LANGUAGE DEVELOPMENT IN TODDLERS: A HERMENEUTIC
PHENOMENOLOGICAL STUDY OF NURSERY RHYME USE BY MOTHERS WITH THEIR TODDLERS

by

Wenonah Faye Gildon

Liberty University

A Dissertation Presented in Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

Liberty University
2021
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APPROVED BY:

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ABSTRACT

The purpose of this hermeneutic phenomenological study was to understand current mothers’ perceptions of their lived experiences using nursery rhymes to facilitate language development in their toddler enrolled in early childhood facilities in Northwest Louisiana. The theories guiding this study are sociocultural theory, theory of transmission, and theory of cognitive developmental stages. Vygotsky’s (1978) sociocultural theory was related to this study through the social nature of language, the cultural aspects inherent in language, and the mother’s scaffolding of the learning experiences to facilitate language transmission. A mother’s understanding of the nature of her child and the development of a bond whereby the mother ensures the education of the whole child is associated to Pestalozzi’s educational theory of cognition. Piaget’s theory of cognitive developmental stages is connected to the study through a mother’s awareness in catching critical time periods to facilitate language development and the cognitive schemas needed to advance language development. The 10 participants contributed to the following research questions: (a) What are mothers’ perceptions of their lived experiences using nursery rhymes to facilitate language development in their toddlers? (b) What are mothers’ perceptions of the ways nursery rhyme usage affects their relationship with their toddlers? (c) What are mothers’ perceptions of the ways nursery rhyme usage affects their toddlers’ language development? (d) What are mothers’ perceptions of the ways their knowledge of nursery rhymes contributes to their experiences with their toddlers? The study employed the data collection methods of individual interview, participant reflective journals, focus group interview, and follow-up questionnaire. The hermeneutic cycle was utilized during the data analysis phase to determine meaning and reflect upon the text prior to the interpretation being made.

Keywords: language, nursery rhymes, phonology, pre-literacy, rhyme
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Dedication

This work is dedicated to my family who have supported me through the entire journey, the high achievements, and the many despairing points along the way. From modest beginnings, my parents exhibited what it took to succeed, while continuing to remain humble and holding to one’s faith. I dedicate this to you, Mom and Dad, and pray I follow your example and hold steadfast to it. For those who were lost on this 7-year journey, Dad, Ann, and Mr. Fred you have continued to travel with me in love, even though you were sorely missed. While treading the path with me and offering support at various points along the way, Erica, Krystall, Kyle, and Casey my gratefulness is extended along with this work. For understanding and making many sacrifices in route, Jason and Christopher you have my love and gratitude. To my sisters and nieces, may we continue to blaze many new paths and achieve fascinating experiences. For my extended family, the journey does not end here, trek on! Finally, to John for making the journey with me and being the often-unknowing impetus for defying the odds in completing the journey and reaching the destination, you are my champion.
Acknowledgments

“A man’s heart deviseth his way: but the Lord directeth his steps” (Proverbs 16:9, KJV).

Through the many steps taken in following the journey of my heart, the Lord has placed many instrumental individuals within my path to walk with me. I fully acknowledge His hand in the journey and the path He has directed me in. Each of the course professors at Liberty University had a part in shaping this dissertation. Dr. Kenneth R. Tierce, chair for my committee, offered navigation support for the journey when needed with patience, advice, and encouragement; thank you for believing in my vision of the journey and supporting it. For providing assistance and serving on the committee, Dr. JoAnna Oster, I extend my gratitude. I present a special thank you to Dr. Karen Ferneding for her hours of time, conversations, and encouragement as I traveled uncharted territory. I am especially appreciative for Dr. Kim Bloss recognizing potential when I could not see it within myself. Finally, for each of the participants in the study, I am particularly thankfully for your consideration and time in sharing your experiences.
# Table of Contents

ABSTRACT.................................................................................................................. 3  
Copyright Page.......................................................................................................... 4  
Dedication .................................................................................................................. 5  
Acknowledgments .................................................................................................... 6  
Table of Contents ..................................................................................................... 7  
List of Tables ............................................................................................................ 15  
List of Figures ........................................................................................................... 16  
List of Abbreviations ............................................................................................... 17  
CHAPTER ONE: INTRODUCTION ............................................................................ 19  
Overview .................................................................................................................. 19  
Background .............................................................................................................. 19  
  Historical Context ................................................................................................... 19  
  Social Context ........................................................................................................ 21  
  Theoretical Context ............................................................................................... 22  
Situation to Self ....................................................................................................... 23  
Problem Statement .................................................................................................. 26  
Purpose Statement ................................................................................................... 28  
Significance of the Study .......................................................................................... 29  
  Empirical Significance .......................................................................................... 29  
  Theoretical Significance ....................................................................................... 31  
  Practical Significance ........................................................................................... 32  
Research Questions ................................................................................................ 33
Central Research Question

Sub-Questions

Sub-Question 1

Sub-Question 2

Sub-Question 3

Definitions

Summary

CHAPTER TWO: LITERATURE REVIEW

Overview

Theoretical Framework

Sociocultural Theory

Theory of Transmission

Theory of Cognitive Developmental Stages

Related Literature

History of Nursery Rhymes

Definition of Nursery Rhymes

Origins of Nursery Rhymes

Adaptations of Nursery Rhymes

Global Nursery Rhymes

Nursery Rhyme Structure

Child Development

Fetal Development

Infant Development
Toddler Development ................................................................. 72
Early Child Development ............................................................ 74
Nursery Rhyme Experience, Awareness, and Knowledge ...................... 76
Nursery Rhyme Experiences .......................................................... 76
Nursery Rhyme Awareness ............................................................ 77
Nursery Rhyme Knowledge ............................................................ 78
Predictors of Success ................................................................... 80
Phonological Awareness ............................................................... 80
Phonological Knowledge ............................................................... 83
Phonemic Awareness ................................................................. 84
Print Knowledge ......................................................................... 85
Communication ......................................................................... 86
Speech Perception ..................................................................... 90
Speech Production .................................................................... 91
Environmental Factors ............................................................... 94
Poverty and Economics .............................................................. 95
Adult Behaviors ....................................................................... 98
Technology, Television, and Toys ................................................. 109
Physiological Factor .................................................................... 115
Brain Research .......................................................................... 115
Fetal Research ........................................................................ 123
Auditory Research ................................................................... 128
Targeted Populations ................................................................ 133
English Language Learners ................................................................. 133

Disabled Populations ......................................................................... 135

At-risk Populations ........................................................................... 142

Summary ............................................................................................. 147

CHAPTER THREE: METHODS ............................................................. 150

Overview ............................................................................................ 150

Design ................................................................................................. 150

Research Questions ............................................................................. 152

Central Research Question ............................................................... 153

Research Sub-questions ..................................................................... 153

Sub-Question 1 .................................................................................... 153

Sub-Question 2 .................................................................................... 153

Sub-Question 3 .................................................................................... 153

Setting ................................................................................................. 153

Participants ........................................................................................ 157

Procedures .......................................................................................... 158

The Researcher’s Role ........................................................................ 161

Data Collection ................................................................................... 163

Individual Interviews ......................................................................... 164

Reflective Journals ............................................................................ 170

Focus Group Interview ..................................................................... 171

Follow-Up Questionnaire .................................................................. 175

Data Analysis ....................................................................................... 177
Trustworthiness................................................................................................................................................182
Credibility ...................................................................................................................................................183

Dependability and Confirmability ...............................................................................................................184
Transferability................................................................................................................................................184

Ethical Considerations ...............................................................................................................................185

Summary.......................................................................................................................................................186

CHAPTER FOUR: FINDINGS .......................................................................................................................188

Overview.......................................................................................................................................................188

Participants....................................................................................................................................................188

Amy ...............................................................................................................................................................189
Bianca ...........................................................................................................................................................190
Emmie ...........................................................................................................................................................191
Faith Ann ......................................................................................................................................................191
Havanna .........................................................................................................................................................192
Isabella ..........................................................................................................................................................192
Kimley ............................................................................................................................................................193
Lauren ............................................................................................................................................................193
Mila .................................................................................................................................................................194
Nora Beth ......................................................................................................................................................195

Results..........................................................................................................................................................195

Theme Development....................................................................................................................................196

Major Theme 1: Bonding and Connecting..................................................................................................196

Major Theme 2: Engagement and Interaction ...........................................................................................198
Major Theme 3: Teaching and Learning Catalyst .............................................. 199
Major Theme 4: Repetition, Reinforcement, and Retention ......................... 202
Major Theme 5: Early Language Development .................................................. 203
Major Theme 6: Unique Appeal ........................................................................ 204
Major Theme 7: Soothe, Calm, and Sleep ...................................................... 205
Major Theme 8: Tradition and Nostalgia ........................................................ 206
Research Question Responses ......................................................................... 207
Central Research Question ............................................................................ 207
Sub-Question 1 ............................................................................................... 219
Sub-Question 2 ............................................................................................... 229
Sub-Question 3 ............................................................................................... 266
Summary .......................................................................................................... 285
CHAPTER FIVE: CONCLUSION ........................................................................ 288
Overview ......................................................................................................... 288
Summary of Findings ....................................................................................... 288
Central Research Question ............................................................................ 288
Sub-Question 1 ............................................................................................... 289
Sub-Question 2 ............................................................................................... 290
Sub-Question 3 ............................................................................................... 290
Discussion ....................................................................................................... 291
Empirical Literature ....................................................................................... 291
Mothers’ Behaviors ......................................................................................... 292
Nursery Rhyme Traditions ............................................................................. 307
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery Rhyme Features</td>
<td>308</td>
</tr>
<tr>
<td>Knowledge Seeking, Unawareness, and Inability</td>
<td>316</td>
</tr>
<tr>
<td>Technology</td>
<td>326</td>
</tr>
<tr>
<td>Theoretical Literature</td>
<td>331</td>
</tr>
<tr>
<td>Sociocultural Theory</td>
<td>332</td>
</tr>
<tr>
<td>Theory of Transmission</td>
<td>333</td>
</tr>
<tr>
<td>Theory of Cognitive Developmental Stages</td>
<td>334</td>
</tr>
<tr>
<td>Implications</td>
<td>335</td>
</tr>
<tr>
<td>Theoretical Implications</td>
<td>335</td>
</tr>
<tr>
<td>Empirical Implications</td>
<td>338</td>
</tr>
<tr>
<td>Practical Implications</td>
<td>340</td>
</tr>
<tr>
<td>Delimitations and Limitations</td>
<td>342</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>343</td>
</tr>
<tr>
<td>Summary</td>
<td>344</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>Error! Bookmark not defined.</td>
</tr>
<tr>
<td>APPENDIX A: Approval for Use of Figure 4</td>
<td>399</td>
</tr>
<tr>
<td>APPENDIX B: Approval for Use of Figure 8</td>
<td>400</td>
</tr>
<tr>
<td>APPENDIX C: Approval for Use of Figure 13</td>
<td>401</td>
</tr>
<tr>
<td>APPENDIX D: Parent Biographical and Literacy Questionnaire</td>
<td>403</td>
</tr>
<tr>
<td>APPENDIX E: Approval for Use of Parent Questionnaire</td>
<td>409</td>
</tr>
<tr>
<td>APPENDIX F: IRB Approval Letter</td>
<td>410</td>
</tr>
<tr>
<td>APPENDIX G: Facility Approval</td>
<td>411</td>
</tr>
<tr>
<td>APPENDIX H: Network Approval</td>
<td>412</td>
</tr>
<tr>
<td>Appendix</td>
<td>Title</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>I</td>
<td>District Approval</td>
</tr>
<tr>
<td>J</td>
<td>Recruitment Document</td>
</tr>
<tr>
<td>K</td>
<td>Informed Consent</td>
</tr>
<tr>
<td>L</td>
<td>Participant Denial Email</td>
</tr>
<tr>
<td>M</td>
<td>Researcher’s Reflective Journal</td>
</tr>
<tr>
<td>N</td>
<td>Participant Journal Guide</td>
</tr>
<tr>
<td>O</td>
<td>Electronic Journal Prompts and Schedule</td>
</tr>
<tr>
<td>P</td>
<td>Individual Interview Questions</td>
</tr>
<tr>
<td>Q</td>
<td>Focus Group Interview Questions</td>
</tr>
<tr>
<td>R</td>
<td>Follow-Up Questionnaire</td>
</tr>
<tr>
<td>S</td>
<td>Nursery Rhymes Mentioned and Potential Teaching Concepts</td>
</tr>
<tr>
<td>T</td>
<td>Mothers Nursery Rhyme Traditions from Child to Motherhood</td>
</tr>
</tbody>
</table>
List of Tables

