MLU) is an assessment that strives to measure oral language skills at various points in time and is accomplished by careful observation and analysis of what kinds and how many morphemes being uttered during a specified period of time. These utterances are then calculated along with the amount of phrases a participant utters. These utterances are often recorded and further analyzed at later periods of time to determine the types of morphemes and syntactic structures the students are using along with any errors that are being made. The calculations based upon the amount of morphemes within the phrases can give accurate age equivalents of the speech patterns the participant is using at the time. In fact, current research has shown that gathering the MLU of a subject is a valid predictor of language acquisition and linguistic competencies of a particular age group of a subject (Rice, Smolik, Perpich, Thompson, Rhytting & Blossom, 2010).

Table 14 Mean Length of Utterance (MLU) Sessions 1-3

Date:	May 21 st , 2011	June 18 th , 2011	July 9 th , 2011
Sessions/ Time Recorded:	MLU Session 1 1 hour, 1 minute, 35 seconds	MLU Session 2 1 hour, 18 minutes, 21 seconds	MLU Session 3 1 hour, 35 minutes, 21 seconds
Number of Morphemes Uttered:	1733 morphemes	2358 morphemes	3587 morphemes
Number of Spoken Phrases:	412 phrases	465 phrases	711 phrases
Age Equivalent:	4-2 or 4 years, 2 months	5-0 or five years, 0 months	4-9 or four years, 9 months
Activities Engaged:	Emma was engaged in playing a learning games such as Wild Word Adventure and Monopoly Jr.	Emma was engaged in playing with her dollhouse and other little play figures.	Emma was engaged in playing with with her dollhouse, working a puzzle, and playing with clay.

Copies of all testing instruments are available upon request.

The baseline assessment session of MLU will be referred to as MLU session 1. In MLU session 1, Emma uttered 1733 morphemes within 412 phrases which put her age equivalence, as defined by MLU, as 4-2 or 4 years, 2months. This means that Emma’s speech patterns at this stage were equivalent to those of a child who was 4 years old and 2 months into their fifth year. The second Mean Length of Utterance will be referred to as MLU session 2. In MLU session 2, Emma uttered 2358 morphemes within 465 phrases which put her age equivalence, as defined by MLU, of an 5-0 or five years, 0 months. This means that Emma’s speech patterns at this stage were equivalent to a child who was 5 years and 0 months into their sixth year. The third Mean Length of Utterance session will be referred to MLU session 3. In MLU session 3, Emma uttered

3587 morphemes within 711 phrases which put her age equivalence, as defined by MLU, of 4-9 or four years, 9 months. This means that Emma’s speech patterns at this stage were equivalent to a child who was five years, 9 months into their sixth year.

Table 15 Mean Length of Utterance (MLU) Sessions 4-7

Date:	July 30 th , 2011	August 20 th , 2011	September 10 th , 2011	October 22 nd , 2011
Sessions/ Time Recorded:	MLU Session 4 30 minutes, 21 seconds	MLU Session 5 30 minutes, 59 seconds	MLU Session 6 1 hour, 0 minutes, 52 seconds	MLU Session 7 59 minutes, 57 seconds
Number of Morphemes Uttered:	1037 morphemes	1017 morphemes	976 morphemes	1402 morphemes
Number of Spoken Phrases:	219 phrases	169 phrases	183 phrases	274 phrases
Age Equivalence:	4-7 or 4 years, seven months	6-0 or 6 years, 0 months	5-3 or 5 years, 3 months	5-1 or 5 years, 1 month
Activities Engaged:	Emma was engaged in coloring and working a puzzle	Emma was engaged in playing with her dollhouse and other little figures.	Emma was engaged in playing with her dollhouse and other little figures.	Emma was engaged in playing games.

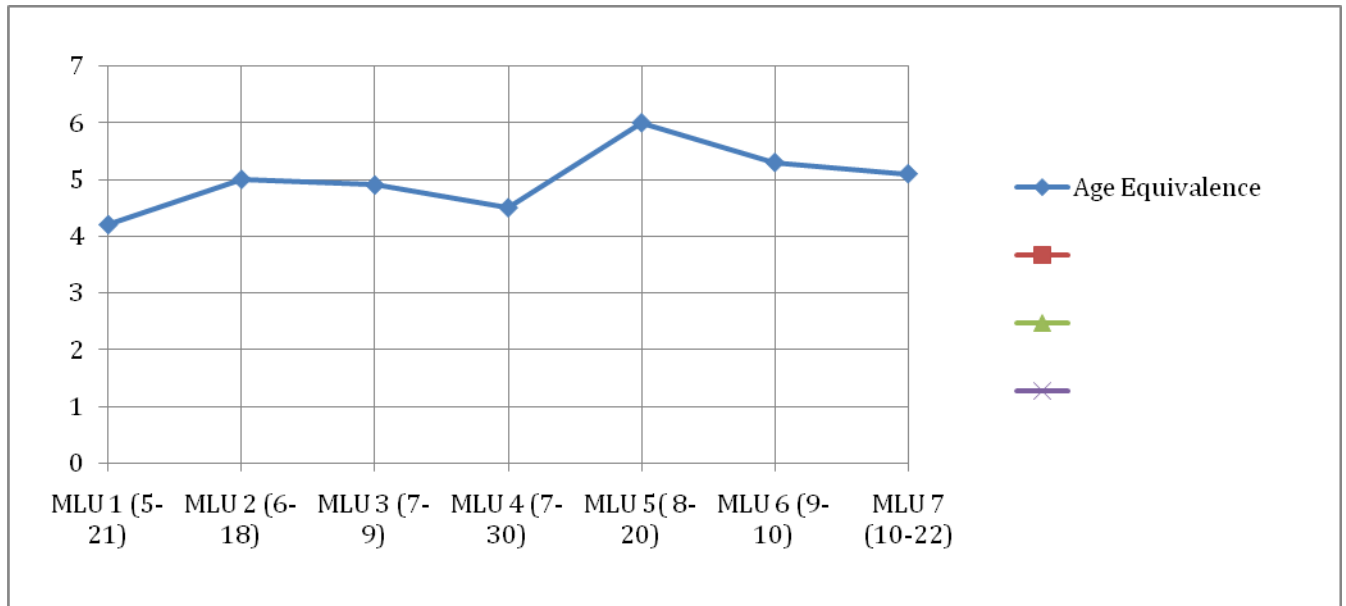
Copies of all testing instruments are available upon request.

The fourth MLU session will be referred to as MLU session 4. In MLU session 4, Emma uttered 1037 morphemes within 219 phrases which puts her age equivalence, as defined by MLU, of 4-7 or 4 years and 7 months. This means that Emma’s speech patterns at this stage were equivalent to a child who was 4 years, 7 months into their fifth year. The fifth MLU session will

be referred to as MLU session 5. In MLU session 5, Emma uttered 1017 morphemes within 169 phrases which puts her age equivalence, as defined by MLU, of 6-0 or 6 years, 0 months. This means that Emma's speech patterns at this stage were equivalent to a child who was 6 years, 0 months into their seventh year. The sixth MLU session will be referred to as MLU session 6. In MLU session 6, Emma uttered 976 morphemes within 183 phrases which puts her age equivalence, as defined by MLU, of 5-3 or 5 years, 3 months. This means that Emma's speech patterns at this stage were equivalent to a child who was 5 years, 3 months into their sixth year. The seventh MLU session will be referred to as MLU session 7. In MLU session 7, Emma uttered 1402 morphemes within 274 phrases which puts her age equivalence, as defined by MLU, of 5-1 or five years, 1 month. This means that Emma's speech patterns at this stage were equivalent to a child who was 5 years, 1 month into their sixth year.

The difference between the baseline collection of MLU session 1 and the summative data collection of MLU session 7 stands at a difference of 11 months; however, if careful observation is made of the MLU sessions 2, one will notice that there are increased morphemes in terms of age equivalence on all MLU sessions given; all of which were higher than MLU session 1 which was the baseline collection session and occurred before any intervention took place. More detailed information is recorded in Figure 2 below with detailed explanations of such.

Figure 2 Line Graph of MLU session assessment results from baseline to summative administrations



Copies of all testing instruments are available upon request.

Seven total Mean Length of Utterance (MLU) sessions were held over the five-month research period: denoted as MLU session 1 to MLU session 7. The figure above details the results or age equivalents of Emma's speech patterns for each of these sessions along with the date Emma's speech patterns were collected. For the purpose of calculating age equivalence through MLU, the number of morphemes uttered throughout the session are divided by the number of morphemes uttered throughout the session by the number of phrases the participant utters. Therefore, total number of morphemes uttered divided the total number of phrases uttered is equivalent to age equivalence of expected speech patterns uttered by children of various ages, as per MLU. To summarize, MLU session 1 (the baseline collection period) was held May 21st, 2011 where Emma's speech patterns were determined, as per MLU, to be comparable to a child who was 4 years old and 2 months in to their fifth year. This differs from MLU session 2 (June 18th, 2011), where Emma's speech patterns were determined to be comparable to a child who

was five years and 0 months into their sixth year by a margin of 10 months. The margin between the baseline data collection period (May 21st, 2011) and the MLU session 3 (July 9th, 2011), where the age equivalent of Emma's speech patterns were determined to be comparable to a child who was 4 years and 9 months into their fifth year, stands at a period of 7 months where Emma's speech patterns grew as determined by MLU. The speech patterns collected during MLU session 4, held July 30th, 2011, were determined to be comparable to a child who was 4 years and 7 months into their fifth as determined by MLU. Therefore, the increase between MLU session 1 and MLU session 4 stood at a margin of 5 months as determined by MLU. Emma's speech patterns collected on August 20th, 2011 during MLU session 5 were determined to be comparable to a child who was 6 years and 0 months into their seventh year as determined by MLU. Therefore, the allowance between MLU session 1 and MLU session 5 increased by a margin of 22 months. Emma's speech patterns collected on September 10th, 2011 during MLU session 6 were determined to be comparable to a child who was 5 years and 3 months into their sixth year as determined by MLU. Therefore, the allowance between MLU session 1 and MLU session 6 stood at a margin of 13 months. Finally, Emma's speech patterns collected on October 22nd (summative data collection period) during MLU session 7 were determined to be comparable to a child who was 5 years and 1 month into their sixth year as determined by MLU. Therefore, the allowance between MLU session 1 and MLU session 7 showed a total increase of 11 months.

Table 16 Baseline Comparison of MLU Session 1 to MLU Sessions 2-7

MLU 1	MLU 2	MLU 3	MLU 4	MLU 5	MLU 6	MLU 7
May 21 st , 2011	June 18 th , 2011	July 9 th , 2011	July 30 th , 2011	August 20 th , 2011	September 10 th , 2011	October 22 nd , 2011
4 years, 2 months (Baseline)	5 years, 0 months + 10 months	4 years, 9 months + 7 months	4 years, 7 months + 5 months	6 years, 0 months + 21 months	5 years, 3 months + 13 months	5 years, 1 month + 11 months (Summative)

Interpreted in detail in conjunction with the graph in the preceding paragraph.

The table below illustrates the age equivalents obtained through MLU sessions 1-7 and how they relate to one another. In other words, how much did Emma gain, in terms of age equivalence, from one MLU session to another? Emma’s age equivalence at MLU session 1 was determined to be comparable to a child who was 4 years and 2 months into their fifth year as determined by MLU. This differed from MLU session 2 because Emma’s speech patterns grew by 10 months as determined by MLU. From MLU session 2 to MLU session 3, Emma’s speech patterns went from a positive 10 month growth from baseline to a positive seven month growth from baseline, thereby decreasing by three months. From MLU session 3 to MLU session 4, Emma’s speech patterns went from a positive seven month growth from baseline down to positive five month growth from baseline, thereby decreasing two more months from one session to the next. From MLU session 4 to MLU session 5, Emma’s speech patterns went from a positive seven month growth from baseline to a positive 21 month growth from baseline, thereby increasing 16 months from one session to the next. From MLU session 5 to MLU session 6, Emma’s speech patterns went from a positive 21 month growth from baseline to a positive 13

month growth from baseline; thereby decreasing eight months from one session to the next.

Finally, from MLU session 6 to MLU session 7, Emma’s speech patterns went from a positive 13 month growth to a positive 11 month growth, thereby decreasing by 2 months from one session to the next.

Table 17 Data Comparisons of MLU from Session to Session

MLU 1	MLU 2	MLU 3	MLU 4	MLU 5	MLU 6	MLU 7
May 21 st , 2011	June 18 th , 2011	July 9 th , 2011	July 30 th , 2011	August 20 th , 2011	September 10 th , 2011	October 22 nd , 2011
4 years, 2 months (Baseline)	+ 10 months	-3 months	-2 months	+ 16 months	- 8months	-2 months (Summative)

Interpreted in detail in conjunction with the graph in the preceding paragraph

Upon further observation of the age equivalences as MLU session data was obtained, one will notice that the age equivalence at MLU session 5 increases sharply from baseline by a 21 month span. This is also higher than any of the other data that was collected from any of the MLU sessions over the course of the study. The highest age equivalence that was obtained other than 6 years, 0 months from MLU session 5 was 5 years, 3 months from MLU 6. Therefore, the age equivalence provides a strong indication that the age equivalence of 6 years, 0 months collected at MLU session 6 may be an outlier in terms of the whole data collection from MLU. Whether that be the case or not; however, it does not change the premise that Emma was able to produce the speech patterns comparable to a child who was 6 years, 0 months during MLU session 6, as determined by MLU. This, in itself, shows that Emma is progressing in her ability to use more complex speech patterns when communicating her wants and needs orally.