Table 1. Participant Demographics and Selection Method…………………………………191
Table 2. Major Theme 1: Bonding and Connecting……………………………………199
Table 3. Major Theme 2: Engagement and Interaction……………………………200
Table 4. Major Theme 3: Teaching and Learning Catalyst…………………………202
Table 5. Major Theme 4: Repetition, Reinforcement, and Retention………………204
Table 6. Major Theme 5: Early Language Development…………………………205
Table 7. Major Theme 6: Unique Appeal……………………………………………207
Table 8. Major Theme 7: Sooth, Calm, and Sleep……………………………………208
Table 9. Major Theme 8: Tradition and Nostalgia…………………………………209
Table 10. Language Development Concerns……………………………………….217
Table 11. Pregnancy Behaviors Used in Bonding and Connecting………………..269
**List of Figures**

<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Six Contexts Associated with the Related Literature</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>Sound, Amplitude, and Power Comparison for Speaking and Singing</td>
<td>53</td>
</tr>
<tr>
<td>3</td>
<td>Expressive Communication Diagram with Components and Sub-Levels</td>
<td>55</td>
</tr>
<tr>
<td>4</td>
<td>Modulation of a Sound Wave Signal on a Carrier Signal</td>
<td>56</td>
</tr>
<tr>
<td>5</td>
<td>Five-by-Three Spectro-Temporal Representing the Speech Envelope</td>
<td>58</td>
</tr>
<tr>
<td>6</td>
<td>Examination of the Syllable Stress Patterns and Prosodic Elements</td>
<td>59</td>
</tr>
<tr>
<td>7</td>
<td>Signal Processing Steps to Obtain two Double AM Bands</td>
<td>60</td>
</tr>
<tr>
<td>8</td>
<td>The Key Events of the Human Development Timeline</td>
<td>65</td>
</tr>
<tr>
<td>9</td>
<td>The Phonological Awareness Language Window with Components</td>
<td>82</td>
</tr>
<tr>
<td>10</td>
<td>Effective Communication Elements and Cycle</td>
<td>87</td>
</tr>
<tr>
<td>11</td>
<td>Periods of Human Gestation and Brain Development Events</td>
<td>116</td>
</tr>
<tr>
<td>12</td>
<td>Hippocampus Developmental Timeline of Prenatal and Postnatal Events</td>
<td>119</td>
</tr>
<tr>
<td>13</td>
<td>Language and the Left Hemisphere Structural Connections and Pathways</td>
<td>121</td>
</tr>
<tr>
<td>14</td>
<td>Types of Early Learning Centers</td>
<td>154</td>
</tr>
<tr>
<td>15</td>
<td>Procedures Flow Chart</td>
<td>161</td>
</tr>
<tr>
<td>16</td>
<td>Toddler Technology Use</td>
<td>246</td>
</tr>
<tr>
<td>17</td>
<td>Word Cloud of Descriptions of the Unique Appeal of Nursery Rhymes</td>
<td>310</td>
</tr>
</tbody>
</table>
List of Abbreviations

Adult Directed Speech (ADS)
Amplitude Modulation (AM)
Autism Spectrum Disorder (ASD)
Classroom Assessment Scoring System (CLASS)
Developmental Delay (DD)
Early Childhood (EC)
Emergent Literacy (EL)
English Language Learner (ELL)
Frequency Modulation (FM)
Gestational Age (GA)
Gestational Week (GW)
Home Literacy Environment (HLE)
Hertz (Hz)
Infant-Directed Speech (IDS)
Institutional Review Board (IRB)
Kindergarten (K)
Nursery Rhyme (NR)
Perceptual Narrowing (PN)
Phonological Awareness (PA)
Pre-Kindergarten (PK)
Second Language (L2)
Sociocultural Theory (SCT)
Socioeconomic Status (SES)
Specific Language Impairment (SLI)
Theory of Cognitive Developmental Stages (TCDS)
Theory of Transmission (TOT)
Typically Developing (TD)
Zone of Proximal Development (ZPD)
CHAPTER ONE: INTRODUCTION

Overview

This chapter contains a brief background concerning nursery rhymes (NRs). Following the background are the outlined personal motivating factors for conducting the investigation and the philosophical assumptions brought to the study. Drawing upon the background information, the problem and purpose statements for the study are conveyed. Next, the contributions and significance of the study are related, which were produced through an examination of the research questions, which are listed in the subsequent section. All the relevant terms for the study are delineated in the definitions segment of the chapter. Lastly, a comprehensive summary of the chapter is provided.

Background

Without formal instruction, children the world over will complete the amazing task of developing fluency in at least one of the thousands of languages appearing on Earth. These languages contain poems, tongue twisters, stories, rhymes, limericks, chants, jingles, riddles, lullabies, and fingerplays perpetuated through an oral tradition until ultimately being preserved in written form during the 16th century (Opie & Opie, 1997; Prosic-Santovac, 2015). As their first teacher, the quality of the mother’s interactions with her child has a powerful impact in shaping the child’s future (Mullen, 2017). For innumerable generations, NRs have been a significant factor in a large portion of these early mother-child interactions.

Historical Context

Children for the past 250 years have discovered Little Miss Muffet sitting upon her tuffet and the unfortunate fright generated by the spider (Opie & Opie, 1997). Youngsters the world over have pondered Humpty Dumpty’s fate, as recognized through their consistent retelling in
countless languages and countries (Opie & Opie, 1997; Roberts, 2005). The cycle of each of these rhymes and innumerable others have continued and been perpetuated through individual recitation since the Year 1450, the earliest known record of a primitive rhyme (Opie & Opie, 1997). The origins of each of these early rhymes stem from the street calls of peddlers, ancient customs and rituals, old religious traditions and proverbs, pieces of ballads and folk songs, historical representations and references, witticisms, tavern house compositions, and from sheer jovial moments in time (Opie & Opie, 1997; Pourkalhor & Tavakoli, 2017). Even though these rhymes were not developed to entertain young members of society, they were conveyed to them during a cultural time period when the notion of sheltering infants, toddlers, and children was not entertained, allowing for the youngest ears to be exposed to the melody, language, and rhythms of numerous rhymes. As time passed on, NRs were integrated into the daily routines and past times of children, while at home and school and during their celebrations and everyday play habits for generation after generation (Pourkalhor & Tavakoli, 2017). Mothers, nursery staff, and educators employed the rhymes to sooth and entertain those in their care (Scheiding, 2019). As attitudes and views toward children evolved, the NRs were sanitized to meet the societal views of each era (Opie & Opie, 1997). The sanitizing movement gained momentum during the Victorian era (1830–1900) with the altered view of childhood to a Puritanical one, where children were educated solely to read God’s word, and Christian views and morals were instilled within their offspring from a young age. Prior to this period, the shielding or restricting of adult topics and content was non-existent, in fact “children would be swigging ale and smoking ciggies down the bear pit like everyone else” (Roberts, 2005, p. xviii). With the introduction of children’s literature, constitutional reforms, political struggles, increased literacy, improved communication, a strong Christian faith, and the movement of huge populations to the cities
during the industrial era, the subsequent influence led to the dying out of oral traditions and an influx of written material and literature specifically for children (Opie & Opie, 1997; Roberts, 2005).

Social Context

Novel verses, such as these NRs, can be located within all cultures and languages throughout the world; from the date of their origination, they journeyed by vocalized sound waves through time until being preserved in scripted form (Cardany, 2013). Despite the expansion of NRs into the literary world and children’s nurseries and libraries, these unique and colorful characters have been in danger of being eliminated from history and continue to be in jeopardy today. Close to 200 years ago in his 1849 text, Halliwell cautioned NRs have been slipping away and may dissipate with the current generation (Halliwell, 1849). The dissipation process continues within today’s culture, NR knowledge appears to be eroding away. Researchers have discovered the younger adult generation today lacks NR knowledge and are unable to provide the words to traditional NRs (Evans et al., 2016). The newest generation of parents are finding NR use with their offspring to be embarrassing, old-fashioned, or of little use in child rearing methodology (Lewis, 2014, see also Dunst et al., 2011). Currently, within the youngest parenting generation only 36% of parents will regularly read or sing NRs to their infants, toddlers, and children, continuing the deterioration of NR knowledge for generations to follow (Hampshire, 2009; Lewis, 2014; see also Dunst et al., 2011). Children from low socioeconomic statuses (SES) and homes where languages other than English are spoken may suffer the most. Prior to starting formal education, these children are found to have lower levels of oral language skills, where the deficit continues to expand and escalate from infancy through
high school—unlike children from higher SES and English only homes (Evans et al., 2016; Golinkoff et al., 2018; Hoff, 2013; Strang & Piasta, 2016).

**Theoretical Context**

Past research on NRs focused upon children’s age-related NR knowledge (Dunst, 2011). Relationships between NR knowledge and early communication, language development, early literacy development, and developmental disabilities have also been explored (Dunst & Gorman, 2011; Pourkalhor & Tavakoli, 2017; Raynolds et al., 2016). Other relationships previously examined are NR experiences, knowledge, and awareness, phonological abilities, listening skills, and print awareness (Bolduc & Lefebvre, 2012; Dunst et al., 2011; Harper, 2011; Kuppen & Bourke, 2017; Maclean et al., 1987; Pourkalhor & Tavakoli, 2017; Redig, 2018; Selevičienė, 2013; Suryani & Novia, 2017).

The music world has recently focused upon NRs and musical literacy (Bolduc & Lefebvre, 2012; Cardany, 2013). The role of music and phonological processing in language literacy through NR use has also received attention from researchers (Bolduc & Lefebvre, 2012; Patscheke et al., 2018; Sallat & Jentschke, 2015; Virtala & Partanen, 2018). An examination of NR use and their connections to phonological awareness (PA), rhyme detection, rhyme production, alliteration, and early reading have come under focus as well (Kaminski & Powell-Smith, 2017; Pourkalhor & Tavakoli, 2017; Prosic-Santovac, 2015). The use of NRs in assisting English language learners (ELLs) and English as a second language (L2) has been researched in the past few years (Campfield & Murphy, 2017; Pourkalhor & Tavakoli, 2017; Prosic-Santovac, 2015). Interventional use of NRs in family environments, neonatal intensive care units, areas of developmental delays (DD), children at-risk, specific language impairment (SLI), dyslexia, autism spectrum disorder (ASD), and Asperger Syndrome have been examined to various levels.
NRs have also been used in studies of fetal learning, voice perception and detection, neurological language development, parental perceptions and experiences, parent–child communication, synchronization, bonding, and coupling. NRs themselves have recently come under the scrutiny of researchers. The metrical structure, rise times, rhythmic patterns, and stress syllable sequences of English NRs have been analyzed by researchers (Goswami, 2018; Harper, 2011; Kuppen & Bourke, 2017; see also Hebbeler & Spiker, 2016; Kaminski & Powell-Smith, 2017; Levine et al., 2018).

The present study attempted to fill a gap in the literature in the description of current mothers’ experiences using NRs in facilitating language development with their toddler. Prior history has examined aspects impacted by NR use and the features of NRs that make them valuable for use with children, but little has been researched in how younger children and toddlers come to have the exposure, experiences, and knowledge of NRs. Hahn et al. (2018) identified NRs and songs as being rarely studied with the potential of language learning in mind and further state none have focused on rhyme itself. By gaining insight into the way mothers transmit NRs to their toddlers, the many fields within early childhood (EC) may benefit.

Situation to Self

I brought my own motivational interests and personal history to the study. My philosophical assumptions are disclosed within the section, as well as the following philosophical and research paradigms, which were employed during the study. My personal motivation for the study developed out of my professional and personal experiences. As a pre-kindergarten (PK) teacher for most of my public-school years, I noticed a decline in the NR
knowledge of the entering 3- and 4-year-old students. The observed decline in NR knowledge coincided with the influx of iPhones and other technological devices and mainstream social media expansions. While working on my master’s degree, I began researching the literature on the topic of NR knowledge. During the completion of the research on rhymes, PA, and possible NR loss, I became captivated by the topic. Further research during my doctoral program led to an intrigue in the adult relationship with NRs and their transmission to toddlers.

Prior to most of these experiences, I raised two children of the same age who were ultimately diagnosed with differing disorders. The first was my son who was diagnosed with dyslexia and dysgraphia, which prompted personal research on how best to aid his literacy attainment throughout his educational career. I also reared a stepdaughter from the age of 2 during this same time who was diagnosed early on with developmental delay (DD), but continued to struggle throughout her educational training. Being personally absent during her prenatal, neonatal, infancy, and earliest toddler years, ultimately lead to the consideration of how such a small window of time in her life had such a powerful and permanent impact upon her abilities that persists in constraining her endeavors, leading to increased efforts beyond the norm to ultimately attain educational success. In addition to these two individuals, I am currently raising two adoptive children who have been diagnosed with fetal alcohol effect, one of which was also determined to possess a DD. Each of these children when compared to my other typically developing (TD) children have made a lasting impact upon my views of EC and the important role of mothers, home environments, and prenatal awareness and care.

The interpretive framework for this hermeneutic phenomenological study applied the following philosophical assumptions in the ontological, epistemological, axiological, and methodological areas. In describing mothers’ NR experiences, I sought their multiple realities on
their lived experiences and interactions with their toddler. With varying levels of NR use, many levels of realities were developed in the findings and reported through the participant perspectives. I incorporated individual interviews, participant reflective journaling, a focus group interview, and a follow-up questionnaire to gain knowledge of the phenomenon to construct the many perspectives and multiple realities of the participants. The resulting data regarding the perspectives were reported as themes that emerged during examination. Evidence of the phenomenon was provided by the participants through a relationship constructed to gain an insider perspective of the phenomenon. Using their words as descriptors of the NR experiences, their realities were jointly constructed and related through their evidence of the phenomenon. I relied upon participant quotes to support the research to demonstrate the lived experiences of the mothers. I was respectful of the values of the participants and disclosed and set aside my own beliefs, preconceived ideas, values, and biases in obtaining evidence of their use of NRs with their toddler. I revealed my past experiences and role as a former EC educator prior to relating my concern for understanding the participants’ perspectives of NR use with their toddler. I openly discussed the potential influencing values in the study narrative and the resulting interpretations I made.

Use of individual interviews, participant reflective journals, focus group interview, and follow-up questionnaire revealed emerging ideas concerning the phenomenon, providing insight to reach a consensus for my own interpretation, as well as the participant’s interpretation of what was disclosed. I employed an immersion process with the data, whereby generalized themes emerged for the participants’ experiences. During the immersion, I journaled my own thought processes to detail how the themes emerged. Descriptions of the framework and contexts involved in the study were fully related.
The paradigm or interpretive framework I employed was one of a social constructivist. In a social constructivist worldview, individuals cultivate subjective insights from their experiences where meanings are leveled upon certain objects or things (Creswell & Poth, 2018). The social factor of the framework emphasizes the collaborative nature of cognition and ties it to the environment, constructs, interactions, and cultural arenas occurring within it. The goal of the study was to understand the NR world of the mothers and their toddlers and what factors shaped it. I interpreted the participants meaning constructs through their description of NRs use with their toddler to facilitate language development using their own words to relate it.

Problem Statement

Little is currently known about the NR experiences of mothers with their toddlers. What is known about the everyday activities that yield valuable and strong parent and child interactions laden in constructive discourse is insufficient (Sosa, 2016). The origins of NRs stem from an oral tradition where predecessors existed in illiterate societies, placing a heavy emphasis upon verbal memory, recall, storytelling, and narration to convey culture (Kiraly et al., 2016). A child’s social and cultural experiences dictate literacy and how it is exercised, which can create disparity in early literacy skills of children today (Barratt-Pugh & Rohl, 2015). Professor Roger Beard, head of primary education at the Institute of Education, suggested NRs are not being taught by parents today because they are viewed as being of little use, are old-fashioned, and create discomfort in the adults when using them with their young children; furthermore, they may have little time to incorporate them into the busy lifestyles often found today (Lewis, 2014; see also Dunst et al., 2011). These factors may contribute to the numerous preschool, PK, and kindergarten (K) children being found at-risk for later reading problems due to insufficient emergent literacy (EL) skills, which could also be attributed to poor early literacy environments.
and experiences occurring within the home (Golinkoff et al., 2018; Lonigan et al., 2013).

Rodriguez and Tamis-LeMonda (2011) noted future research should target children’s learning environments early in development at around 15 months of age. When PKers enter K, they face great odds of starting their formal schooling without the needed language skills for later reading success.

“Two-thirds of children each year in the United States and 80% of those living below the poverty threshold fail to develop reading proficiency by the end of the third grade” (American Academy of Pediatrics [AAP], 2014, p. 405; see also Golinkoff et al., 2018). Little progress has been seen in reducing the readiness gap between high and low SES students entering K (Garcia & Weiss, 2017). Conditions for the children in the bottom SES division face seemingly insurmountable odds of climbing the social ladder and achieving educational success. Policies, initiatives, and programs [such as government led preschools, prenatal services, health services, and feeding programs] aimed to ease the pressure have made only modest gains (Garcia & Weiss, 2017) and with the shift toward academic environments expecting more from children at an earlier age and within a compressed timeframe, the small gains could slip and complete a reversal in progress (Redig, 2018). Slight improvements have been seen in parental involvement and engagement levels with young children early on between the generations from 1988 and 2010 (Garcia & Weiss, 2017).

If trends continue as reported, children today face the odds of almost one in four reaching adulthood without the basic literacy skills needed to function in society (Kutner et al., 2006; Strang & Piasta, 2016). Upon majority, 60% will possess a major educational barrier leading to an unemployable status, possessing low wage positions, or an inability to qualify for training or entering higher education programs (National Commission on Adult Literacy [NCAL], 2008).
Considering how the mothers of these children were the first generation of young adults to be less educated than the previous, the potential outlook appears bleak (NCAL, 2008). The economic and social structure is dipping to where only half of the children from the 1980s earn more than their parents; a drop of 40% from the previous generation (Garcia & Weiss, 2017). However, the reported figures of educational attainment levels are more promising. Between the Years 2000 and 2017, there was a 4% increase in those who received a high school diploma or an equivalency diploma, leading to a nominal increase in higher degree reception (McFarland et al., 2018).

To alleviate such numerous concerns, Pourkalhor and Tavakoli (2017) related the identified role of NRs in forging the route for young learners to develop language learning and listening skills. Oral language development has been found to be the key precursor to EL and continues to be a main contributing supporter to continued literacy development since oral and written communication are developmental language processes (Bridges, 2013; Golinkoff et al., 2018; Hughes et al., 2018). There is an advantage to incorporating NRs in everyday activities, which is featured in the excitability of the early brain’s predisposition to absorb and take in the stimuli within the environment. Because of their unique structure, NRs nourish the brain’s developing pathways facilitating language acquisition (Krueger & Garvan, 2014). Therefore, the problem of the study was current mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddler.

**Purpose Statement**

The purpose of this hermeneutic phenomenological study was to understand current mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddler. Mothers’ NR experiences was generally defined as the incorporation of NRs into a
mother’s repertoire of parenting skills, knowledge, tactics, and resources employed to facilitate language development during the rearing of her toddler (Bornstein et al., 2010; Bornstein et al., 2017; Diamant-Cohen et al., 2018; Donkin et al., 2014; Dunst et al., 2013; see also Dunst et al., 2011; Mullen, 2017; Music, 2016; Pempek et al., 2011). Guiding this inquiry were three theories from the area of cognition and transmission.

**Significance of the Study**

Using literary supports, a description of the potential contributions the study addressed in the empirical, theoretical, and practical areas of significance are delivered in the following section. Areas possessing voids in the research are covered, as well as those possessing little exploration within them. Information is also shared in the areas of research addressed by the study.

**Empirical Significance**

The empirical contributions of the study addressed a need to shed light upon a void in the research concerning current mothers’ interactions with their toddler while using NRs. When the educational levels of mothers play a role in their child’s later reading development (Kirby & Hogan, 2008), the mother’s NR knowledge and usage with the child comes into question. “The first three years of life are the most significant period of a child’s development, especially for the brain, which is growing faster than any other part of the body” (The Urban Child Institute [UCI], 2016, p. 1). Providing the needed stimulus for neural pathways in the amplification of brain functioning from fetus and beyond solidifies what is needed for language, cognitive, emotional, psychological, and motor responses. The study addressed the need to add information concerning parents catching the critical sensory time periods needed to stimulate the sensing neurons for later literacy development (Jeppson et al., 2013). Also attended by the study was the need for
information on how young toddlers develop NR exposure, experiences, awareness, and knowledge. An empirical significance was addressed regarding the structure of early language development for toddlers and the role of mothers in their language acquisition (Dunst et al., 2018; Sosa, 2016).