In addition to an increase in age equivalence, Emma's ability to use more complex sentences when discerning her needs and wants also increased. Most likely, her ability to do so resulted in an increased ability to string longer sentences together as well as to produce more syntactically correct sentences. Evidenced is provided by the Mean Length of Utterance (MLU) sessions and the types and numbers of errors. Further analysis of this component of all MLU sessions held is detailed below in Table 18.

Table 18 Syntactical Patterns Recorded during MLU Session 1 (May 19th, 2011)

Number of One Word Phrases:	94/412 or 22%
Number of Two Word Phrases:	37/412 or 9%
Number of Three Word Phrases:	37/412 or 9%
Types of Morphemes Used:	<ul style="list-style-type: none">- es/s (51) - ed(1)- er(2) - ing(5)- est (0) -n (0)
Three Longest Phrases:	The three longest phrases contained within this session of MLU contained 14, 16, and 17 morphemes each respectively.
Observations:	<ul style="list-style-type: none">- Uses the third person singular form of a verb in place of a first singular verb form.- Mixes up the correct usage of contractions and when to use one over the other.- Leaves out helping verbs when using contractions.- Leaves out pronouns when speaking.- Leaves out article between words.

Copies of all testing instruments are available upon request.

Roughly 40% of the phrases Emma uttered during MLU session 1 contained three words or less. Further, Emma used the morphemes of es/s 51 times, the morpheme –ed once, the morpheme –er2 times, the morpheme –ing a total of 5 times, and the morpheme –n 0 times. In addition, the three longest utterances that Emma produced during this time period consisted of 14, 16, and 17 morphemes each respectively. Some representative examples of errors that Emma made during this period include:

- Substituting third-person singular verbs with that of first person singular verbs. This occurred when Emma produced the phrase, “That go right here,” rather than, “That goes right here.” This also occurred when Emma said, “ And this go the red,” rather than, “ And this goes with the red.”

- Mixing up the correct usage of contractions. This particularly occurred with the contractions “can’t” and “don’t.” For example, instead of saying “I don’t like Dominick,” Emma said, “I can’t like Dominick.” This occurred on various occasions throughout MLU session 1.

- Leaving out helping verbs when using contractions. This occurred when Emma said, “ I calm down,” instead of “I’ll calm down,” or when Emma said, “I copying you,” instead of “ I’m copyingyou.”

- Leaving out pronouns when speaking. This occurred when said, “I got all,” instead of “I got it all,” and when Emma said, “Wait my turn,” instead “ Wait, it’s my turn.”

- And leaving out articles between words. This occurred when Emma said, “ You can’t do without me right?” rather than “ You can’t do it without me right?” and when Emma said “It’s green one,” rather than “ It’s a green one.”

Roughly 37% of the phrases Emma uttered during MLU session 3 contained three words or less. Further, Emma used the morphemes –e/es 186 times, the morpheme –ed 5 times, the morpheme –ing 20 times, the morpheme –er 7 times, the morpheme –est 0 times, and the morpheme –n 5 times. In addition, the three longest utterances that Emma produced within this time period consisted of 24, 19, and 18 morphemes each respectively. Some errors that Emma made during this time period included:

- Sometimes leaving out helping verbs both when a contraction would normally be placed and between a noun and a verb. This occurred when Emma said, “ I think I use another color,” rather than “I think I will use another color,” or when Emma stated, “Okay Kelly we be done with the puzzle,” rather than “Okay Kelly we are done with the puzzle.”
- Sometimes leaving out articles. This occurred when Emma stated, “I want to play with Hello Kitty house again,” rather than “I want to play with the Hello Kitty house again” or when she said, “We got giraffe,” rather than “We got a giraffe.”
- Misusing pronouns. This occurred when Emma asked, “Me do it?” rather than, “Can I do it?” This occurred only once.

Table 21 Syntactical Patterns Recorded during MLU session 4 (July 30th, 2011)

Number of One Word Phrases:	59/227 or 25%						
Number of Two Word Phrases:	19/227 or 8%						
Number of Three Word Phrases:	29/227 or 12%						
Types of Morphemes Used:	<table> <tr> <td>-es/s (44)</td> <td>-ed (5)</td> </tr> <tr> <td>-ing (19)</td> <td>-er (5)</td> </tr> <tr> <td>-est (0)</td> <td>-n (0)</td> </tr> </table>	-es/s (44)	-ed (5)	-ing (19)	-er (5)	-est (0)	-n (0)
-es/s (44)	-ed (5)						
-ing (19)	-er (5)						
-est (0)	-n (0)						
Three Longest Phrases:	The three longest phrases contained within this session of MLU contained 21, 17, and 16 morphemes each respectively.						
Observations:	<ul style="list-style-type: none"> - Leaving out verbs. - Sometimes leaving out articles. - Confusing when to use the word “have” and the word “has” and the word “he” and the word “him” 						

Copies of all testing instruments are available upon request.

Roughly 45% of the phrases Emma uttered during MLU session 3 contained three words or less. Further, Emma used the morphemes –e/es 44 times, the morpheme –ed 5 times, the morpheme –ing 19 times, the morpheme –er 5 times, the morpheme –est 0 times, and the morpheme –n 0 times. In addition, the three longest utterances that Emma produced within this time period consisted of 21, 17, and 16 morphemes each respectively. Some errors that Emma made during this time period included:

-Leaving out verbs. This occurred when Emma asked, “Where I color this?” instead of “Good where do I color this?” This occurred only once.

-Leaving out articles. This occurred when Emma said, “This is circle,” rather than saying, “This is a circle,” or when Emma said, “I see clarinet,” rather than “I see a clarinet.”

- Confusing when to use the word “have” and the word “has” and the word “he” and the word “him.” This occurred when Emma said, “She have to go to her meeting?” rather than “She has to go to her meeting?” and when Emma said, “Can him have a drink or something?” rather than “Can he have a drink or something?”

Table 22 Syntactical Patterns Recorded during MLU session 5 (August 20th, 2011)

Number of One Word Phrases:	34/169 or 20%
Number of Two Word Phrases:	6/169 or 3%
Number of Three Word Phrases:	15/169 or 8%
Types of Morphemes Used:	-es/s (32) -ed (3) -ing (14) -er (0) -est (0) -n (1)
Three Longest Phrases:	The three longest phrases contained within this session of MLU contained 33, 28, and 23 morphemes each respectively.
Observations:	<ul style="list-style-type: none"> - Sometimes leaves out pronouns - Mixes up the use of present tense and past tense verbs - Leaves out articles and confuses when to use verbs in the participle form.

Copies of all testing instruments are available upon request.

Roughly 31% of the phrases Emma uttered during MLU session 3 contained three words or less. Further, Emma used the morphemes –e/es 32 times, the morpheme –ed 3 times, the morpheme –ing 14 times, the morpheme –er 0 times, the morpheme –est 0 times, and the

morpheme –n 1 time. In addition, the three longest utterances that Emma produced within this time period consisted of 33, 28, and 23 morphemes each respectively. Some errors that Emma made during this time period included:

- Sometimes leaving out pronouns. This occurred when Emma said, “ I have to find” rather than, “I have to find it.” This occurred once.
- Sometimes mixing up the present tense and past tense of verbs. This occurred when Emma said, “I find the dog cart” rather than “I found the dog cart.” This occurred once.
- Sometimes left out articles and confuses when to use verbs in the participle form. This occurred when Emma said, “Give me turning” rather than “Give me a turn.”

Table 23 Syntactical Patterns Recorded during MLU session 6 (September 10th, 2011)

Number of One Word Phrases:	38/183 or 20%
Number of Two word Phrases:	23/183 or 12%
Number of Three Word Phrases:	12/183 or 6%
Types of Morphemes:	-es/s (64) -ed (2) -ing (16) -er (3) -est (2) -n (0)
Three Longest Phrases:	The three longest phrases contained within this session of MLU contained 33, 28, and 23 morphemes each respectively.
Observations:	-Sometimes leaves out conjunctions. -Sometimes leaves out articles. -Sometimes leaves out helping verbs.

Copies of all testing instruments are available upon request.

Roughly 38% of the phrases Emma uttered during MLU Session 3 contained three words or less. Further, Emma used the morphemes –e/es 64 times, the morpheme –ed 2 times, the morpheme –ing 16 times, the morpheme –er 3times, the morpheme –est twice, and the morpheme –n once. In addition, the three longest utterances that Emma produced within this time period consisted of 30, 29, and 25 morphemes each respectively. Some errors that Emma made during this time period included:

- Sometimes leaving out conjunctions. This occurred when Emma said, “For my dog it won’t run away” rather than “For my dog so it won’t run away.”
- Sometimes leaving out articles. This occurred when Emma said, “He’s not doggy Kelly, he’s a poodle” rather than “He’s not a doggy Kelly, he’s a poodle.”
- Sometimes leaving out helping verbs. This occurred when Emma said, “It be big and I make the room” rather than “It will be big and I make the room.”

Table 24 Syntactical Patterns Recorded during MLU session 7 (October 22nd, 2011)

Number of One Word Phrases:	55/274 or 20%						
Number of Two Word Phrases:	44/274 or 16%						
Number of Three Word Phrases:	29/274 or 10%						
Types of Morphemes Used:	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">-es/-s (37)</td> <td style="width: 50%;">-ed (6)</td> </tr> <tr> <td>-ing (12)</td> <td>-er (0)</td> </tr> <tr> <td>-est (1)</td> <td>-n (0)</td> </tr> </table>	-es/-s (37)	-ed (6)	-ing (12)	-er (0)	-est (1)	-n (0)
-es/-s (37)	-ed (6)						
-ing (12)	-er (0)						
-est (1)	-n (0)						
Three Longest Phrases:	The three longest phrases contained within this session of MLU contained 26, 19, and 18 morphemes each respectively.						
Observations:	- Confusing past and present tense						

	verbs. - Leaving out helping verbs. - Leaving out positional words.
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Copies of all testing instruments are available upon request.

This is the summative data collection period for the Mean Length of Utterance (MLU) assessments conducted throughout the study. Roughly 46% of the phrases Emma uttered during MLU Session 3 contained three words or less. Further, Emma used the morphemes –e/es 37 times, the morpheme –ed 6 times, the morpheme –ing 12 times, the morpheme –er 0 times, the morpheme –est once, and the morpheme –n 0 times. In addition, the three longest utterances that Emma produced within this time period consisted of 26, 19, and 18 morphemes each respectively. Some errors that Emma made during this time period included:

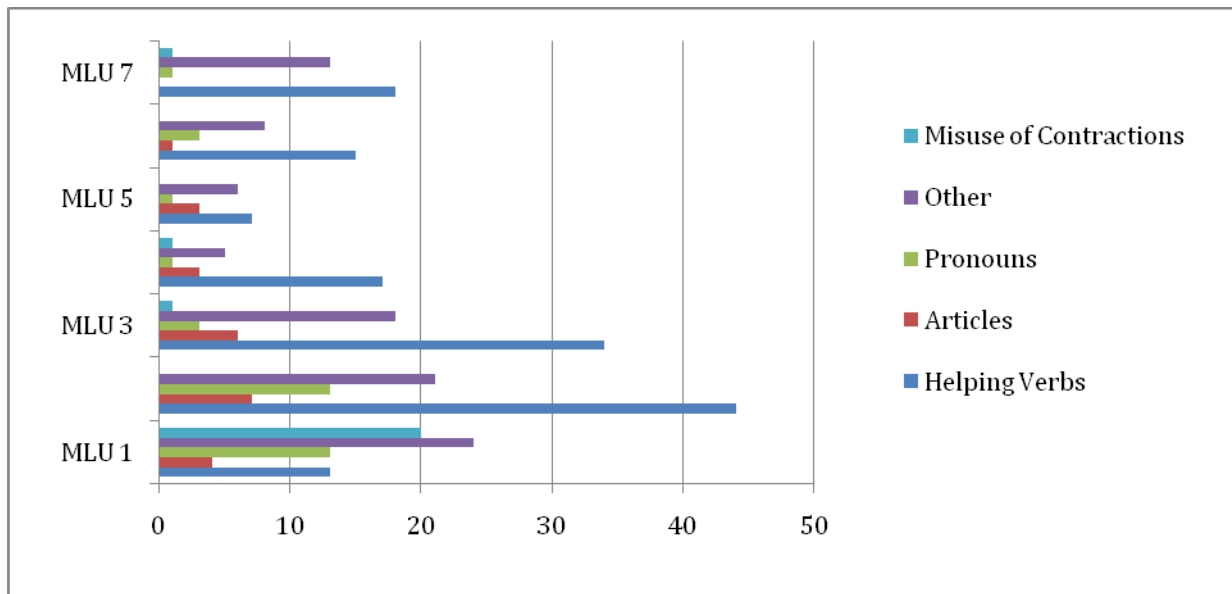
- Confusing past and present tense verbs. This occurred when Emma stated, “I tell Ms. Gum” rather than “I told Ms. Gum.”
- Leaving out helping verbs. This occurred when Emma stated, “I the captain” rather than “I’m the captain.”
- Leaving out positional words. This occurred when Emma asked, “Why you go nature hike with me?” rather than “Why did you go on a nature hike with me?” Note that this sentence contains two errors where Emma left out the position word “on” and the helping verb “did.”

Over the course of the study, Emma made numerous errors in her speech patterns, most of which consisted in three separate areas as noted above in Tables 18-24. The three areas Emma made most of her syntactical errors consisted of:

- A. Misplacing or refraining from using helping verbs,
- B. Misplacing or refraining from using articles, and
- C. Misplacing or Refraining from using pronouns or substituting one pronoun for another.

Therefore, an in-depth look at these three areas are denoted below.

Figure 3 Syntactical Errors Made Throughout MLU sessions 1 to 7 (Whole)



Copies of all testing instruments are available upon request.

The above table details the types of syntactical errors Emma made over the course of the study and thus, within each of the seven Mean Length of Utterance (MLU) sessions. An important thing to note about the above data; however, is that each MLU section were at different lengths, thus the amount of specific types of errors will invariably differ from one session to another. However, it may be interesting to some individuals to see the amount of errors from session to another. Further, Emma made many types of errors within these sessions

but only a look at the more common types of errors Emma, as detailed in the figure above, made within these periods will be analyzed and everything else will fall into the “Other” category.

Table 25 Mean Length of Utterance (MLU) Sessions 1 to 7 Time Periods and Number of Phrases Recorded

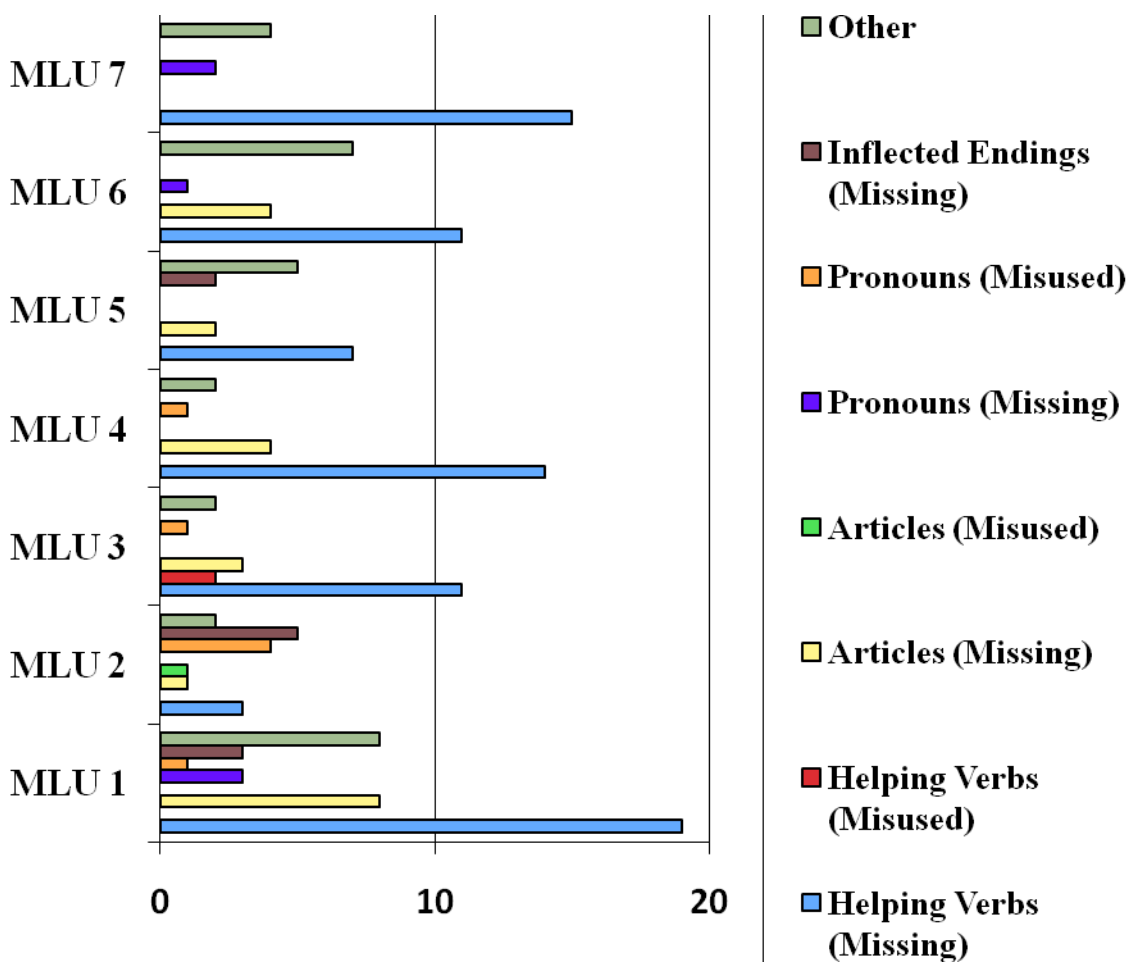
MLU Session:	Time Recorded:	Number of Phrases:
MLU Session 1	1 hour, 1 minute, 35 seconds	412 phrases
MLU Session 2	1 hour, 18 minutes, 21 seconds	465 phrases
MLU Session 3	1 hour, 35 minutes, 21 seconds	711 phrases
MLU Session 4	30 minutes, 21 seconds	219 phrases
MLU Session 5	30 minutes, 59 seconds	169 phrases
MLU Session 6	1 hour, 0 minutes, 52 seconds	183 phrases
MLU Session 7	59 minutes, 57 seconds	274 phrases

Copies of all testing instruments are available upon request.

The above table details the amount of time Emma's speech patterns were recorded as well as the number of phrases that were recorded for each of these sessions. The amount of time ranges from 30 minutes and 21 seconds as per MLU Session 4 (219 phrases) to 1 hour, 1 minute, and 35 seconds as per MLU Session 1 (412 phrases).

Due to the variability of the time periods recorded and the amount of errors within the differing amounts of phrases recorded within each MLU session, a further, in-depth analysis is detailed below of the first seven pages of transcribed speech patterns of each MLU session and the errors Emma made within these first seven transcribed pages for each MLU session.

Figure 4 Syntactical Errors Made Throughout MLU sessions 1 to 7 (Part)



Copies of all testing instruments are available upon request.

The figure above details the frequency of errors Emma made in eight specific categories [(helping verbs (missing), helping verbs (misused), articles (missing), articles (misused), pronouns (missing), pronouns (misused), and inflected endings (missing)] during MLU sessions 1 to 7 as noted in the first seven transcribed pages of each of the MLU sessions conducted from the baseline collection period to the summative collection period.

Helping Verbs (Missing)

During MLU Session 1 (baseline), Emma made 19 errors in which she left out a helping verb when she was orally communicating during the MLU session. This differs from MLU Session 7 (summative) where Emma made 15 errors where she left out helping verbs when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of “helping verbs (missing) differs by a margin of 4 errors. It is important to point out, however, that the summative MLU session (MLU Session 7) yields a higher error rating in terms of missing helping verbs than any of the other MLU sessions with the exception of MLU Session 1 (the baseline collection period). The frequency of errors Emma made in terms of missing helping verbs ranges between 3 and 19 where MLU Session 2 yielded the least amount of errors in terms of missing helping verbs (3 errors) and MLU Session 1 yielded the most amount of error in terms of missing helping verbs (19 errors).

Helping Verbs (Misused)

The data accumulated in this specific category remained relatively stable where Emma made no errors in any of the MLU sessions recorded with the exception of MLU Session 3 where Emma made 2 errors in which she misused a helping verb. Therefore, the amount of errors Emma made in this category ranges from 0 to 2.

Articles (Missing)

During MLU Session 1 (baseline), Emma made 8 errors in which she left out an article when she was orally communicating during the MLU session. This differs from MLU Session 7 (summative) where Emma made 0 errors where she left out articles when she was orally

communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of “articles (missing)” differs by a margin of 8 errors. The frequency of errors Emma made in terms of missing articles ranges between 0 and 8 where MLU Session 7 yielded the least amount of errors in terms of missing articles (0 errors) and MLU Session 1 yielded the most amount of errors in terms of missing articles (8 errors).

Articles (Misused)

The data accumulated in this specific category remained relatively stable where Emma made no errors in any of the MLU sessions recorded with the exception of MLU Session 2 where Emma made 1 error in which she misused an article. Therefore, the amount of errors Emma made in this category ranges from 0 to 1.

Pronouns (Missing)

During MLU Session 1 (baseline), Emma made 3 errors in which she left out a pronoun when she was orally communicating during the MLU session. This differs from MLU Session 7 (summative) where Emma made 2 errors where she left out pronouns when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of missing pronouns differs by a margin of 1 error. It is important to point out, however, that the summative MLU session (MLU Session 7) yields a higher error rating in terms of missing pronouns than any of the other MLU sessions with the exception of MLU session 1 (the baseline collection period). The frequency of errors Emma made in terms of missing pronouns ranges between 0 and 3 where MLU Sessions 2, 3, 4, and 5 yielded the least amount of errors in terms of missing pronouns (0 errors) and MLU Session 1

yielded the most amount of error in terms of missing pronouns (3 errors). MLU Session 6 yielded one error.

Pronouns (Misused)

During MLU Session 1 (baseline), Emma made 1 error in which she misused a pronoun when she was orally communicating during the MLU session. This differs from MLU Session 7 (summative) where Emma made 0 errors where she left misused pronouns when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of misused pronouns differs by a margin of 1 error. The frequency of errors Emma made in terms of misused pronouns ranges between 0 and 4 where MLU Sessions 5, 6, and 7 yielded the least amount of errors in terms of missing pronouns (0 errors) and MLU Session 2 yielded the most amount of error in terms of missing pronouns (4 errors). MLU Sessions 1, 3, and 4 yielded one error each.

Inflected Endings (Missing)

During MLU Session 1 (baseline), Emma made 3 errors in which she left out an inflected ending when she was orally communicating during the MLU session. This differs from MLU Session 7 (summative) where Emma made 0 errors where she left out an inflected ending when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of misused pronouns differs by a margin of 3 errors. The frequency of errors Emma made in terms of left out inflected endings ranges between 0 and 5 where MLU Sessions 3, 4, 6, and 7 yielded the least amount of errors in terms of missing inflected endings (0 errors) and MLU Session 2 yielded the most amount of errors in

terms of missing inflected endings (5 errors). MLU Session 5 contained 3 errors where Emma left out inflected endings. For the purpose of this comparison, an inflected ending is a morpheme that can stand on its own and includes the following: -es, -s, -ing, and -ed.

Other

This purpose of this portion of the study was to specifically determine what syntactical errors Emma made and how frequently she made these errors when she was orally communicating her wants and needs. The comparisons made between the MLU sessions specifically examined in Figure 4 and compared above across MLU Session 1 to 7 were errors Emma made frequently. Thus, the category of “Other” contains additional errors Emma made across all MLU sessions that were recorded in the first seven transcribed pages of each recorded MLU session. Some of these errors include misusing 1st person and 3rd person singular verbs interchangeably when orally communicating, misusing the contractions “can’t “ and “don’t”, and confusing and misusing the words “has” and “had” at times among others.

During MLU Session 1 (baseline), Emma made 8 errors classified under the “Other” category when she was orally communicating during the MLU session. This differs from MLU Session 7 (summative) where Emma made four errors classified under the “Other” category when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of “Other” differs by a margin of four errors. The frequency of errors Emma made in which can be classified in the “Other” category lies between the range of 2 and 8 where MLU sessions 2, 3, and 4 yielded the least amount of errors in which can be classified in the “Other” category (2 errors) and MLU Session 1 yielded

the most amount of error in terms of errors which can be classified under the “Other” category (8 errors).

CHAPTER 5: EMMA'S JOURNEY TO LITERACY

During the course of this study, Emma (a five year-old beginning reader on the edge of a diagnosis of autism) was actively engaged in a variety of activities that allowed her to actively explore the complexities of language through its written form visually, auditorily and most of all kinesthetically. This was accomplished in a number of ways: through shared readings, paired readings, choral readings, independent reading, shared writing, independent writing, word boxes, and books, through the use of syntactic cueing cards, and through the manipulation of words to complete written sentences orally. Through these activities, Emma has shown remarkable progress in her ability to decode and comprehend text, has developed a sense of herself as a successful, confident writer, and has shown tremendous progress in her expressive and receptive language skills. This chapter outlines the variety of activities that Emma was involved in throughout the five-month period, and provides an analysis of the contributions of each of the four basic language modes. After a description of the activities, a description of Emma's experiences will be attempted, although certainly, Emma's experiences within this intervention are her own.