In addition, information concerning the home environment of toddlers who have varying levels of NRs used within them was contemplated within the current study (Edwards, 2014). The study addressed the need to build upon information on the environmental issues associated with the mother, child, and mother-child interactions to better determine the changes in NR knowledge of infants, toddlers, and young children. “Little is known about [the] everyday activities that may promote both the quantity and quality of communicative interactions between parents and young children” (Sosa, 2016, p. 133). The influence of today’s technological and socialization factors concerning the cultural influence on the mother, child, and mother-child interactions was examined for an empirical significance through the study. Possible empirical significance was examined on the use of media and technology in the children’s home environment. Vittrup et al. (2016) found the majority of parent reported media and technology use consumed the principal amount of the adults’ free time. They also found this use correlated to the amount of the child’s screen time in the home. Such heavy use by parents has impacts upon language development in young children. Mobile device use in 18-month-old toddlers was found to be associated with expressive language delays (van den Heuvel et al., 2019).

Considering these points, the study addressed a need to fill a void in the efficacy of using NRs in early intervention services in the homes of toddlers (Wieber & Sumner, 2016).
Theoretical Significance

In the theoretical contributions, there were three guiding cognitive theories for the study. The experiences of mothers with their young toddlers could have corroborated or questioned the sociocultural theory (SCT) of Vygotsky (1978), depending upon the findings of the study regarding the use of NRs. If the mothers played a mediating role in their toddler’s learning through social and cultural activities, Vygotsky’s theory could be viewed as significant. His thoughts upon childhood language learning stipulates how children will “learn as they participate in socially valued activities, gaining dexterity with the goals, practices, and tools common to the activities of which they are a part” of in their environment (Seaman & Gingo, 2010, p. 160). The societal patterns within the environment where a child resides effects the building of complex mental processes, which produce the tools they will later use during formal learning exercises (van den Heuvel et al., 2019).

If the mothers’ experiences included an in-depth understanding of the nature of their toddler with environmental supports to maximize their development through NR use, then Pestalozzi’s (Green, 1905) theory of transmission (TOT) would be validated. This builds upon his thoughts of childhood as a uniquely important and special period of human growth that is built through immediate environmental experiences through the positive bond developed between the mother and child (Gutek, 2011). Findings of mothers facilitating their toddler’s language learning through NR use and enriching the toddler’s environment in such a way to cultivate a stronger bond being developed in their relationship, then Pestalozzi’s TOT could be supported.

Piaget’s (1953/1998) theory of cognitive developmental stages (TCDS) could have been corroborated and thought significant if the mothers’ experiences with their toddlers included
information determining a toddler adapts to the environment during NR use. “Nursery rhyme knowledge should increase our understanding of its development and its relationship to the emergence of early literacy competence” by examining the interactions occurring between the parent and child (Dunst, 2011, p. 6). By understanding the interactions between mothers and their toddlers, directions can be made for children to achieve their optimal developmental potential.

**Practical Significance**

By possibly contributing valuable knowledge to guide other mothers, childcare providers, preschools, PK educators, and policy makers to improve literacy practices for young children by reading current mothers’ experiences with NR usage with their toddlers, the study could offer practical implications. Research has yet to identify how toddler’s NR knowledge is cultivated and how it contributes to their development (Harper, 2011). There have also been queries concerning the exact times in development when certain aspects of PA and knowledge are acquired and how it transpires (Suortti & Lipponen, 2014). As a child’s first teacher, parents play a vital part in structuring and maintaining the interactions occurring with their children.

Regarding the practical impacts, the study could aid parents, future parents, students, childcare providers, teachers, educators, and practitioners through the practical application of NR usage and the incorporation of NRs into parenting and child programs to aid language development, phonological knowledge achievement, and later reading abilities for young children (Cassano & Steiner, 2016; Family and Community Engagement [FACE], 2013). If practical significance were found, the study could lead parents to increase their use of NRs with their toddlers to stimulate neural pathways in a toddler’s developing brain during critical time periods (Jeppson et al., 2013). Educators and childcare providers in positions to influence
curriculum within their areas could enact changes within the educational programs concerning NRs. They could also relate vital NR information to parents and other facilities through educational and developmental meetings. Society itself could benefit because a fully literate society assists all who reside within it. “Historically, enhanced early child development in societies has led to the improved health and well-being of populations and prosperous, democratic societies” (Mustard, 2006, p. 36). Governmental literacy and infant care agencies could conceivably build upon new knowledge to enhance early literacy programs in their facilities. In other nations, agencies have achieved successful programs to enhance early literacy in similar cases. Cai (2017) identified a gradual process to popularize children’s NR reading in government libraries and literacy programs. Community-based Mother Goose parent–child programs have produced positive results as well (Ling et al., 2017).

**Research Questions**

This hermeneutic phenomenological study of current mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddler was guided by one central research question and three additional research sub-questions, which are outlined below.

**Central Research Question**

What are mothers’ perceptions of their lived experiences using nursery rhymes to facilitate language development in their toddlers? The central question of the study explored mothers’ experiences by examining their descriptions of interactions with their toddler using NR. Research has demonstrated that NRs foster phonological processing (Bolduc & Lefebvre, 2012; Hahn et al., 2018), aid word acquisition through movements (Wakefield et al., 2018), encourage listening achievement (Suryani & Novia, 2017), assist in phonemic awareness (Redig, 2018), enhance linguistic abilities (Prosic-Santovac, 2015), develop cognition and rhyming skills
(Pourkalhor & Tavakoli, 2017), promote socialization and knowledge (Nasiruddin, 2013),
stimulate the domains in child development (Mullen, 2017), consist of metrical patterns (Leong & Goswami, 2015), benefit learning in typical, atypical, and at-risk children (Evans et al., 2016; Goswami et al., 2016; Kuppen & Bourke, 2017), are a predictor of literacy outcomes (Dunst et al., 2011; Harper, 2011), correspond to speech patterns in IDS (Goswami, 2018), produce attending skills and synchronization of mother–child dyads (Dunst & Gorman, 2011; Ghosh, 2016), elicit fetal responses (Ferrari et al., 2016), demonstrate age-related knowledge corresponding to SES levels (Dunst, 2011), further intervention services (Dunst & Gorman, 2011), and promote cultural transmission (Prosic-Santovac, 2015).

Sub-Questions

Supporting the central research question were three sub-questions. Each of the sub-questions are related and examined in the next section. Following each statement of the question, a brief covering of the reasoning behind the question is included. Details of the supporting research for each sub-question are offered as well.

Sub-Question 1

What are mothers’ perceptions of the ways nursery rhyme usage affects their relationships with their toddlers? Sub-Question 1 was designed to identify the impact of NR use in the mother–toddler relationship. Wieber and Sumner (2016) related how play within the context of one’s culture promotes bonding and builds the protective structure for learning and the routines needed for children to flourish. Optimizing these interactions is critical; even when time is constrained, the use of mother–toddler NR play is imperative. “The reality for many families of young children is that opportunities for direct parent–child play time is limited owing to financial, work, and other familial factors” (Sosa, 2016, p. 133). Culture and SES are known
influencing factors on the allowable free time mothers have to engage with their children (Del Bono et al., 2016).

**Sub-Question 2**

What are mothers’ perceptions of the ways nursery rhyme usage affects their toddlers’ language development? The intent of Sub-Question 2 was clarification on the views mothers have toward NRs and the impacts they may produce. One poll discovered how unaware (20%) parents are of the need to aid in their toddler’s communication and language skills, which leads to their neglect in providing daily support in literacy development, such as reading or using NRs (Bolton & Clark, 2012). Past polls and surveys (Bolton & Clark, 2012), educational organizations, (Scholastic, 2009) and popular media (Bloxham, 2009) refer to the variations in levels of parenting knowledge and practices, whereby parents view NRs as “old-fashioned,” embarrassing to use, unneeded and useless, and holding little educational significance for their child (see also Bornstein et al., 2010; Dunst, 2011; Dunst et al., 2011).

**Sub-Question 3**

What are mothers’ perceptions of the ways their knowledge of nursery rhymes contributes to their experiences with their toddlers? Sub-Question 3 was developed to identify parent knowledge of NRs and the impact it may have had on the mother–toddler relationship. If mothers are responsive and knowledgeable about parenting skill sets, they are capable and able to nourish their toddler’s early development (Dayton et al., 2017). Toddlers enjoy NRs and the interactions they offer, while they amuse the adults during a shared activity and possibly evoke reminiscent responses about past NR experiences, including those from their own childhood (Cardany, 2013). Culture also plays a role in these processes. “A family’s culture and the way they play with their children intersects with child development” (Wieber & Sumner, 2016, p. 78).
Definitions

1. *Amplitude Modulation Envelope* – Amplitude modulation envelope, also referred to as the temporal modulation envelope or AM, is one class of modulation encoding contributing to prosody where rhythmic energy patterns in the speech envelope (carrier wave); perceived as the fluctuations of the loudness (slow rates) of the signal or as rhythm and texture (faster rates), where frequency and phase remain the same and in the delta band level, which depicts the “stress” levels within a word (Goswami, 2018; Leong et al., 2017; Myers et al., 2019).

2. *Amplitude Rise Time* – The amplitude rise time is the rate of energy change for onset in the modulation of the amplitude envelope and cues the start of the syllable and provides information on syllable stress, enabling the temporal alignment of different oscillatory rhythms with different speech rhythms (phase alignment or neural entrainment; Cumming et al., 2015; Kuppen & Bourke, 2017; Leong & Goswami, 2017).

3. *Entrainment* – Entrainment occurs when the rhythmic physiological or behavioral events match their period to the surrounding environmental oscillation. It assists in the adaptive phase relationships, whereby the main function is stability (Araujo et al., 2018; Cumming et al., 2015; Cutini et al., 2016; Leong & Goswami, 2017; Myers et al., 2019).

4. *Envelope* – The envelope (also referred to as the amplitude envelope, time amplitude, speech envelope, or amplitude) is the waveform depiction of changes in air pressure resulting from molecular motion and found within the outlines of the extreme upper and lower limits of the resulting signal (Behrman, 2018; Kubanek et al., 2013).

5. *Frequency* – Frequency is the number of oscillations per second in a sound wave (Behrman, 2018; Dobie & Van Hemel, 2004).
6. **Frequency Modulation Envelope** – Frequency modulation envelope, which is also referred to as FM, is one class of modulation encoding contributing to prosody where the carrier wave of the signal needing to be transmitted modulates the time derivative of the carrier signal, while the amplitude and phase remain the same; perceived as fluctuations in pitch (Luo et al., 2006).

7. **Modulation** – Modulation is the process of varying one or more properties of a periodic waveform (the carrier signal) with a modulating signal containing information to be sent (Cutini et al., 2016; Leong & Goswami, 2015; Myers et al., 2019).