The overall emphasis of the intervention that took place over the five-month study was constructed around the LEA (Stauffer, 1970; Van Allen, 1979) and the work of Patricia Oelwein (1995). The premise surrounding these two approaches revolves around the student, in this case Emma, exploring language and making discoveries about language themselves through both receptive and expressive language and more precisely the four language modes of listening,

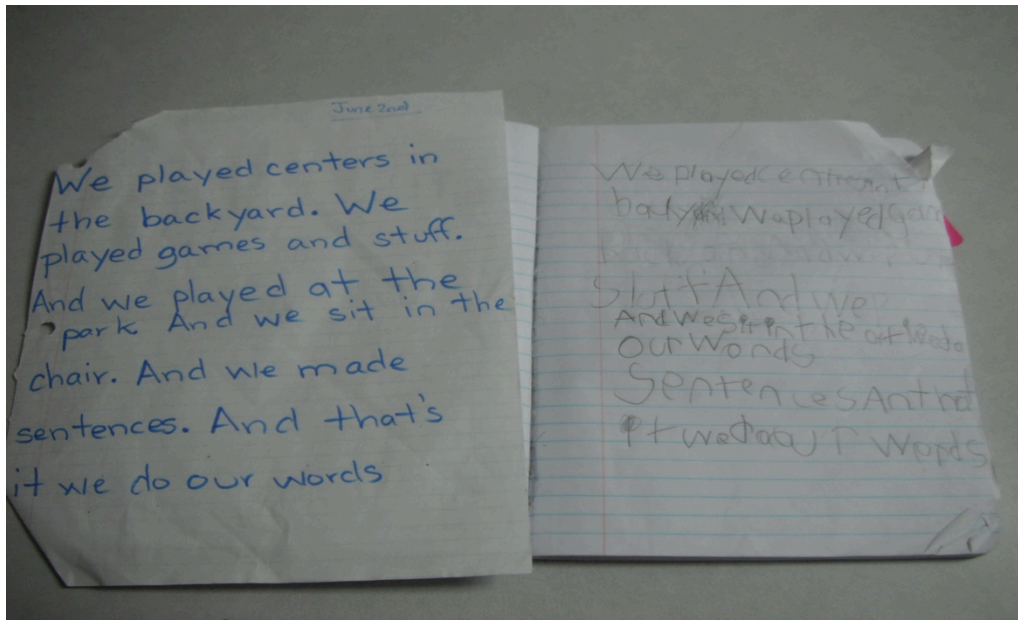
speaking, reading, and writing. The study took place over a five month period where in two hours were set aside three days a week in addition to any time that Emma would independently partake in any literacy activity. During this five month period, Emma had the opportunity to explore language through a variety of different contexts and pre-planned activities that both required her to complete specific activities and to independently investigate language on her own through the creation of artifacts and other literacy involved activities.

In addition to this, Emma was given new vocabulary words that she was required to learn every two weeks that revolved around a different theme (the human body, days of the week, feelings, animals, etc.). The goal of this exercise was to increase Emma's vocabulary and to introduce vocabulary words that were meaningful to her and ones that she chose to learn given a specific theme. Please note that Emma was also enrolled in a local private school in addition to the planned intervention for three of the five months of the study. A complete description and illustrated examples of each activity that Emma took part in are provided below. Please note that many of the ideas illustrated and described below were either directly duplicated from Patricia Oelwein (1995) or were designed around her hypothesis that children learn language through matching, selecting, and prompting text-to-text or text-to-illustration given either an oral cue or written direction.

Paired Writing:

At the heart of the Language Experience Approach (LEA) lies Paired Writing or Shared Writing. Here, Emma dictated something she wanted to say and this would be recorded on a large space such as a dry erase board. Then, Emma would choral read what she said along with

the primary researcher and would until she was able to read to passage herself without any assistance. Emma's ability to read the passage herself would not occur right away, but would occur over a period time. Before she was able to read the passage independently she would record the passage in her writing notebook for later study and would continue to practice reading the passage. This occurred a number of times as Emma was beginning to make connections between oral language and written language and was a precursor to her ability to write independently.



Emma's Writing Notebook

This activity incorporated the four language modes in the following ways:

- **Listening:**

Emma listened to the researcher read what Emma had just said and choral read along with the researcher.

- **Speaking:**

Emma communicated what she wanted to say orally so the researcher could record her ideas in a written form.

- **Reading:**

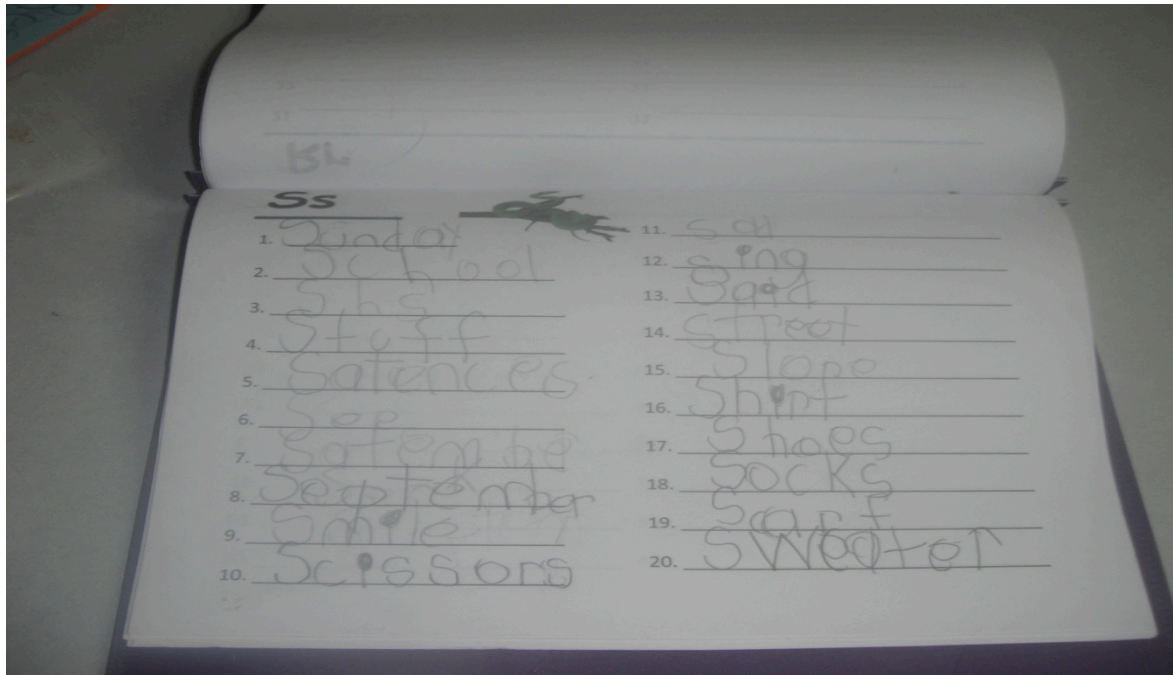
Emma choral read what she had just communicated and continued to practice to read the passage by herself independently.

- **Writing:**

Emma recorded her speech patterns from the board into her writing notebook for later practice.

Word Book:

Emma created a word book in addition to the shared writing that was completed. Here, Emma recorded all of the words she was interested in learning and the ones that he encountered from shared writing. The book was organized into 26 different sections for each of the 26 letters of the alphabet so Emma could easily find a word by knowing the beginning letter of a word. This helped Emma to further develop her vocabulary development and would later lead to her ability to write independently as more and more words were added.



Emma's word book

This activity incorporated the four language modes in the following ways:

- **Listening:**

Emma listened to language she heard around her and added words that she thought were meaningful to her word book.

- **Speaking:**

Emma would often ask how to write a word so she could add it to her word book.

- **Reading:**

The word book served the purpose to not only demonstrate how to write words for Emma, but also to read them as well. Emma had to be able to identify and decode a word in the book to write it.

-**Writing:**

Emma recorded the words in the book and decided the appropriate section in the book. She used the word book as a guide of how to write specific words when she was writing at other times as well. A more common name for this may be a personalized spelling dictionary.

Shared Reading/ Choral Reading:



Some of the texts that were pair-read with Emma.

During the five-month study, Emma also partook in shared reading experiences where both Emma and the primary researcher pair read various children's literature titles

that were of interest to Emma. These titles generally followed the theme and the vocabulary words that Emma was learning at the time. A complete list of the themes and the children’s literature that Emma read and was exposed to is provided below for each of the following themes:

Table 26 Children’s Literature Themes Encountered across the Study

Date:	Theme:	Children’s Literature Incorporated:
May 27 th , 2011- June 10 th , 2011	Our Bodies	<i>-My Five Senses</i> by Alik <i>-From Head to Toe</i> by Eric Carle <i>-Pinkalicious</i> by Victoria Kann and Elizabeth Kann <i>-If You Give a Mouse a Cookie</i> by Laura Numeroff <i>-The Foot Book</i> by Dr. Seuss
June 11 th , 2011- June 25 th , 2011	Days of the Week	<i>-Today is Monday</i> by Eric Carle <i>-Wacky Wednesday</i> by Dr. Seuss <i>-Cookie’s Week</i> by Cindy Ward <i>-Clifford’s Busy Week</i> by Norman Bridwell
June 26 th , 2011- July 10 th , 2011	Months of the Year	<i>-Red Sings from Treetops: A Year in Colors</i> by Joyce Sidman <i>-Ponyella</i> by Laura

		<p>Numeroff</p> <p><i>-Every Cowgirl Needs a Horse</i> by Rebecca Tanni</p> <p><i>- Frog and Toad All Year</i> by Arnold Lobel</p> <p><i>-Olivia</i> by Ian Falconer</p>
July 11 th , 2011- July 25 th , 2011	Our Feelings	<p><i>-Does a Kangaroo Have a Mother Too?</i> By Eric Carle</p> <p><i>-The Pigeon Has Feelings Too</i> by Mo Williams</p> <p><i>-The Very Hungry Caterpillar</i> by Eric Carle</p> <p><i>-Bear Feels Scared</i> by Karma Wilson</p>
July 26 th , 2011- August 9 th , 2011	Places	<p><i>-Purplicious</i> by Victoria Kann and Elizabeth Kann</p> <p><i>-Daisy Comes Home</i> by Jan Brett</p> <p><i>-Tops and Bottoms</i> by Janet Stevens</p> <p><i>-Olivia Goes to Venice</i> by Ian Falconer</p>
August 10 th , 2011 – August 24 th , 2011	School	<p><i>-Back to School Splat</i> by Rob Scotton</p> <p><i>-I Love School</i> by Philemon Sturges</p> <p><i>-Panda Kindergarten</i> by Joanne Ryder</p> <p><i>-Miss Binderton Gets Ready for Kindergarten</i> by Joseph Slate</p>

		<p><i>-Kindergarten Cat</i> by J. Patrick Lewis</p> <p><i>-Biscuit Goes to School</i> by Alyssa Satin Capucilli</p>
August 25 th , 2011 – September 8 th , 2011	Animals	<p><i>-The Cat and the Hat</i> by Dr. Seuss</p> <p><i>-Splat the Cat</i> by Rob Scotton</p> <p><i>-Officer Buckle and Gloria</i> by Peggy Rathman</p> <p><i>-Commotion in the Ocean</i> by Giles Andreae</p> <p><i>-Grumpy Cat</i> by Britta Teckentrup</p>

September 9 th , 2011- September 23 rd , 2011	Weather	<p><i>-Dinosaurumpus</i> by Tony Mitton</p> <p><i>-Maisy's Wonderful Weather Book</i> by Lucy Cousins</p> <p><i>-Stormy Weather</i> by Debi Gliori</p> <p><i>-Duck at the Door</i> by Jackie Urbanovic</p>
September 24 th , 2011- October 8 th , 2011	Clothing	<p><i>-Dirt on My Shirt</i> by Jeff Foxworthy</p> <p><i>-Dinosaurs Love Underpants</i> by Claire Freedman</p> <p><i>-Ducks Don't Wear Socks</i> by John Nedwidek</p> <p><i>-Lily's Purple Plastic Purse</i> by</p>

		Kevin Henkes - <i>Princess Peepers</i> by Pam Calvert
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The table above explicitly lists children’s literature that was paired read with Emma and does not include other books Emma may have read independently during the course of the study.

This activity incorporated the four language modes in the following ways:

-Listening:

Emma was required to listen to the primary researcher read the text during the paired reading experiences.

-Speaking:

During the paired reading experiences, Emma would often ask questions when reading or would respond to prompts about predictions based on what was happening in a specific book.

-Reading:

Emma was required to read some portions of each of the books with the primary researcher.

-Writing:

After each paired reading experience, Emma was required to either draw or writesomething on the topic of what was just read. This could be a picture of what

occurred in the book, a sentence of something that occurred in the book, or both depending on what Emma wanted to do.

Independent Reading

The paired reading experiences that the primary researcher engaged Emma seemed to only encourage her to want to read more and more texts that interested her. As her desire to read became more pronounced, so did to the types of text and how often Emma read on her own. Further, many of the texts that Emma pair read with the primary researcher were also ones that Emma began to try to read on her own.



Emma engaged in independent reading.

This activity incorporated the four language modes in the following ways:

-Listening:

Emma's desire to independently read texts was most likely a result of the paired reading experiences she had listening and reading along with the primary researcher.

-Speaking:

Emma would often talk about or tell others around her about the books she was reading and why she enjoyed or did not enjoy specific books.

-Reading:

This activity required that Emma read texts on her own.

-Writing:

Emma would often write about the characters she read about on her own.

Independent Writing

In addition to paired writing, Emma began to write on her own. This took the form of books that she would illustrate in addition to notes and pictures she would draw for others.



Emma engaged in independent writing

This activity incorporated the four language modes in the following ways:

-Listening:

Emma listened to the researcher reading, herself reading, and found herself pre-writing through the recorded dictation of her speech patterns during paired writing.

- Speaking:

When Emma was writing; she would often ask the primary researcher how to spell words which she would eventually put in her word book for later use.

- **Reading:**

Emma's written work would oftentimes be motivated by what she was reading whether that be *Splat the Cat*, *Hello Kitty*, or *Pinkalicious*. Emma would also read what she wrote and kept a library of her written works.

- **Writing:**

Using her word book, Emma independently authored a number of little books and notes.

Syntactic Cueing Cards

Emma also participated in using syntactic cueing cards. Here, Emma was given a list of six to eight sentences which she had to construct using a series of flashcards where each flashcard had a word on it. So, for the sentence, "I don't want this pencil," Emma would have to manipulate the order of five flashcards to create the sentence. These sentences were composed of two sets that employed the correct use of syntactic patterns Emma was misusing orally. These two sets were composed of sentences that started with, "Can I" and "I want" or "I have."



Emma constructing sentences using syntactic cueing cards.

This activity incorporated the four language modes in the following ways:

-Listening:

Emma was required to listen to the directions she was given to complete the activity to ensure she did it correctly.

-Speaking:

Emma repeated the created sentence as she solved the string of words and was encouraged to use the syntactic patterns on the syntactic cueing cards when she was speaking to others.

-Reading:

Emma was required to orally read the sentences she would create on the master page which contained every sentence she was to construct.

-Writing:

Emma was required to write two of the sentences on paper after she had completed constructing the sentences using flashcards.

Vocabulary Words:

Emma was encouraged to learn a set of vocabulary words for each of the themes which were used contextually within the children’s literature as noted above in Table 26. The vocabulary words Emma was encouraged to learn for each of the nine themes are referenced below:

Table 27 Vocabulary Words Within the Themes of the Intervention

Theme:	Vocabulary Words:	
Our Bodies	-Arms	-Legs
	-Hands	-Feet
	-Head	-Eyes
	-Ears	-Mouth
	-Nose	
Days of the Week	-Sunday	-Monday
	-Tuesday	-Wednesday
	-Thursday	-Friday

	-Saturday -Week	-Day
Months of the Year	-January -March -May -July -September -November -Month	-February -April -June -August -October -December -Year
Our Feelings	-Tired -Sad -Bored -Cry -Smile	-Excited -Angry -Happy -Laugh
Places	-House -Store -Park -Doctor's Office -Post Office	-Home -Restaurant -Library -School
School	-Backpack -Teacher	-Pencil -Desk

Animals	<ul style="list-style-type: none"> -Paper -Eraser -Scissors -Kitty -Fish -Dolphin -Horse -Bird 	<ul style="list-style-type: none"> -Crayons -Glue -Friends -Puppy -Frog -Elephant -Giraffe -Alligator
Clothing	<ul style="list-style-type: none"> -Pants -Dress -Scarf -Bracelet 	<ul style="list-style-type: none"> -Socks -Gloves -Necklace
Weather	-Rainy	-Clouds

	-Sunny	-Snowy
	-Hot	-Cold
	-Windy	
Clothing	-Shirt	-Shoes

This activity incorporated the four language modes in the following ways:

Listening:

Emma had to listen as the primary researcher read her the words she was encouraged to read for each of the nine themes.

Speaking:

Emma had to repeat the above vocabulary words and use these when she was orally communicating with others.

Reading:

Emma was encouraged to read these vocabulary words both within context and out of context. Emma read these vocabulary words within context when she was paired reading with the primary researcher and when she was reading texts independently. Emma read these vocabulary words out of context when she was reading the lists of the words and when she was reading them out of her wordbook.

Writing:

Emma was encouraged to write these words in her word book for later use when she chose to do some independent writing.

Foldables:

Along with the themed vocabulary words Emma was encouraged to write, came the foldables that helped her to make the words her own. These foldables required Emma to make sense of the vocabulary words and create her own understanding of these words. Note that not all units of study incorporated foldables.



Some of the foldables Emma made throughout the intervention period.

This activity incorporated the four language modes in the following ways:

-Listening:

Emma had to listen to the directions on how to create the foldable.

-Speaking:

Emma had to present the foldable to the primary researcher and tell why she created the pictures she did for each word and why.

-Reading:

Emma had to read the vocabulary words and decide how she wanted to visually construct them.

Writing:

Emma had to write the vocabulary words on the foldables.

Vocabulary Posters:

In addition to foldables, Emma also created posters to better make sense of the words she was learning. These artifacts proved to be favorable for Emma's retention because they were hung in Emma's bedroom where she could view them from day to day. Below, is a photograph of Emma creating a poster for the "Our Bodies" theme. This particular poster features a person with labeled body parts. Please note that not all units of study incorporated making posters.



Emma creating a poster for the “Our Bodies” theme.

This activity incorporated the four language modes in the following ways:

Listening:

Emma listened to directions to create the poster.

Speaking:

Emma told the researcher what she was doing while she was creating the poster.

Reading:

Emma was required to read the vocabulary words when she was creating the poster.

Writing:

Emma then labeled the body parts on the person drawn on the poster.

Vocabulary Mobiles

Mobiles provided yet another way for Emma to retain her vocabulary words. The one pictured below depicts Emma making a mobile featuring the months of the year using a coat hanger, yarn, and sentence strips. Please note that not all units of study incorporated making mobiles.



Emma making a mobile featuring the months of the year.

This activity incorporated the four language modes in the following ways:

-Listening:

Emma listened to directions on how to make the mobile.

-Speaking:

Emma was required to describe the pictures she was drawing for each month of the year and how these pictures related to each month.

-Reading:

Emma was required to read the months of the year to determine what order to write the months in.

-Writing:

Emma was required to write the months of the year on sentence strips to make the mobile.

Vocabulary Match:

Vocabulary match is much like any other match game. The difference between the two is that Emma created her own match cards centered on the theme of “School.” For each vocabulary word using this theme, Emma made two cards where she both wrote the word and drew a picture depicting the word. She would then play the game like any other match game. Please note that not all units of study incorporated vocabulary match.



Emma

a playing Vocabulary Match with a cousin.

This activity incorporated the four language modes in the following ways:

Listening:

Emma was required to listen to the other person read the words on each card when trying to get a match.

Speaking:

Emma was required to tell the other person playing how to play the game.

Reading:

Emma was required to read the vocabulary words on the cards when playing the game.

Writing:

Emma wrote the vocabulary words on the cards when she was making them.

Vocabulary String Match

Another activity Emma took part in was string match. This activity required that Emma match up drawings to vocabulary words to make a criss-cross pattern.



Vocabulary String Match

This activity incorporated the four language modes in the following ways:

-Listening:

Emma was required to listen to what each symbol depicted so she would appropriately be able to match the appropriate word to the appropriate picture.

-Speaking:

Emma was required to tell the primary researcher why each picture was correct once she had matched each word to a picture.

Reading:

Emma was required to read each of the vocabulary words to match it with a picture.

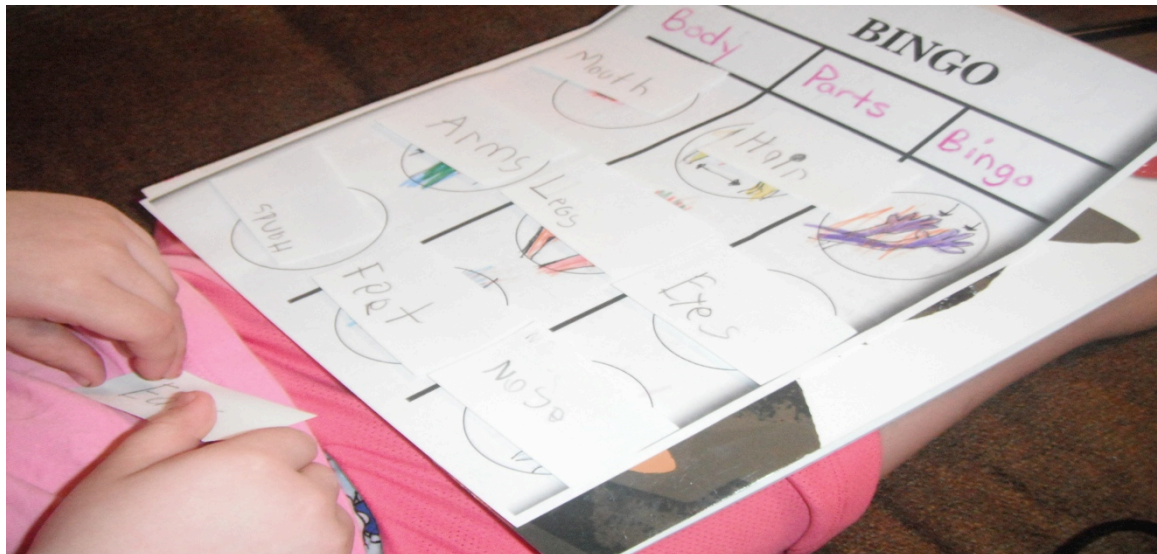
Writing:

Emma was required to write down a sentence of when she felt these feelings afterwards.

Vocabulary Bingo

Another activity Emma took part in was vocabulary bingo. Here, Emma was given a template and was required to draw pictures of specific vocabulary words in each of the nine circles. Then, Emma was given 9 small rectangular squares to write the vocabulary words down. After these initial steps were completed, Emma's job was to match each vocabulary word to a

visual depiction she made. Please note that not all units of study incorporated Vocabulary Bingo (Oelwein, 1995).



Emma playing Vocabulary Bingo.

This activity incorporated the four language modes in the following ways:

-Listening:

Emma was required to listen to the directions and create the game board and vocabulary pieces.

-Speaking:

Emma was required to talk through her thought patterns when she was playing the game.

-Reading:

Emma was required to read the vocabulary words in order to find the appropriate match.

-Writing:

Emma wrote each of the vocabulary words when she was creating the game.

Emma's Story from the Beginning:

Before any of the interventions as described above took place, even before the study began, Emma was in a completely different stage of literary development. She had had some exposure to literacy prior to this study of course, but nothing of this magnitude had taken place over the last five months; certainly nothing that had been nearly as effective as this course of interventions.

Emma's journey did not begin at the beginning of this study or even upon the collection of baseline data. Her journey did not begin last year, nor the years before that. Emma's journey began when she was but a small infant. Up until the time she was a year old, Emma was a near normally developing child; the only concern was that she had not yet begun to speak. Then her second year came and went, and still she did not speak with the exception of two to three words. In her third year, it was recommended that Emma enroll in a preschool program for disabled and developmentally-delayed children in a local public school through a program called Early Intervention Services. This program ran for three hours a day, five days a week the entire school year. Emma spent 2 years in this program where she was provided speech therapy for 30 minutes a week in a group setting in order to improve her speech development. In addition to speech therapy, Emma received instruction in the form of letter identification and gross motor skills

required to make the letters of the alphabet. This summed up her first year in this program. The second year Emma was enrolled in this program, she was also concurrently enrolled in a local afternoon preschool program for three additional hours a day, five days a week. Although Emma began talking a little more her second year, her speech did not improve to a noticeable degree and it was recommended at the end of her preschool year that Emma would not be able to participate in the general curriculum due to her inability to communicate.

The next school year Emma experienced marked changes academically, socially, and linguistically at the private school she started attending. Although she did not begin Kindergarten at the school but PreK-4, she grew substantially. At the end of the Pre-K school year, Emma could sound out CVC patterned words, write every upper-case and lower-case letter in the alphabet, write words, and identify 25 sight words from the Dolch Word List. In addition, Emma made significant gains linguistically and was able to orally communicate her wants and needs without delay in a way where others had little if any difficulty understanding her. The next step for this five year old would be to try to correct some of the syntactical miscue patterns she was making orally and to continue to lengthen the phrases she uttered on a daily basis.

In May 2011, the decision to implement an intervention in the form of the Language Experience Approach (Stauffer, 1970; Van Allen, 1976) and the work of Patricia Oelwein (1995) was made. The big question to be answered was: Could written language be used as a visual model to mold oral language development?