8. **Neuron Entrainment** – The synchronization of brainwaves depicting neuron entrainment; also known as brainwave entrainment and phase alignment where neuron excitability aligns to the temporal stimuli pattern (Goswami et al., 2016; Leong & Goswami, 2015; Leong & Goswami, 2017).

9. **Neuronal Oscillation** – Neuronal oscillation is a rhythmic and repetitive electrochemical activity in the brain and central nervous system characterized by frequency, amplitude, and phase, whereby the frequency is adjusted to synchronize with the periodic vibration of the acoustic and visual environmental stimuli. Neuronal oscillation enables the synchronization of the neural activity within and across brain regions and propagates preciseness in the temporal coordination of neural processes at the root of cognition, behavior, memory, perception, and auditory processing (Cumming et al., 2015; Cutini et al., 2016; Goswami, 2018; Kuppen & Bourke, 2017; Leong & Goswami, 2015; Leong & Goswami, 2017; Leong et al., 2017; Myers et al., 2019).

10. **Perceptual Narrowing** – A process within the brain where perception of a sensory domain stimulus from the environment causes the reorganization according to increased
exposure to create greater sensitivity (narrowing) through the brain’s plasticity early in a child’s life (i.e., language, music, faces) is identified as perceptual narrowing (Kubicek et al., 2014; Lewkowicz, 2014; Vihman, 2017).

11. **Perceptual Tuning** – Perceptual tuning is a process where the neurons for the stimuli (i.e., language(s), music, faces) an infant is exposed to are strengthened, leading to discrimination of the specifics within the stimulus (i.e., phonemes, notes, features; Lewkowicz, 2014; Melvin et al., 2017).

12. **Phase** – Phase or angular degrees are one cycle of change in the sound pressure wave in the time domain (Behrman, 2018; Dobie & Van Hemel, 2004).

13. **Phase Modulation** – Referred to as PM, phase modulation is one class of modulation encoding contributing to prosody in which the signal needing to be transmitted modulates the phase of the carrier signal (Leong & Goswami, 2015; Luo et al., 2006).

14. **Prosodic** – Prosodic or suprasegmental are features of voice typify the musical points (pitch, tempo, volume, rhythm, and intonation) of the speech signal (Prosic-Santovac, 2015; Sallat & Jentschke, 2015).

15. **Prosody** – Prosody consists of the poetic patterns of stress, intonation, rhythm, and sound in languages determined by acoustic correlates of duration (phase), amplitude, and frequency, affording suprasegmental linguistics for the phonemes, syllables, and phrases (Hume, 2017; Myers et al., 2019).

16. **Sinusoidal Wave** – A sinusoidal wave or sine wave is a sound wave representing a uniform up and down circular movement (a pure tone; Behrman, 2018).
17. **Sound Wave** – A sequence of pressure disturbances (oscillations) composed of three physical attributes of frequency, amplitude, and temporal variation describes sound waves (Behrman, 2018; Dobie & Van Hemel, 2004).

18. **Spectrum** – A spectrum is the description or depiction of the frequency, amplitude, or phase of a sound (Behrman, 2018; Dobie & Van Hemel, 2004).

19. **Speech Envelope** – The speech envelope is an auditory function in speech perception depicted through an outline of the extreme upper and lower limits of the speech signal waveform to reveal the amplitude of what is being measured (e.g., time, frequency) through the changes in air pressure (Behrman, 2018; Kubanek et al., 2013).

20. **Stress Feet** – The stress patterns or proto-words are part of the large-grained phonological structures in melodic and prosaic text and speech defines stress feet (Goswami, 2018; Leong & Goswami, 2015).

21. **Toddler** – A toddler is a child within the range of 1 to 4 years of age (Karp, 2008).

**Summary**

An existing void in the information was identified concerning current mothers’ experiences using NRs in facilitating language development with their toddler (Sosa, 2016; see also Dunst, 2011). Recorded NRs date back as far as the 16th century, although they were used prior to being recorded in a printed and published format. Even though young toddlers may not understand the text of the NRs, they become attuned to the rhythm and sonority present in the voiced NRs, which provides the unique learning context needed to develop the PA a child needs for later literacy development (Cooling, 2011; Lefebvre et al., 2015). Current examinations of NRs have identified the possible connection between their unique metrical rhythmic patterns, which matches child-directed speech (CDS), leading both to assist in language acquisition by
connecting to a toddler’s unique language potential (Goswami, 2018). If current trends continue, 33% of present toddlers stand to enter American PKs and Ks lacking the needed PA skills to later transform into fluent readers (AAP, 2014; Golinkoff et al., 2018). The study addressed the need in alleviating some of the impact for these entering toddlers. By contributing further information regarding aspects of the readiness gap for children entering PK and K, the study focused upon the need for information to assist parents and care providers in skills and strategies to intervene early on with infants and toddlers to achieve the readiness skill sets prior to entering PK and K (Garcia & Weiss, 2017).
CHAPTER TWO: LITERATURE REVIEW

Overview

This literature review provides a theoretical understanding for the use of NRs in the homes of mothers with their toddlers. While there is a large body of research on the academic benefits of NR knowledge and its relationship to later reading success, there is a lack of information on younger children and their mothers regarding the transference of NRs. The theories framing the investigation include SCT, TOT, and the TCDS. The related literature will cover the historical background of NRs, stages of child development, building experience, awareness and knowledge of NRs, NRs as predictors of success, environmental and physiological factors associated with NRs, and targeted populations of children. After the extensive review of the related literature, a concluding summary of the contents will end the chapter.

Theoretical Framework

The theoretical framework builds a foundation to support the concept of NR usage and provides a point of reference to return to in the study. “Building a foundation requires using previous work in such a way as to demonstrate linkages, illustrate trends, and provide an overview of a concept, theory, or literature base” (Rocco & Plakhotnik, 2009, pp. 122–123). To demonstrate how the current study advances the knowledge and provides to the field of literature on NRs, the following review of literature will demonstrate the existence of a gap in the research.

Sociocultural Theory

Vygotsky’s (1978) SCT emphasizes the fundamental role social interactions have on cognitive development. SCT links the social, cultural, and historical factors shaping human activity (Daniels, 2016). Because of the inherent nature of NRs as an oral tradition, Vygotsky’s
theory framed the thoughts concerning the cultural concept of the study. Gauvain (2009) defined cognitive socialization as “the process by which parents and others ensure that a child’s way of understanding and operating on the world conforms to those deemed appropriate to and valued by his or her culture” (p. 519). If parents value the family’s cultural standing of NR usage, they have a greater likelihood of continuing to use the same with their own child. Family traditions have passed from one generation to another, are long-standing, have stood the test of time, and can perhaps be viewed as a parenting manual on teaching and engaging with children (Wieber & Sumner, 2016).

SCT identifies the ways in which a child’s social, cultural, and historical situational framework connects with and influence one’s mental and educational development (Panwar et al., 2016). Acquiring cultural tools and practices, such as NR usage, assists in the development of a child and supports cognitive skills and social interactions. When barriers occur to children’s participation in the use of cultural tools and practices, their development can be impaired. Such barriers can be of a social or biological nature and can produce difficulty throughout a child’s life. Vygotsky suggested “transformations in patterns of participation carry with them implications for cognitive development [and] exclusions carry cognitive consequences” (Daniels, 2016, p. 47). Cognitive development as a creation of social and cultural experience is built upon the social interactions of the individual according to Vygotsky’s theory.

Vygotsky’s (1978) SCT applies to the way a child’s language is acquired and assisted by those within the child’s social setting. Language is vital to the theory since “it operates as the primary medational [sic] means by which social partners communicate information to each other and that individuals use to guide their own goal-directed actions” (Gauvain, 2009, p. 522). The language-based delivery medium of NRs fulfills this critical aspect in Vygotsky’s theory.
Considering this inquiry, mothers inherently pass on the culture of the family through the social interactions that often involve a historical context. Participation in culture and society through activities is where children assemble and compose their words in Vygotsky’s view (Salkind, 2004). The vehicle employed for transmission is often engagement in playful interactions with the child, but these familial cultural and traditional portrayals can be hijacked through the influences of the culture and values of one’s community and society (Wieber & Sumner, 2016). Culture and thought form a crucial, interdependent relationship where specific cultures have certain impacts and influences upon what and how children think (Salkind, 2004). Lefebvre et al. (2015) also indicated SCT perfectly framed their pilot study regarding the interactions occurring in NR usage and the learning influences associated with them.

Vygotsky’s (1978) SCT was constructed on four premises. At its base is the fact (a) children construct their own knowledge, which forms their (b) development that is inseparable from one’s social context. The cultural and social environment feeds (c) learning that can direct development. The one cultural tool (d) playing a central role in a child’s mental growth is the development of language (Salkind, 2004). For cognitive development to progress, Vygotsky held a child’s potential as limited to an area just ahead of the child’s developmental level, where problem-solving is capable with guidance from an adult or more knowledgeable broker (Salkind, 2004). Vygotsky termed this processing area as the zone of proximal development (ZPD). The theory highlights the role of mediation by an older individual in a child’s learning and development, whereby a learning task is broken into small skills that are scaffolded to achieve mastery. When a mother pauses in an NR to allow her child to supply the next word or line, she is employing ZPD in facilitating the child’s language development.
Theory of Transmission

In addition to Vygotsky, Pestalozzi’s (Green, 1905) TOT maintains the view of the whole child being considered when promoting education, including one’s physical, intellectual, and emotional development (Horlacher, 2019). In his transmission theory, Pestalozzi (1830) responds regarding the qualifications of mothers, “the mother is endowed, and endowed by God himself, with all the qualities which should render her fit to become the principal agent in the moral and intellectual development of her child” (p. 4). Pestalozzi stressed the importance of observing children and having a complete understanding of child development to accurately determine each one’s progress with the aim of organizing the environment for the promotion of child development, while bearing in mind the social sphere for effective educational promotion (Pestalozzi 1830; Soetard, 1994). By doing so, the whole of the individual is considered when educating a child. Therefore, education is revealing and unfurling the gifts a child possesses (Pestalozzi 1830). The living conditions of a child and the context within the environment creates opportunities for a child to develop those gifts. To know a child’s nature and their developmental status allows for a mother to structure the environment to support further development at increasingly higher levels through a social relationship between herself and her child (Morrison, 2015). By providing full sensory experiences with love, care, and attention for the child in an environment that includes a mother and home filled with affection, three fundamental elements of knowledge—language, form, and number—can be constructed by the child with the assistance of the mother (Pestalozzi 1830; Tröhler, 2013).

For application to this inquiry, mothers are charged with the care, well-being, and development of the whole child and the many aspects influencing and impacting the process. A child’s developmental milestones frequently become the indicators of a successful mother-child
bond, such as the point in which a toddler exhibits formal language expression. Pestalozzi’s TOT provides support for the parental use of NRs by placing a child’s mother as the first and most important teacher. Additional aid is offered in making the home a loving environment where early and extensive education should occur with affection, aid, and encouragement that works to form the character of a child and operates as a mode for transmitting knowledge (Pestalozzi 1830; Tröhler, 2013). The home environment should be structured with the child in mind, taking into account the developmental level of the child. The mother, through an outpouring of love and participatory connections, engages all the child’s senses in learning experiences (Pestalozzi 1830; Tröhler, 2013). During these times, she presents the language experiences needed for later reading success, language being one of Pestalozzi’s three fundamental elements of knowledge.

**Theory of Cognitive Developmental Stages**

Piaget’s (1953/1998) TCDS views the relationship between knowledge building and the state of reality as a spontaneous developmental process occurring in stages for children. There are four process factors in a child’s development; Piaget held maturation, experience, social transmission, and equilibration, which acts as a unifying process between all four, contribute to a child’s cognitive development (Piaget, 1953/1998; Salkind, 2004). Piaget further believed a child would adapt to the environment through the organization of information through the processes of assimilation and accommodation leading to the formation of the child’s cognitive constructs (Piaget, 1953/1998; Prinsloo & Barrett, 2013, p. 6).

Piaget’s TCDS also assembles a framework for NR use. According to Piaget, to structure information, there are four critical organizing factors: biological maturation, experience, social environmental influence, and processes for regulation or equilibrium (Piaget, 1953/1998; Prinsloo & Barrett, 2013). The cognitive processes of children require stimulation to further their
understanding of the world around them. “A certain continuity exists . . . between intelligence and the purely biological processes of intelligence and morphogenesis and adaptation to the environment” (Piaget, 1953/1998, p. 1). The continuity can be discerned through the apparent logical structures residing within thought and can be ordered into four developmental phases based upon the unique configuration of their internal structures (Piaget, 1953/1998; Prinsloo & Barrett, 2013). The four phases consisting of profoundly different cognitive schemes are sensor-motor (birth–2 years of age), pre-operational (2–7 years), concrete operational (7–12 years), and formal operational (12–adult years). Children progress through each stage in the developmental order as they encounter new information and internalize it. In his observations, Piaget concluded cognitive development depends upon the coordination of schemas. In the early phases, the connecting of schemes occurs through looking, listening, and touching (Bransford et al., 2000). Vihman (2017) informed research is beginning to relate Piaget’s TCDS to the brain development of young children when they are building lexical and phonological skills for language development. When children are actively engaged in interactions with their mothers during everyday experiences, there are a multitude of opportunities for children to construct their own cognitive language connections.

Related Literature

The related literature for the study was pursued through six contexts to examine the topic of NR use (see Figure 1). The related literature will begin with a review of the historical context of NR. A look into the developmental context regarding NRs will be covered next, which is followed with the experiences, awareness, and knowledge of NRs within the social and cognitive realms. Continuing and supporting the cognitive context are NRs as predictors of success, which falls within four subfields. The environmental contexts affecting NR usage and the three
physiological areas involved with NRs will also be related. Finally, literature on targeted populations benefiting from NR use concerning the cognitive, developmental, social, and environmental contexts will be provided.

**Figure 1**

*Six Contexts Associated with the Related Literature*

**History of Nursery Rhymes**

Within this section, the history of NRs will be explored by defining NRs and an exploration of their dynamic origins. This will be followed with a review of the adaptations NRs
have undergone and the global expansions they made. Subsequently, an in-depth examination of the structure of NRs will be presented.

**Definition of Nursery Rhymes**

An NR can be defined as a short simple poem for children often telling a story made up of trivial or nonsensical musical verse (Dunst, 2011; Dunst et al., 2011). The English culture refers to these verses as NRs and in America they were originally referred to as Mother Goose songs (Opie & Opie, 1997). Whatever the term, the importance is within the structure and words of the verses that have endured for as many as 50 generations. Hume (2017) identifies NRs as possessing all the hooking devices needed to become “stuck” in one’s head and can therefore be described as “catchy,” attributing to NR’s long-term and strong endurance factors. The vast majority of the rhymes are likely more than 200 years old and can still be found in existence today, attesting to their continued catchiness and memorability and aiding in their perpetuation and preservation for following generations.

**Origins of Nursery Rhymes**

“Nursery rhymes are a socially engaging, playful, and developmentally appropriate way for young children to hear, identify, manipulate, and experiment with the sounds of language” (Harper, 2011, p. 76). The themes of NRs are diverse and often nonsensical with some being sung and others recited. Lively characters are included in many, although some have none at all. Many of the NRs amuse and still others are considered sinister in nature; but most of them were never intended for young ears. The bulk of NRs owe their origins in the attempts to humor an adult audience and whose texts and subject matter would be deemed entirely unsuitable for children today (Opie & Opie, 1997). As events transpired in history, rhymes were composed to relate the actions and deeds of individuals and the notable events occurring during the period, “in
the same way that we have satire and irony on television today, songs and rhymes were clearly much more popular routes in the past” (Roberts, 2005, p. xvi). Owing to the lack of writing and printing materials, the need of anonymity, and the relegation of education for the elite class, rhymes were composed and passed on to others solely by word of mouth (Baleghizadeh & Dargahi, 2010; Roberts, 2005). Some of the most remarkable NRs were developed in just such a manner. To remain protected from officials, the common citizens would disguise information using ordinary names, places, and things to safely relay information, which was often in a humorous and catchy manner (Roberts, 2005). While the sovereignty, kingdoms, religious entities, laws, and declarations may have fallen away, remnants of the legendary and historical acts remain in the hearts of children today, who revel in such delight brought about by using these rhymes, lullabies, jingles, songs, riddles, and proverbs, which were preserved through oral history by the youngest members of the population and their discerning preferences for such nonsensical melody, rhythms, and verse (Green, 1899).

**Adaptations of Nursery Rhymes**

NRs entered the world of infants, toddlers, and children via the adults charged with their care. Because of the readily available words, jingles, phrases, and songs, the adults would incorporate their use to entertain, occupy, and soothe a child, where they may have been the only known rhymes at the moment or were the first thing to come to mind when they were needed (Roberts, 2005). Because of the wide interval between the earliest known NRs and the written forms of the verses, the durability of the oral tradition which treasured them attests to their survivability (Green, 1899). The oldest known NR is not definitively determinable; the best estimate is over 2,000 years ago, where traces of NRs were discovered by researchers in England and Scotland dating back to the Middle Ages (circa 500—1400 A.D.; Cardany, 2013; Opie &
Opie, 1997; Roberts, 2005). The pinnacle period for NRs has been established as the years between the Tudors [1485–1603] and the end of the Stuarts [1603–1714], a span of a quarter-millennium during Britain’s formative age, which contained plenty of fodder to produce NRs (Roberts, 2005). Taking from the oral tradition, the first published NR book was *Tommy Thumb’s Pretty Song Book* written circa 1744; although copies from the first publication have not survived, advertisements from early 1744 support the publication date (British Library, n.d.; Opie & Opie, 1997; Prosic-Santovac, 2015). There are two known copies in existence for the second publication of the songbook, which depicts 39 rhymes, many of which are still known today, such as “Hickory, Dickory Dock” as well as some that have lost support, for example “There Was an Old Woman Who lived Under a Hill” (British Library, n.d.; Opie & Opie, 1997).

**Global Nursery Rhymes**

Prior to their first publication, NRs were delivered in an oral format and were transferred from mother to child to live on through history (Green, 1899). Considering this method of transmission, many of the NRs have remained amazingly as they were originally composed (Green, 1899; Opie & Opie, 1997). For the past 2,000 years, each generation passed along these rhyming verses to the next one with only a few being distorted (Opie & Opie, 1997), establishing a familial chain containing up to a 100 generational links, depending upon the age of the specific NR. One such known rhyme surviving remarkably intact is “Three Blind Mice,” which had its life rooted in English history. Queen Mary I was represented as the farmer’s wife who violently dispatched Protestants, the three blind mice, in historical numbers, which led to “Bloody Mary” being referenced as the queen (Opie & Opie, 1997). This rhyme and many more have existed in the human world through the oral resuscitation process since the Year 1450, the earliest recorded date of a primitive rhyme form (Opie & Opie, 1997). NRs have traveled wherever children have
taken them for many centuries. Some of the same NRs have been found in different countries without much variation at all. One of the oldest is believed to be “Humpty Dumpty,” held in antiquity for thousands of years (Opie & Opie, 1997). Translated versions of this riddle rhyme have been found in England, France, Sweden, Denmark, Finland, Switzerland, and several parts of Germany. Another still in existence today is “Little Jack Horner,” whose history is undecided and yet was transported to many nations around the world.

Opie and Opie (1997) refer to “Eena, Meena, Mina, Mo” as a popular rhyme whose words are attributed as a reflection of ancient numerals. The first line of the rhyme has changed little for untold generations as it spread into other nations and is still used today by children around the world as a selection tool for their games, demonstrating Kiraly’s et al. (2016) point of children “form[ing] a preliterate society, hidden in plain sight, similarly reliant on a well-practiced memory for rhythm and rhyme for the oral transmission of their culture” (p. 7). Recently, the use of the “Eenie, Meenie, Minie, Mo” found its way into a lawsuit where a flight attendant employed the rhyme during an announcement to move passengers to their seats, similar to what a teacher would do in an EC classroom or playground game, “Eenie, meenie, minie, moe; pick a seat, we gotta go” (Thibault, 2008, para. 3). The lawsuit alleged discriminatory conduct causing distress because of the history associated with the Americanization of the Anglo-American rhyme, which swapped the English word “tinker” or “chicken” for what is today considered a derogatory term for African Americans (Opie & Opie, 1997); however, a federal jury did not find grounds for discrimination in the case (Thibault, 2008). Opie and Opie (1997) ascertained the first and last lines of the Americanized version of the rhyme as old British and the middle two lines as originating in New England.
Historically, every country possessed their own traditional NRs, games, and ways of play, which taught each generation a way to live, transferred needed skills for survival, and provided practice in developmental abilities (Wieber & Sumner, 2016). Unfortunately, the effects of globalization, migration, loss of extended family, acculturation, and assimilation are forcing these NRs, games, and ways of play to be abandon, leading to an increased risk for deficiencies within developmental practices, the loss of a rich cultural heritage, and the dying out of NRs (Wieber & Sumner, 2016). Current families immigrating to the United States bring their native language and culture with them (Wieber & Sumner, 2016) and choose to use their native NRs with their children instead of those from their immigrating country during their connective interactions with their children (Dayton et al., 2017). Knowledge of such practices is of importance since almost 10% of the students enrolled in U.S. public schools are ELL. Of even greater importance in EC, most of the ELLs can be found in K through second grade, at rates averaging 16.3% of the population (National Center for Education Statistics [NCES], 2018b).