Prior to the beginning of the intervention, Emma already knew how to sound out CVC patterned words. Although, the Language Experience Approach (LEA) reaches to integrate both

whole language and phonetic awareness, it does not explicitly reach to teach phonics, but rather relies more so on the students' abilities to recognize patterns within words. Therefore, no attempts were made to explicitly teach Emma phonics or how to sound out words, but rather to recognize meaningful, use words in personal context, and read them within conceptualized settings such as a book. It did not take Emma long however to recognize some of these patterns. When Emma was rereading the book titled, If You Give a Mouse a Cookie by Laura Numeroff she stumbled upon the word "trim" and later the word "blanket" and asked the primary researcher what these words were. The primary researcher told Emma what these words were and Emma went right back to reading. Within that same week Emma again asked the primary researcher to identify the word "smell" and the word "taste" when she was rereading My Five Senses by Alike. These were not the first instances that Emma was reading these books however. These books were first introduced to Emma through paired reading and Emma later picked up and had difficulty decoding these words when she was trying to read these books independently. Emma continued to stumble upon these types of words and asked what they were when she was reading different books until one day when Emma and the primary researcher were paired reading Clifford's Busy Week by Norman Bridwell and Emma identified both the words "Clifford" and the word "playground." When the primary researcher asked Emma how she knew those words, Emma responded that two letters can go together really fast. Curious, at this response the primary researcher then wrote down the word "fast" and the word "snap" and asked Emma to read these words. Upon doing so, Emma read both words with a little hesitation on the word "snap." The primary researcher then explained to Emma that two letters that are consonants such as the letter "s" and "n" and the letter "t" and the letter "r" can sometimes go together "really fast" and

become consonant blends. Later, Emma would announce that she had encountered a consonant blend when she would come upon one.

The next several of weeks brought big changes for Emma as she progressed as a reader and a writer. Prior to the intervention, Emma could write only single words from the DolchWord List (Oelwein, 2005), but eventually she was able to write single words from her vocabulary lists on her own and eventually single sentences. A precursor to her independent writing; however, was the paired writing she had completed with the primary researcher. It was here where Emma made the connections between what could be communicated orally could also be communicated on paper and vice versa. Upon completing and recording the first paired writing session, Emma immediately began to take interest in reading what she wrote. This is a major premise of Van Allen's LEA Approach. She was able to independently read her own oral recorded speech patterns (LEA) surprisingly quickly. Within what seemed like 20-30 minutes, Emma was completely able to read every word that was recorded on the board which consisted of roughly of four sentences. The prospect of reading her own words this and the praise that Emma received after reading this passage on her own seemed to only add fuel to her desire to read and write even more. After this event occurred, Emma began to copy down what she read in her writing notebook so she could practice reading it later and began to write some of the word she found interesting on index cards (the words on these index cards would eventually become words in her word book).

The first paired-reading session between Emma and the primary researcher wentextremely well; however, there was some slight confusion on Emma's part concerning the

second occasion. The excitement from the first paired writing session was still there and Emma was excited to get started. For this occasion, the primary researcher asked Emma to tell her what they had done that day. Upon this prompt, Emma began to tell the researcher within five sentences everything that had occurred that day. After Emma's speech phrases were recorded on the dry erase board, Emma immediately began to try to read the passage and was rather successful at this. The confusion occurred when the primary researcher asked Emma to copy the passage on the dry erase board into her writing notebook. After 20 minutes had passed, Emma came to the primary researcher ready to turn in her work. After glimpsing at the notebook, the primary researcher discovered that Emma had left out several words and had not written all the sentences on the board. After talking with Emma, the primary researcher found out that Emma thought she had to write everything exactly as it was on the board meaning that if one sentence on the board only took up one line, then she only had one line to write a sentence on on her paper. Emma seemed to have no idea that it's okay to have one sentence take up more than one line if it only took up one line on the board. Emma continued to make this assumption until the fourth paired writing session when she began to realize that as long as the message was the same, the amount of paper it took to write it didn't matter.

After the third or fourth week into the intervention, Emma had become comfortable enough in her ability as a reader and a writer to start to write her own books. Upon on checking on Emma in her bedroom one day, the primary researcher was surprised to find Emma at her desk with one of her favorite books Ten Apples Up on Top by Dr. Seuss and computer paper copying the words down on each page and drawing the same pictures in the book. Of course, the

primary researcher praised Emma for doing this and continued to allow her to pursue this activity undisturbed. The concept being conveyed at this point is that Emma thought of herself as an author and was making the connection between reading her favorite books and rewriting them.

After the episode of Emma and Ten Apples Up On Top by Dr. Seuss, the primary researcher gave Emma a handmade book made out of two pieces of construction paper and some white computer paper for inside pages stapled together. The primary researcher then gave Emma a sentence frame, “ On_____, I _____.” Emma’s job was to fill in the blanks of this sentence frame with whatever made sense to her. The only rule was that she had to fill in the first blank with a day of the week (The Days of the Week was the theme for this period in time.). Within 40 minutes, Emma was able to produce a book with illustrations. Emma did not do this completely on her own however. She would often ask the primary researcher how to spell a word for her or would occasionally need prompting to stay on task. Once Emma was completed with her book, she began to write her new words (the ones she asked the primary researcher to spell for her) in her word book. With some encouragement, Emma then pronounced herself as being an author, and continued to do so for awhile after writing this book. In fact, she was so excited at this revelation that she began showing her books to other family members whenever she was given the opportunity.

Emma’s leap to writing books composed around a sentence frame and writing books using her vocabulary words and later her imagination was not such a large one. Emma had already learned to value reading and writing as valuable tools to communicate and she was genuinely excited about writing her own stories and using the glitter glue the primary researcher

promised she could have for her new books. Emma's first book that was completely original and not like that of Ten Apples Up On Top by Dr. Seuss or was written around a sentence frame contained pages and was composed of only single sentences. This book also took Emma a little longer to write as she wrote it during a few sittings. As time went on; however, Emma began to feel more and more comfortable sitting down to write and soon writing a sentence was not so difficult for her. She got to the point where if she felt like writing, she would just sit down and write. She often tell the primary researcher that she wanted to write a book about a butterfly or a cat or something she liked and the primary researcher would make a book for her to write in shaped like that object. This seemed to serve as a big motivator for Emma as she always seemed to get so excited about writing in "a special book".

When Emma was about to start Kindergarten in August (the third month of the intervention period), she and the rest of her classmates were invited to her new teacher's house to celebrate the new school year. Upon receiving this invitation, Emma got very excited and decided to make her new teacher a card to go along with the gift we would bring. Upon having the paper for her card folded, Emma sat down with her word book close by, her crayon and marker box beside her, and her pencil poised. It was not long before Emma had created a card for her teacher that read, "Happy School Year" on the front with a picture and a "to" and "from" message inside. Although this wasn't such a time consuming project for Emma, it does show that Emma recognized reading and writing as valuable tools for communication.

By the middle of the intervention period (between the second and third month of the intervention period), Emma had grown to love books. Her favorite place became the bookstore

where she could “look at the trains and all the books.” Given the option to go anywhere (including the playground!) and the bookstore, Emma would choose the bookstore hands down. She grew to love books so much that when one of her aunts asked her what she wanted for her upcoming birthday, she told her she wanted books. Her birthday list consisted of only books and a *Splat the Cat* stuffed animal, and when her birthday came and she opened her presents (they were all books!), she became overjoyed and immediately took them to her room and put them on her bookshelf.

Emma’s experiences within this intervention are her own. And through this intervention, Emma has become a confident reader and writer who thoroughly enjoys learning. She will continue to change and grow and become ever-increasingly more in tune with her abilities. In the end however, it will be her own motivation and desire that will lead her to have positive literary experiences and become the best reader and writer she can possibly be.

CHAPTER 6: DISCUSSION

Hypotheses and Related Questions

At the beginning of this study, several hypotheses and subhypotheses were made concerning the outcome or effect that the intervention would have on Emma and her ability to orally communicate fluently and with correct syntactical structure. Each of the hypotheses and subhypotheses are addressed below:

1. Do students have to communicate orally within their developmental age group before learning to read through decoding words and the comprehension of text?

Now at 6 years and 2 months into her seventh year, Emma's speech patterns at their highest recorded level in terms of age equivalence were comparable to a child who was 6 years and 0 months into their seventh year as determined by Mean Length of Utterance (MLU). Emma's chronological age at the time was 6 years and 2 months and her ability to decode and comprehend text at an instructional level was measured to be at a Pre-Primer 1 level and a Pre-Primer 2 level as determined by the Qualitative Reading Inventory-5 (QRI-5). Therefore, Emma was able to read decode and comprehend text prior to being able to communicate orally within her developmental age group.

H1: Emma's evidence of syntactic cues during oral reading will be greater after intervention than before intervention, as measured by the miscue analysis component of the QRI-5.

This question explicitly asks how many syntactical miscues Emma made during the baseline assessment of the Qualitative Reading Inventory-5 (QRI-5) administered May 17th, 2011 and the summative assessment of the QRI-5 administered October 25th, 2011. During the baseline assessment of the QRI-5 that was administered May 17th, 2011, Emma was given a Pre-Primer 1 text titled “I Can” during which she made zero syntactical miscues that were not self-corrected by Emma and three syntactical miscues that were self-corrected. This baseline administration of the QRI-5 differs from the summative administration of the QRI-5 administered October 25th, 2011 where Emma was administered three separate running records at three distinct levels (Pre-Primer 1, Pre-Primer 2, and Pre-Primer 3). The summative administration of the QRI-5 at the Pre-Primer 1 level, titled “I See,” yielded one syntactical miscue that was not self-corrected and zero syntactical miscues that were self-corrected. Because the baseline administration of the QRI-5 only yielded assessment results for a Pre-Primer 1 level text, only the Pre-Primer 1 level text at the summative administration of the QRI-5 can be compared. The difference between these administrations of the QRI-5 yields a margin of one non-self-corrected error more in the summative administration of QRI-5. Further, the self-corrected syntactical errors Emma made in the baseline administration of the QRI-5 totaled three where the summative administration of the QRI-5 totaled zero. More interestingly, the non-self-corrected syntactical miscue made in the summative administration of the QRI-5 at the Pre-Primer 1 level was the same type of syntactical miscue (substituting the word “a” for the word “an”) Emma made in the baseline administration of the QRI-5 administered May 17th, 2011; however, the summative administration of the QRI-5 at the Pre-Primer 1 level contained only

one non-self-corrected miscue whereas the baseline administration of the QRI-5 at the Pre-Primer 1 level contained 3 self-corrected miscues.

The summative Pre-Primer 2 level text was administered to Emma only on the July 9th, 2011 administration of the QRI-5 and the summative administration of the QRI-5 on October 25th, 2011. Emma made no syntactical miscues on the October 25th, 2011 administration of the QRI-5 on Pre-Primer 2 level text that self- correct or non-self-corrected. The Pre-Primer 3 level text that was administered to Emma on October 25th, 2011 contained syntactical miscues on lines 3, 4, 5, 8, and 9 of the text “Lost and found” where she substituted the word “look” for the word “looked.” Emma also made syntactic miscues on lines 5 and 10 of the text “Lost and Found” when she inserted the word “in” in the sentences in both sentences. The total number of miscues that Emma made at the Pre-Primer 3 level at the summative administration of the QRI-5 administered on October 25th, 2011 totaled seven syntactical miscues.

Therefore, after careful review of the data it can be determined to a probable degree that the evidence of syntactical cues during oral reading was greater after the intervention as measured by the summative administration of the QRI-5 administered October 25th, 2011 than the baseline administration of the QRI-5 administered May 17th, 2011 for the following reasons:

- A. Emma made fewer syntactical miscues upon the administration of a Pre-Primer 1 level text at the summative administration of the QRI-5 (October 25th, 2011) than the baseline administration of the QRI-5 (May 17th, 2011). This statement assumes that the self-corrected miscues Emma made on the baseline assessment of the QRI-5 are still counted as miscues or errors that Emma was making on and

off with self-correction as noted by observation records taken at the time by the primary researcher.

- B. Upon the summative administration of the QRI-5 administered on October 25th, 2011, Emma was able to read a Pre-Primer 2 level text at an independent level making no syntactic miscues either self-corrected or non-self-corrected. The Pre-Primer Level 2 text is a level higher than that of the Pre-Primer 1 level text.
1. **Is there a relationship between the blended method of reading instruction utilized in this study (the LEA and the work of Oelwein) and the Mean Length of Utterance (MLU) score?**

Yes, Emma's ability to orally form more complex sentence structures progressed as the study evolved where the intervention being undertaken revolved around the Language Experience Approach (LEA) and the work Of Patricia Oelwein. Further information about Emma's growth in both her receptive and expressive language is detailed below in sub-hypothesis 2 and subhypothesis 3.

H2: Emma's receptive vocabulary, as measured by the Peabody Picture Vocabulary Test (PPVT), will positively increase from the expressive vocabulary as measured by Mean Length of Utterance (MLU).

The baseline assessment of the Peabody Picture Vocabulary Test (PPVT) administered May 19th, 2011, placed Emma within the 23rd percentile of children her age as based upon her chronological age at the time of the administration of the assessment as measured by the PPVT.

The summative assessment of the PPVT administered on October 27th, 2011 placed Emma within the 59th percentile of children her age as based upon her chronological age at the time of the administration of the assessment as measured by the PPVT. The difference between these 2 percentiles stands at a margin of 36 percentile points.

In total, seven total Mean Length of Utterance (MLU) sessions recorded over the five-month research period, denoted as MLU Session 1 to MLU Session 7. Figure 2 details the results or age equivalents of Emma's speech patterns for each of these sessions along with the date Emma's speech patterns were collected. For this purpose, age equivalence is calculated, through MLU, by dividing the number of morphemes uttered throughout the session by the number of phrases the participant utters. Therefore, total number of morphemes uttered divided by the total number of phrases uttered is equivalent to age equivalence of expected speech patterns uttered by children of various ages, as per MLU. MLU Session 1 (the baseline collection period) was held May 21st, 2011 where Emma's speech patterns were determined, as per MLU, to be comparable to a child who was 4 years old and 2 months into their fifth year. This differs from MLU session 2 (June 18th, 2011), where Emma's speech patterns were determined to be comparable to a child who was five years and 0 months into their sixth year by a margin of 10 months. The margin between the baseline data collection period (May 21st, 2011) and the MLU session 3 (July 9th, 2011), where the age equivalent of Emma's speech patterns were determined to be comparable to a child who was 4 years and 9 months into their fifth year, stands at a period of a 7 month increase where Emma's speech patterns grew as determined by MLU. The speech patterns collected during MLU session 4, held July 30th, 2011, were determined to be comparable to a

child who was 4 years and 7 months into their fifth as determined by MLU. Therefore, the allowance between MLU session 1 and MLU session 4 stood at a margin of 5 months as determined by MLU. Emma's speech patterns collected on August 20th, 2011 during MLU session 5 were determined to be comparable to a child who was 6 years and 0 months into their seventh year as determined by MLU. Therefore, the allowance between MLU session 1 and MLU session 5 stood at a margin of 22 months. Emma's speech patterns collected on September 10th, 2011 during MLU session 6 were determined to be comparable to a child who was 5 years and 3 months into their sixth year as determined by MLU. Therefore, the allowance between MLU session 1 and MLU session 6 stood at a margin of 13 months. Finally, Emma's speech patterns collected on October 22nd (summative data collection period) during MLU session 7 were determined to be comparable to a child who was 5 years and 1 month into their sixth year as determined by MLU. Therefore, the allowance between MLU session 1 and MLU session 6 stood at a margin of 11 months.

Upon further observation of the age equivalences as MLU sessions data were obtained, one will notice that the age equivalence at MLU Session 5 increases sharply from baseline by a 21 month span. This is also higher than any of the other data that was collected from any of the MLU sessions over the course of the study (see Tables 16 and 17). The highest age equivalence that was obtained other than 6 years, 0 months from MLU session 5 was 5 years, 3 months from MLU 6. Therefore, a strong indication exists that the age equivalence of 6 years, 0 months collected at MLU Session 6 may be an outlier in terms of the whole data collection from MLU. Whether that be the case or not; however, it does not change the premise that Emma at 6 years

and 2 months (chronological age) was able to produce the speech patterns comparable to a child who was 6 years, 0 months during MLU session 6, as determined by MLU. This, in itself, shows that Emma is progressing in her ability to use more complex speech patterns when communicating her wants and needs orally, and that at her highest level was only able to produce speech patterns that were two months below other children at her same oral communication level.

In addition to an increase in age equivalence, Emma's ability to use more complex sentences when discerning her needs and wants also increased. This is most likely, in part, because of her ability to string longer sentences together as well as to produce more syntactically correct sentence, as evidenced by the Mean Length of Utterance (MLU) sessions and the types of errors and how often Emma made these errors. This is best noted when comparing the first seven transcribed pages of each of the seven MLU sessions (see figure 4). For further information regarding the comparisons between all MLU sessions and the rationalization for comparing the first seven pages for each session [see the section titled Further Research located on page 135].

Therefore, after careful review of the data collected both from the Peabody Picture Vocabulary Test (PPVT) and the Mean Length of Utterance (MLU) sessions, it can be determined that Emma's receptive vocabulary differs significantly from her expressive vocabulary based on the following data points:

- A. From the baseline data collection period of the PPVT to the summative data collection period of the PPVT, Emma's receptive language rose significantly by a

margin of 36 percentile points. Meaning that at the end of the study, as determined by the PPVT, Emma's receptive vocabulary only lied within the 59th percentile of children her age as determined by her chronological age at the time of the administration of the assessment as determined by the PPVT. Emma's chronological age at the time of the summative administration of the PPVT was determined to be 6 years and four months.

- B. The speech patterns that Emma produced within all seven MLU sessions were determined to be comparable to a child in their sixth year and 0 month into their seventh year. At the time these speech patterns were collected, Emma's chronological age was determined to be 6 years, 2 months. Emma's chronological age at the time the summative PPVT assessment was administered was determined to be 6 years and four months. Therefore, if Emma was determined to be in the 59th percentile of children her age as measured by her chronological age at the time(6 years, 4 months) than this would differ from the speech patterns that were collected during MLU session 5 where's Emma's chronological age was determined to be 6 years, 2 months.

H3: Data gathered from the post-assessment of the Peabody Picture Vocabulary Test (PPVT) will increase positively from the pre-assessment of the Peabody Picture Vocabulary Test.

The baseline assessment of the Peabody Picture Vocabulary Test (PPVT) placed Emma within the 23rd percentile of children her age as based upon her chronological age at the time of the administration of the assessment on May 19th, 2011. The summative assessment of the PPVT

(October 27th, 2011) placed Emma within the 59th percentile of children her age as based upon her chronological age at the time of the administration of the assessment as measured by the PPVT. The difference between these 2 percentiles stands at a margin of 36 percentile points. This is a tremendous gain in receptive language skills within the five month period the study took place. Therefore, it can be determined that the post assessment or summative assessment of the PPVT shows an increase from the preassessment or baseline assessment of the PPVT.

3. Can the syntax learned through written language be transferred to oral language and occur in spontaneous utterances in new occasions as the student communicates wants and needs?

The main premises surrounding the Language Experience Approach and work of Patricia Oelwein revolves around the subject's, in this case Emma's, active exploration of language through reading and writing and especially that of paired reading and writing as a means to actively prepare one for independent reading and writing and as a way to link all four contexts of language through listening, speaking, reading, and writing. Therefore, through this intervention Emma was able to experience language, read language, use language when she was writing, and practice using language orally through several different activities all of which are detailed in the chapter titled *Emma's Journey to Literacy*. Further from this, Emma's ability to form more complex and syntactically correct sentences increased as the study progressed. More detailed information on how Emma's expressive language changed over the course of the intervention is detailed below in subhypothesis 4.

H4: Emma's summative Mean Length of Utterance (MLU) will increase from her pre Mean Length of Utterance (MLU) after the planned intervention has been completed.

Seven Mean Length of Utterance (MLU) sessions took place over the course of the study. Within these sessions the syntactical patterns Emma used changed in complexity and length and were increasingly comparable to more mature speech development patterns. The Mean Length of Utterance (MLU) sessions and Emma's speech patterns were collected within these MLU sessions were used to measure two different areas of Emma's speech development: the maturity of her speech patterns in terms of the age equivalence of a child who would be expected to utter such speech patterns and the types of syntactical miscues Emma made over time as well as how often she made these miscues.

Figure 2 details the results or age equivalents of Emma's speech patterns for each of these sessions along with the date Emma's speech patterns were collected. Age equivalence is calculated, through MLU, by dividing the number of morphemes uttered throughout the session by the number of phrases the participant utters. Therefore, the total number of morphemes uttered/ the total number of phrases uttered is equivalent to age equivalence of expected speech patterns uttered by children of various ages, as per MLU. MLU session 1 (the baseline collection period) was held May 21st, 2011 where Emma's speech patterns were determined, as per MLU, to be comparable to a child who was 4 years old and 2 months into their fifth year. This differs from MLU Session 2 (June 18th, 2011), where Emma's speech patterns were determined to be comparable to a child who was five years and 0 months into their sixth year by a margin of 10

months. The margin between the baseline data collection period (May 21st, 2011) and the MLU Session 3 (July 9th, 2011), where the age equivalent of Emma's speech patterns were determined to be comparable to a child who was 4 years and 9 months into their fifth year, stands at a period of 7 months where Emma's speech patterns grew as determined by MLU. The speech patterns collected during MLU Session 4, held July 30th, 2011, were determined to be comparable to a child who was 4 years and 7 months into their fifth as determined by MLU. Therefore, the allowance between MLU Session 1 and MLU Session 4 stood at a margin of 5 months as determined by MLU. Emma's speech patterns collected on August 20th, 2011 during MLU Session 5 were determined to be comparable to a child who was 6 years and 0 months into their seventh year as determined by MLU. Therefore, the allowance between MLU Session 1 and MLU Session 5 stood at a margin of 22 months. Emma's speech patterns collected on September 10th, 2011 during MLU Session 6 were determined to be comparable to a child who was 5 years and 3 months into their sixth year as determined by MLU. Therefore, the allowance between MLU Session 1 and MLU Session 6 stood at a margin of 13 months. Finally, Emma's speech patterns collected on October 22nd (summative data collection period) during MLU Session 7 were determined to be comparable to a child who was 5 years and 1 month into their sixth year as determined by MLU. Therefore, the allowance between MLU Session 1 and MLU Session 6 stood at a margin of 11 months (see Tables 16 and 17).

Upon further observation of the age equivalences as MLU session data were obtained, one will notice that the age equivalence at MLU Session 5 increases sharply from baseline by a 21 month span. This is also higher than any of the other data that were collected from any of the

MLU sessions over the course of the study (see Tables 16 and 17). The highest age equivalence that was obtained other than 6 years, 0 months from MLU session 5 was 5 years, 3 months from MLU 6. Therefore, there is a strong indication that the age equivalence of 6 years, 0 months collected at MLU Session 6 may be an outlier in terms of the whole data collection from MLU. Whether that be the case or not; however, it does not change the premise that Emma was able to produce the speech patterns comparable to a child who was 6 years, 0 months during MLU session 6, as determined by MLU. This, in itself, shows that Emma is progressing in her ability to use more complex speech patterns when communicating her wants and needs orally.

In addition to an increase in age equivalence, Emma's ability to use more complex sentences when discerning her needs and wants also increased. This is most likely, in part, her ability to string longer sentences together as well as to produce more syntactically correct sentences. This is evidenced by the Mean Length of Utterance (MLU) sessions and the types of errors and how often Emma made these errors. This is best noted when comparing the first seven transcribed pages of each of the seven MLU sessions (see figure 4).

Morespecifically, this study also looks at the frequency of errors Emma made in eight specific categories [(helping verbs (missing), helping verbs (misused), articles (missing), articles (misused), pronouns (missing), pronouns (misused), inflected endings (missing), and other] during MLU Sessions 1 to 7 as noted in the first seven transcribed pages of each of the MLU sessions conducted from the baseline collection period to the summative collection period. These eight categories represent the bulk of the errors Emma made throughout the study as recorded during MLU Sessions 1 to 7, baseline to summative data collection in five different areas

(helping verbs, articles, pronouns, inflected endings, and other). An in-depth analysis of each of these categories is discussed below in addition to a visual representation of the data in Figure 4.

Helping Verbs (Missing):

During MLU session 1 (baseline), Emma made 19 errors in which she left out a helping verb when she was orally communicating during the MLU session (see Figure 4). This differs from MLU session 7 (summative) where Emma made 15 errors where she left out helping verbs when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of “helping verbs (missing) differs by a margin of 4 errors. It is important to point out however that the summative MLU session (MLU session 7) yields a higher error rating in terms of missing helping verbs than any of the other MLU sessions with the exception of MLU Session 1 (the baseline collection period). The frequency of errors Emma made in terms of missing helping verbs ranges between 3 and 19 where MLU Session 2 yielded the least amount of errors in terms of missing helping verbs (3 errors) and MLU Session 1 yielded the most amount of error in terms of missing helping verbs (19 errors).

An example of a miscue Emma made when she left out a helping verb occurred when she stated, “This a word and this a blue.” Rather than stating “This is a word and this is a blue.” See (MLU Session 1).

Helping Verbs (Misused)

The data accumulated in this specific category remained relatively stable where Emma made no errors in any of the MLU sessions recorded with the exception of MLU Session 3 where

Emma made two errors in which she misused a helping verb (see Figure 4). Therefore, the amount of errors Emma made in this category ranges from zero to two.

Articles (Missing)

During MLU Session 1 (baseline), Emma made eight errors in which she left out an article when she was orally communicating during the MLU session (see Figure 4). This differs from MLU Session 7 (summative) where Emma made zero errors where she left out articles when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of “articles (missing)” differs by a margin of eight errors. The frequency of errors Emma made in terms of missing articles ranges between zero and eight where MLU Session 7 yielded the least amount of errors in terms of missing articles (0 errors) and MLU Session 1 yielded the most amount of errors in terms of missing articles (8 errors).

Articles (Misused)

The data accumulated in this specific category remained relatively stable where Emma made no errors in any of the MLU sessions recorded with the exception of MLU Session 2 where Emma made one error in which she misused an article (see Figure 4). Therefore, the amount of errors Emma made in this category ranges from zero to one.