**Nursery Rhyme Structure**

Language, IDS, and music possess many similarities and properties; the main commonality being prosody, which NRs naturally contain in both their language and musical formats and can include IDS in many instances of mother and child interaction (Hume, 2017; Myers et al., 2019; Rocca, 2015; Sallat & Jentschke, 2015). “Prosody is presumably the area with the strongest overlap: Prosodic or suprasegmental features can be regarded as ‘musical’ [emphasis in original] aspects of the speech signal” (see Figure 2; Sallat & Jentschke, 2015, p. 2; see also Myers et al., 2019; Rocca, 2015). Blending acoustical features gives rise to the aspects of prosody that an infant and toddler can detect, such as contour, timbre, stress, pauses, tone, and speech rhythm and melody (see Figure 3; Hume, 2017; Myers et al., 2019; Rocca, 2015; Sallat &
Jentschke, 2015). Perception of the accent and beat are critical for decoding the structure of sounds found in speech; rhythm, pitch, rise times, and stress are important in facilitating PA, which make up the speech signal (see Figure 2; Patscheke et al., 2018). The rhythm is especially important in understanding spoken language and in perceiving the temporal organization of the message (Fujii & Wan, 2014). The acoustical properties promoting the rhythm of a language can be found within the sound envelope, which is the upper outline of the frequency range depicted in the waveform (see Figure 2; Behrman, 2018; Fujii & Wan, 2014). In the comparison of speech and singing in Figure 2, singing produces a more notable timed beat, which would make understanding easier for infants being introduced to language (Fujii & Wan, 2014). Since NR’s have a stronger acoustical beat, structurally, they correspond more loosely with the musical representation in the depiction (see Figure 2; Leong & Goswami, 2015).

**Figure 2**

*Sound, Amplitude, and Power Comparison for Speaking and Singing*

The prosody of speech (see Figure 4 for additional characteristics) is determined by phase, amplitude, and frequency, which are modified for the delivery of the message by carrier wave patterns (sound waves) in envelopes labeled as phase modulation (PM), amplitude modulation (AM), and frequency modulation (FM; see Figure 4; Goswami et al., 2016; Myers et al., 2019). AM is recognized as the loudness of speech at slow rates of modulation and rhythm and texture at faster rates of modulation, with frequency and phase remaining constant (Goswami et al., 2016; Leong & Goswami, 2015). FM and PM are considered to modulate the angle of the carrier signal. The FM patterns in speech appear as fluctuations in pitch through the frequency of the carrier signal, where amplitude and phase stay consistent (Goswami et al., 2016; Leong & Goswami, 2015). The PM patterns adjust the carrier signal linearly, where amplitude and frequency are held constant (Goswami et al., 2016; Leong & Goswami, 2015), which is of particular importance for infants in detecting rhyme at phase endings in NRs (Hahn et al., 2018).
Figure 3

Expressive Communication Diagram with Components and Sub-Levels
Note. Modulation of sound occurs at the frequency, amplitude, and phase level. Amplitude is the height or depth from the center point along the waveform. Frequency is the number of waves passing each second as measured in hertz (Hz). Phase describes a specific location within a given cycle of a period wave. Subsequent cycles along the same wavelength can either match the given cycle or be offset (lagging or preceding). By its very nature, PM will also produce FM. Published
By examining the structure of NRs, Leong and Goswami (2015) found three temporal-rate hierarchy bands in the AM of NRs corresponding to the stress patterns, syllable, and onset-rime during automatic mappings. During cortical neuron excitation, oscillations are produced corresponding to the delta band at 2± hertz (Hz), supporting the parsing of stressed syllables; the theta band at 5± Hz, aiding in the parsing of all syllables; the alpha band at 14±Hz, assisting in syntactic processing associated with memory; the beta band at 20± Hz, promoting the separation of onset from the rime unit; and the low gamma rate of 30± Hz, fostering the identification of phonetic information (see Figure 5; Fujii & Wan, 2014; Giraud & Poeppel, 2015; Leong & Goswami, 2015; Leong & Goswami, 2017; Luo et al., 2006; Vassileiou et al., 2018). “Attending to stressed syllables within prosodic units helps infants [to] locate the formatives of words i.e., the smallest meaningful units used to form words [phonemes], identify content words and start constructing a lexicon” (Campfield & Murphy, 2014).
Note. (a) Original waveform for the NR “Mary, Mary, Quite Contrary”. (b) Model filtering into five frequency bands with computations of each frequency. (c) AM hierarchy for the prosodic areas of phonemes (12–40 Hz), syllables (2.5–12 Hz), and stress (0.9–2.5 Hz) obtained through extraction from the frequency band envelopes. Published in “Assessment of Rhythmic Entrainment at Multiple Timescales in Dyslexia: Evidence for Disruption to Syllable Timing,” by V. Leong and U. Goswami, 2014a, Hearing Research, 308, p. 159. CC BY-NC-ND.

When set to a metronome timed beat, NRs reveal an acoustic-phonological map that is 95% accurate in prosodic stress patterns, 98% exact for syllables, and 91% correct for onset-rime (see Figure 6 and 7; Leong & Goswami, 2015). This is consistently close, regardless of whether the NRs are spoken, chanted, sung, read, or performed without the metronome (Leong &
Goswami, 2015). When the auditory system picks up sensory input, the neurons in the network of the auditory cortex process it at preferred oscillatory rates (Goswami, 2018). The neuronal oscillations in the auditory cortex are synchronized to the AM and FM patterns of the input being detected by the auditory senses (Leong & Goswami, 2015), allowing for mothers and babies to neurally synchronize (Ghosh, 2016). The neural oscillations “package” speech information into temporally relevant units to assist in processing (Araujo et al., 2018; Goswami, 2018; Kuppen & Bourke, 2017; Myers et al., 2019).

**Figure 6**

*Examination of the Syllable Stress Patterns and Prosodic Elements*

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*Note.* Examination of the syllable stress patterns and prosodic elements for “Mary, Mary, Quite Contrary”. The left side (a) contains the original signal for the NR and the AM hierarchy from
which the stress, syllable, and sub-beat are extracted. On the right side (b) the NR contains a trochaic foot with a stress pattern where the first syllable is stressed and tetrametered, with each line having four stressed syllables. The blue waveform is the vocalized stress pattern, which corresponds accurately to the syllable stress pattern found within the red waveform. Published in “Impaired Extraction of Speech Rhythm from Temporal Modulation Patterns in Speech in Developmental Dyslexia,” by V. Leong and U. Goswami, 2014b, *Frontiers in Human Neuroscience*, 5, p. 8. CC BY.

**Figure 7**
*Signal Processing Steps to Obtain two Double AM Bands*

*Note.* Signal processing steps to obtain two double AM bands for “Mary, Mary, Quite Contrary”. The top (a) contains the original waveform and the amplitude envelope for the NR. From the amplitude envelope, the stress (blue solid line), syllable (red dashed line), and sub-beat (green...
dotted line) are derived (b) and then combined with a pure sine tone of 500 Hz, which are then combined into pairs and multiplied with the pure sine tone to obtain compound AM bands.

Published in “Impaired Extraction of Speech Rhythm from Temporal Modulation Patterns in Speech in Developmental Dyslexia,” by V. Leong and U. Goswami, 2014b, *Frontiers in Human Neuroscience*, 8, p. 8. CC BY.

In addition to language and NRs, another aspect of vocalization including prosody is mothers speaking to their infants in “motherese” or IDS, which is used by numerous cultures throughout the world (Golinkoff et al., 2015). When IDS occurs, mothers are exaggerating the prosody of their speech by amplifying the stress of syllables, stretching the vowels, exaggerating facial expressions, speaking at higher and modulated pitches, limiting the vocabulary, and using various timbres of voice (Ferrari et al., 2016; Myers et al., 2019; Rocca, 2015). In contrast, adult directed speech (ADS) is lower pitched, has longer sentences, contains greater grammatical complexity, is tempoed faster, and includes shorter pauses (Corbeil et al., 2016; Kubicek et al., 2017; Ma et al., 2011; Peter et al., 2016). Because of these points, IDS has social, linguistic, and perceptual implications for language learning infants (Golinkoff et al., 2015). Mother’s will use IDS to attract an infant’s attention and emotionally connect with the child, both of which enhance language learning and activate neural responses (Peter et al., 2016). IDS supports a critical role in language acquisition and is much easier for infants to discriminate compared to other sounds including ADS. Specifically, greater oscillatory responses occur in the left hemisphere where preference is shown for gamma rates with rapid temporal processing; delta-theta rates elicit responses in the right hemisphere (Kalashnikova et al., 2018). IDS aids infants in attending to language, supporting social interactions with adults, and promoting the distinctive characteristics of their native language (Golinkoff et al., 2015; Peter et al., 2016).
There is an inherent age component to IDS where mothers will adjust to meet the child’s needs throughout development (Ma et al., 2011; Peter et al., 2016), whereby the effects upon cerebral functioning change according to differing ages and experiences as related by brain activation models during IDS (Golinkoff et al., 2015). “IDS’s exaggerated intonational characteristics highlight the structural properties of utterances and provide information about how speech “chunks” [emphasis in original] together,” affecting the organizational and memory properties for infants (Golinkoff et al., 2015, p. 340). An infant’s ability to use the social and language information accompanying IDS changes throughout development; even though IDS makes available different cueing aspects, what is useful to the infant differs according to the developmental stage, their code breaking awareness, and their overall abilities at a given time (Golinkoff et al., 2015).

In addition to language, NRs, and IDS, music also possesses prosodic or suprasegmental properties shared by the other modes of communication. Either before or after the birth of their infants, mothers are typically the supplier of their infant’s introduction to music. Musical interactions involving lullabies, play songs, and ditties are often accompanied with rhythmic movements, such as rocking to lullabies, clapping to NRs, and being bounced on a knee to a ditty (Virtala & Partanen, 2018). These social experiences and responses to music early in life where the infant is bounced, rocked, jiggled, and patted form the essence of what will later enable young children to synchronize to musical beats (Ilari, 2015). When employed by mothers, children’s music and songs carry language based rhythmic structures clearly evident to older listeners because they tend to have greater levels of rhythmic regularity and exaggerated language rhythms when compared to adult songs and music, thereby allowing for easier detectability and distinctiveness for incorporating rhythmic movements and motor activities
(Hannon et al., 2016). Infants will produce motor movement to both IDS and music; however, a greater response has been seen with musical stimuli (Ilari, 2015). Infants afforded early exposure to music will have greater plasticity from the cochlea to the auditory cortex and other non-auditory cortex areas from their interactive experiences (Moossavi & Gohari, 2019) which trigger auditory signal transduction (converting musical acoustic energy into a nerve signal) and also involve bilateral networking in the temporal, frontal, parietal, cerebellar, and limbic areas of the brain also associated with auditory perception and syntactic and semantic processing (Chorna et al., 2019; Sarkamo et al., 2013). Culture inherently plays a role in a child’s musical experiences; however, findings suggest it may carry a stronger role than previously believed (Ilari, 2015). Entrainment to the musical rhythms between a mother and infant leads to the synchronization in attention and movements, as well as their breathing rates, heartbeat, and brain waves (Ilari, 2015). Besides enculturation, musical exercise develops attentiveness to sound features that shape attentional skills for musical mechanisms and abilities leading to sensory-perceptual advantages in language abilities, which include frequency processing, segmental and suprasegmental cueing, voice onset time, duration, pitch, timbre, prosody, speech and rhythm perception, cognition, and verbal, working, and echoic memory (Moossavi & Gohari, 2019). Ilari (2015) found infants between the ages of 5 to 19 months demonstrate more spontaneous periodic movements during periods of musical song exposure than with IDS. Infants who receive music training prior to their 12th month of age, show enhanced processing of musical sounds in their auditory and prefrontal cortical brain areas, which can be generalized to speech processing and the extraction of temporally structured information (Zhao & Kuhl, 2016).
Child Development

The following section on child development is presented in four divisions from conception through age 5 for a maturing child. The section begins with a review of fetal development, which is followed by an examination on infant development. Afterwards, an exploration of toddler development is made. Concluding the section, a review of early child development is shared.