Pronouns (Missing)

During MLU Session 1 (baseline), Emma made three errors in which she left out a pronoun when she was orally communicating during the MLU session (see Figure 4). This differs from MLU Session 7 (summative) where Emma made two errors where she left out

pronouns when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of missing pronouns differs by a margin of one error. It is important to point out however that the summative MLU session (MLU Session 7) yields a higher error rating in terms of missing pronouns than any of the other MLU sessions with the exception of MLU session 1 (the baseline collection period). The frequency of errors Emma made in terms of missing pronouns ranges between zero and three where MLU Sessions 2, 3, 4., and 5 yielded the least amount of errors in terms of missing pronouns (0 errors) and MLU session 1 yielded the most amount of error in terms of missing pronouns (3 errors). MLU Session 6 yielded one error.

An example of a miscue Emma made when she left out a pronoun occurred when she stated, “I have to find.” rather than stating “I have to find it.” See (MLU Session 5).

Pronouns (Misused)

During MLU Session 1 (baseline), Emma made one error in which she misused a pronoun when she was orally communicating during the MLU session (see Figure 4). This differs from MLU Session 7 (summative) where Emma made 0 errors where she left misused pronouns when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of misused pronouns differs by a margin of one error. The frequency of errors Emma made in terms of misused pronouns ranges between zero and four where MLU Sessions 5, 6, and 7 yielded the least amount of errors in terms of missing pronouns (zero errors) and MLU Session 2 yielded the most amount of error in terms of missing pronouns (four errors). MLU Sessions 1, 3, and 4 yielded one error each.

An example of a miscue Emma made when she misused a pronoun occurred when she stated, “Yes a long time ago when her a baby like five” rather than stating “Yes a long time ago when she was a baby like five.” See (MLU Session 2).

Inflected Endings (Missing)

During MLU Session 1 (baseline), Emma made 3 errors in which she left out an inflected ending when she was orally communicating during the MLU session. This differs from MLU Session 7 (summative) where Emma made zero errors where she left out an inflected ending when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of misused pronouns differs by a margin of three errors. The frequency of errors Emma made in terms of left out inflected endings ranges between zero and five where MLU Sessions 3, 4, 6, and 7 yielded the least amount of errors in terms of missing inflected endings (zero errors) and MLU Session 2 yielded the most amount of errors in terms of missing inflected endings (five errors). MLU Session 5 contained three errors where Emma left out inflected endings. For the purpose of this comparison, an inflected ending is a morpheme that can stand on its own and includes the following: -es, -s, -ing, and -ed.

An example of a miscue Emma made when she left out an inflected ending occurred when she stated, “We play with Play doh and we play with stuff.” rather than stating “We are playing with Play-doh and we are playing with stuff.” (See MLU Session 3).

Other

One of the purpose of this study was to specifically determine what syntactical errors Emma made and how frequently she made these errors when she was orally communicating her wants and needs. The comparisons made between the MLU sessions specifically examined in Figure 4 and compared above across MLU Session 1 to 7 were errors Emma made frequently. Thus, the category of “Other” contains additional errors Emma made across all MLU sessions that were recorded in the first seven transcribed pages of each recorded MLU session. Some of these errors include misusing 1st person and 3rd person singular verbs interchangeably when orally communicating, misusing the contractions “can’t “ and “don’t”, and confusing and misusing the words “has” and “had” at times among others.

During MLU Session 1 (baseline), Emma made eight errors classified under the “Other” category when she was orally communicating during the MLU session (see Figure 4). This differs from MLU Session 7 (summative) where Emma made 4 errors classified under the “Other” category when she was orally communicating during the MLU session. The frequency of errors Emma made between these two sessions in the specific category of “Other” differs by a margin of four errors. The frequency of errors Emma made in which can be classified in the “Other” category lies between the range of two and eight where MLU Sessions 2, 3, and 4 yielded the least amount of errors in which can be classified in the “Other” category (two errors) and MLU Session 1 yielded the most amount of error in terms of errors which can be classified under the “Other” category (eight errors).

Therefore, after careful review of the data it can be determined that Emma's speech patterns taken from the summative administration of Mean Length of Utterance (MLU), also known as MLU Session 7, shows positive growth in speech patterns from the pre-assessment or baseline assessment of MLU, also known as Session 1, for the following reasons:

- A. Emma's speech patterns taken from the baseline MLU assessment, MLU session 1, were determined to be comparable to a child who was in their fourth year and second month into their fifth year as determined by MLU. This differs from the summative MLU assessment, MLU Session 7, where Emma's speech patterns were determined to be comparable to a child who was in their fifth year and one month into their sixth year. The margin of growth between MLU Session 1 (baseline administration) and MLU Session 7 (summative administration) stands at a difference of 11 months. However, because of the activities Emma chose to partake in during these sessions, the time of day these sessions occurred, the mood Emma happened to be in during these sessions, and other such circumstances that cannot be controlled the variability of Emma's speech patterns and comparable age equivalences differed from one session to the next where the summative administration, also known as MLU Session 7, stood to be the fourth lowest MLU age equivalence amongst all MLU sessions conducted throughout the study. The highest comparable age equivalence, as measured by MLU, occurred during MLU Session 5 where Emma's speech patterns were comparable to a child in their sixth year and 0 months into their seventh year. The difference between MLU Session 1 (baseline) and MLU Session 5 stands at a margin of 22 months. Although, the next highest comparable

age equivalence occurred during MLU Session 6 where Emma's speech patterns were comparable to a child in the fifth year and third month into their sixth (a difference of 9 months), Emma still produced those speech patterns recorded in MLU Session 5, and as a result has shown growth in her speech development by a margin of 22 months (see Tables 16 and 17).

B. The syntactical errors Emma made throughout the study, during Mean Length of Utterance (MLU) Sessions 1 to 7, decreased to a significant degree for two of the eight categories that were explicitly reviewed during the study (missing helping verbs and missing articles). For the other six categories, the syntactical errors Emma made either remained stable or only decreased to a minor degree. Comparisons of the category of "Other" cannot be made over time as the category itself contains many different types of errors that would not be comparable from one MLU session to the next (see Figure 4).

During MLU Session 1, the baseline data collection period, Emma made 19 errors when she expressed an idea without a needed helping verb (see Figure 4). This differed from MLU Session 7, the summative data collection period, where Emma made 15 errors when she expressed an idea without a needed helping verb. The difference between MLU Sessions 1 and 7 stands at a margin of four errors where Emma expressed an idea without a needed helping verb. It is important to note; however, that the summative assessment of MLU contained the highest number of sentences with missing helping verbs than any other MLU session with the exception of MLU Session 1. In fact, the number of sentences Emma uttered with missing helping verbs ranged from 3 to 19 errors across all MLU sessions during the

course of the study where 19 errors (baseline assessment) and 15 errors (summative assessment) were the highest number of errors made on Emma's part in terms of missing helping verbs over the course of all MLU sessions.

In addition, Emma also made a significant amount of errors in terms of uttering sentences that were missing a needed article (a, an, and the). During MLU Session 1, the baseline data collection period, Emma made 8 errors in which she left out a needed article when uttering a sentence (see Figure 4). This differs from MLU Session 7, the summative data collection period, where Emma left out a needed article when uttering a sentence 0 times. The number of sentences Emma uttered where she left out a missing article ranges from zero to eight errors where Emma made the most errors during MLU Session 1 (the baseline collection period).

As a result of the intervention Emma received throughout the study, she was able to improve in both her receptive and expressive language skills tremendously as detailed above. More importantly, Emma was able to read age appropriate texts independently and to orally communicate her wants and needs orally using increasingly proper syntax as measured by the seven Mean Length of Utterance (MLU) sessions conducted throughout the study. Furthermore, the complexity of the speech patterns Emma was able to utter increased as did her ability to use the language she was learning to express in a written form through the creation of little books and other activities as noted above in Chapter Seven titled *Emma's Journey to Literacy*. And although Emma has experienced such great successes in terms of literacy development throughout the study, she will continue to grow as a reader and a writer and continue to experience success.

Educational Implications

Although Emma experienced tremendous successes throughout her participation in this study through the implementation of the interventions carried out, this is Emma's story and the journey she has made and the successes that she has experienced are her own. However, what this study does illustrate outside of Emma's experiences is that exposure to written language can indeed be a precursor to oral language development through both literary activities and the integration of the four language modes of listening, speaking, reading, and writing. Furthermore, through the integration of the Language Experience Approach (Stauffer, 1970; Van Allen, 1976) and the work of Patricia Oelwein (1995), comes the integration of various learning styles (visual, auditory, and kinesthetic) as a way to meet the needs of all students depending on individual student needs. This can be especially beneficial to higher-functioning students on the autism spectrum as they generally tend to be more visual and kinesthetic learners (Broun, 2004). In the text titled, Teaching Reading to Children with Down Syndrome: A Guide for Parents and Teachers, Patricia Oelwein (1995) provides many insights and strategies for teaching students who have Down Syndrome to read and to experience language themselves through pre-planned activities such as matching, selecting, and naming words using flashcards and through the creation of artifacts such as posters and little books that are meaningful to the students all of which include dispositions for students with every type of learning style. In her experience as a reading coach working with students with disabilities, Broun (2004) found that implementing the work of Patricia Oelwein with her students with autism was just as effective as when she implemented Oelwein's work with her students with Down Syndrome (Broun, 2004). In addition, to the effectiveness the program had with her students with autism, Broun also achieved similar results

with some of students in relation to their expressive vocabulary. In her article titled, *Teaching children with autism spectrum disorders to read: A visual approach*, Broun (2004) relates how some of her students with autism were not only able to begin to read and decode text, but were also able to increase their expressive communication skills as a result of their exposure to Oelwein's program. This is similar to the results that Emma received after the intervention had been completed; however, it is not clear how much success the students Broun worked with experienced in terms of increasing their expressive language skills or even how long Broun implemented this program with these students. What is clear; however, is that this program has been shown to be an effective intervention for some children with autism to both increase their receptive and expressive language skills. Whether this intervention will be effective with other students remains to be seen as every child is different and what does and does not work for one child may or may not work for another; however, the prospect of such intervention working for another child, as it has for Emma and the children Broun has worked with, seems promising and an effort clearly worth trying.

Future Research

For many children like Emma, who may be on the edge of a diagnosis of autism or who may simply be suspected of having some form of autism, the prospect of their education can seem daunting depending upon the severity of their symptoms. This is especially true for children like Emma, who are experiencing difficulties in oral communication. Because the four basic language modes of listening, speaking, reading, and writing have been traditionally viewed as occurring in that order as children get older, many parents and educators seem to get confused and falsely believe that just because a child may not be fully proficient in one skill such as

speaking, they may not be nearly as proficient in reading or writing; however, through the implementation of the intervention, that occurred in this study, Emma was able to read age appropriate texts prior to being able to communicate within her age level as determined by Mean Length of Utterance and other children may be able to do this as well.

Therefore, because the results that Emma received were exclusively hers, it would be interesting to see what kind of effect this same intervention could have on other children with autism or even children who are simply experiencing language difficulties such as speech delays both through individual case studies and within whole group contexts. Further, because the Language Experience Approach (LEA) is commonly implemented within a small group context, such an investigation may reveal more about the relationship of the intervention to an everyday classroom environment and how this intervention may be carried out daily in a classroom of students with autism.

Limitations

In order to facilitate clear communication, the researcher has chosen to use the personal pronoun “I” for the section titled “Limitations.”

In particular, if given the opportunity, I would make some changes in the way I carried out this study not in the form of the interventions, but in the duration of the recorded speech phrases Emma uttered, the activities that Emma participated in during the recordings of her speech phrases, and what time of day I recorded these speech phrases. By doing so, I think the researcher would be able to capture the whole picture when comparing the transcriptions and my results other than getting my data solely from the first seven transcribed pages of the seven Mean

Length of Utterance (MLU) sessions. By controlling the duration of how long each Mean Length of Utterance session lasted, one could more easily compare the kinds and frequency of errors the subject of the study made between one session to another. Further, the variability of the recorded utterances within each MLU sessions also could have been better controlled if the time of day the speech phrases were recorded and the activities that Emma became engaged in were similar in duration and type. Upon analyzing the data further, I have noticed that Emma tended to utter more complex sentences and thus the age equivalence of her speech patterns tended to be comparable to a child who was older when she was engaged in pretend play rather than simply playing with games and puzzles. Further, the types of games Emma played also seemed to make a difference in the types of errors she made and how long her utterances tended to be. For example, a game where she simply rolled the dice and moved tended to result in lower recorded patterns than a game where she actively had to make decisions and was required to take actions. In addition, I believe the time of day could have had an effect on the speech patterns that were recorded during the MLU sessions. Due to the fact that the MLU sessions were recorded at different times of the day, that factor may lead one to believe that Emma's emotional state might have been better controlled in all MLU sessions were recorded at the same time every time a MLU session was recorded. These variables, as discussed above, will be important variables to consider for future research endeavors.

All in all, many future research endeavors need to be made to investigate the relationship between expressive language skills and these interventions, Language Experience Approach (LEA) and the work of Patricia Oelwein), and whether these interventions are a means to

helping both children with autism and children suspected of having autism to increase their expressive language skills.

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