Fetal Development

As development progresses, a fetus will have numerous opportunities to acquire sensory experiences through their tactile, vestibular, chemical (olfaction and gustation), and auditory systems, which develop in the same sequential order and potentially integrate with each other (Borsani et al., 2018; Ferrari et al., 2016; Krueger & Garvan, 2014; Lewkowicz, 2014; Voegtline et al., 2013). The nervous system becomes progressively more multisensory with continued prenatal development to the point where they culminate into the presentation of the rudimentary multisensory processing capabilities found at infancy (Borsani et al., 2018; Lewkowicz, 2014; Litovsky, 2015; Voegtline et al., 2013). Importantly, early perceptions of spatiotemporal experiences form the substrate of the later synchrony needed in the audio-visual integration for language development (Lewkowicz, 2014).

Prior to birth, the fetuses of pregnant mothers have a mature auditory system that detects and responds to sounds in the environment. Particularly, the mother’s voice which provides a noticeable stimulus for the fetus. The uterine environment is auditorily arousing for a developing fetus. In utero, the fetus can detect the mother’s cardiovascular, gastrointestinal, physiological, and respiratory systems (Voegtline et al., 2013). Until the 28th week of gestation, which is 3 weeks after the cochlea and peripheral sensory end organs are fully structured, a fetus will begin
to respond to frequency changes in sound signals (see Figure 8; Krueger & Garvan, 2014). The maternal voice in utero preserves the prosodic characteristics that relay rhythm and pitch surprisingly well (Voegtline et al., 2013). Fetuses aged 38 weeks show temporal lobe activation at a significant level in response to recordings of the mother’s voice reciting NRs, which were played aloud and directed to the fetus (Hykin et al., 1999).

**Figure 8**

*The Key Events of the Human Development Timeline*

![Diagram of key events of human development timeline](image)

**Note.** The appearance of specific stages of development in the central nervous system in relation to the functional and behavioral developmental stages from conception through 2-years of age are depicted. From “Developmental neurobiology, neurophysiology, and the PICU,” by L. W. Jenkins and P. M. Kochanek, in D. G. Nichols (Ed.), *Rogers’ Textbook of Pediatric Intensive*
Using variations of the quality of a mother’s prosodic voice (see Figure 4), a fetus will have a response change in orientation (motor movement) and heart rate (Voegtline et al., 2013). With continued and repeated exposure to the mother’s voice, features located within her speech stimuli “shapes auditory learning in utero with implications for postnatal recognition of and preference for the maternal voice” (Voegtline et al., 2013, p. 9; see also Moon et al., 2015). When mothers recite NRs with prosody to their fetus prior to birth, the fetus will respond by orienting and having a recorded increase in heart rate (Voegtline et al., 2013). Even after a period of omitted reciting, the fetus demonstrates recognitional responses to the NRs, exhibiting a cognitive recall that demonstrates fetal learning, which endures up to 4 months post-birth and may extend beyond this time frame (Krueger & Garvan, 2014; Partanen et al., 2013). After delivery, newborns can discriminate between their mother’s voice and other presented voices, indicating memory from time spent in utero (Moon et al., 2015; Thompson et al., 2015; Voegtline et al., 2013). Orienting movements to their mother’s voice and preference for the muted, utero simulated versions of her voice signify recall as well (Fifer & Moon, 1995; Voegtline et al., 2013). Further distinctions are exhibited when the newborn will distinguish between the native language used by the mother and a presented foreign language (Lewkowicz, 2014; Moon et al., 1993; Nazzi et al., 1998).

**Infant Development**

Even prior to birth, a fetus can detect language and auditory sounds. Studies have occurred demonstrating fetal detection of pleasing and enjoyable audible stimuli (Moon et al., 2015; Voegtline et al., 2013). Infants born prematurely have less time to acquire such
experiences due to shorter gestational periods, leading to underdeveloped neurological systems, which limits their auditory reception capabilities, whereas TD babies have longer exposure periods to such stimuli. In premature births, environmental stimuli and interactions can cause damage to the premature infant if they are not coordinated to the corresponding fetal developmental rates and their equivalent gestational age (GA; Clements-Cortès, 2015; Standley, 2014; Lordier et al., 2019). Having such coordinated early contact between parents and premature babies is crucial for their successful development (Diamant-Cohen et al., 2018). One positive developmental activity for bonding time between mothers and their premature infant is the use of NRs and lullabies. Reading NRs was found to stimulate the baby’s brain, producing neuronal activity under monitoring (Villette, 2015; see also Stellenbosch University, 2016). Using recordings of the mother’s voice singing well-known, highly repetitive, rhythmic, and melodic lullabies, premature infants demonstrated improved oral feedings from the auditory reinforcement of the mother’s voice, which was activated only through the infant’s correct oral pacifier use (Chorna et al., 2014; see also Clements-Cortès, 2015).

In response to auditory stimuli and to the mother’s voice, newborns will demonstrate a reflexive head-orienting response, perhaps allowing them to bring visual and auditory information into an integrated form (Ferrari et al., 2016; Kubicek et al., 2017; Litovsky, 2015). The early stimulus infants receive aid in their learning processes, which can be attested to by the lengthening of axons and dendrites in their brains, both of which increase five to 10 times during the infant’s first 6 months (de Graaf-Peters & Hadders-Algra, 2006). At birth babies are sensitive to speech rhythms and demonstrate a preference for their mother’s voice and her native language, which aid in recognition and preference for the mother’s face within a couple of hours post-delivery (Dobie & Van Hemel, 2004; Moon et al., 1993; Sai, 2005; Simion & Giorgio,
After further experiences with the mother and her language, 9-month-old babies will use speech rhythm and prosodic cues to encode and parse speech (Goswami et al., 2016). By the age of 12 months, these infants will demonstrate an intersensory coherence for their native language by matching the vocalized ID audio to the visual-facial speech depiction for their native rather than a foreign language (Kubicek et al., 2014).

Human beings are inherently social, and the development of social behaviors provides a means for a wide range of developmental skills. Infants acquire a sophisticated level of social skills within their day-to-day interactions with adults, such as when an adult places an infant in their lap, takes their hands within their own, and begins to play “Pat-a-Cake” and sing or chant the NR (McDonald & Perdue, 2018). From the moment they are born, infants are sensitive to the rhythmic energy patterns (energy modulations) found in speech (Goswami, 2018; Goswami et al., 2016). “At birth, newborns discriminate nearly all consonant and vowel contrasts in [all of] the world’s languages” (Escudero et al., 2018, p. 2). Such broad plasticity allows for the infant to develop a specialization through multisensory perceptual narrowing (PN) for the language(s) experienced within the environment (Lewkowicz, 2014). In the Speech Modulation Theory, speech is viewed as the linguistically informative modulations of a neutral carrier signal, where the “neutral carrier signal can be thought of as a ‘colorless’ [emphasis in original] vowel, a primitive human vocalization that occurs, e.g., as a hesitation sound [“uhhh”]” (Traunmüller, 1998, para. 4). Human brain cell networks will recalibrate their extemporaneous activity to be temporally aligned with the energy modulations found within speech (Goswami, 2017; Goswami et al., 2016; Jeppson et al., 2013). Music elicits the same response and with further musical experiences, the oscillatory (neuronal) entrainment is strengthened (Doelling & Poeppel, 2015; Virtala & Partanen, 2018). Zhao and Kuhl’s (2016) research established a connection between
repeated exposure to specific rhythmic musical patterns (triple meter—three beats per bar) for 9-month-old infants and enhanced neural response to music and speech in the prefrontal and auditory cortices, indicating improved predictions for auditory patterns important for processing music and speech. During such periods neural brain networks in the auditory cortex align their activity with the energy patterns detected in the speech signal through phase alignment (also known as phase locking and neuronal entrainment; Leong & Goswami, 2017). The energy patterns in the speech signal (also known as the speech envelope and waveform) are continuously sampled by the auditory cortex to achieve synchronization between the signal and neuronal oscillations (brainwaves), which can be analyzed by their frequency, amplitude, and phase (Cutini et al., 2016).

Infants around the world and across all languages seem to be analyzing speech according to the rhythm and stress patterns found in the native language of the infant (Bales, 2014; Jeppson et al., 2013; Kuppen & Bourke, 2017; May et al., 2018), which generates further need to build a strong communication foundation during the critical analysis period in language development prior to formal language expression (Golinkoff et al., 2015). The languages of the world can be divided into three categories according to their linguistic rhythm and stress patterns; stress timed where stressed syllable intervals are nearly equal (e.g., English, German), syllable timed languages containing consecutive syllables of similar lengths (e.g., French, Spanish), and the mora-timed languages containing morae (phonological units that control syllable weight) with similar durations (e.g., Japanese, Latin; Kubicek et al., 2017). The speaking rate for all the world’s languages is between 8 to 12 phonemes per second, which requires great perception on the part of the listener to make sense of speech production (Dobie & Van Hemel, 2004).
When infants become aware of a sound, they process all the “available information for figuring out whether they are being addressed by a communicative source and invest more effort into the processing of vocal and gestural communicative acts when nothing contradicts this interpretation of the situation” (Lloyd-Fox et al., 2015, p. 14). Adding a speaker’s gaze increases the social aspects temporally contingent and play an important part in an infant’s earliest learning and development (Leong et al., 2017). Four-month-old infants tend to focus greater attention upon the eyes of those speaking to them, whereas by 6 months of age the focus is equally divided between the eyes and mouth of the speaker (Lewkowicz & Hansen-Tift, 2012). An infant’s eventual vocal sound productions will emerge between 12–20 weeks of age with imitative vowel sounds (Lewkowicz & Hansen-Tift, 2012). Shortly thereafter, between 4–8 months of age, infants begin to shift more attention to the mouths of speakers, which corresponds with more imitative speech-like syllable sounds in 6-month-old infants whose internal attentional systems enables greater focusing abilities (Lewkowicz & Hansen-Tift, 2012). Prior research found infants employ lip-reading to integrate the auditory and visual senses in learning language and comprehension (Jerger et al., 2017; Lewkowicz & Hansen-Tift, 2012; Lewkowicz & Flom, 2014). This perceptual integration process coincides with the onset of babbling between 8–10 months of age in infants (FACE, 2013; Lewkowicz & Hansen-Tift, 2012; Lewkowicz & Flom, 2014). A mother’s paired responsiveness to her infant’s babbling will generate new canonical vocal forms by the infant shortly after 9 months of age that mirror their mother’s contingent responses (Golinkoff et al., 2015; Lewkowicz & Hansen-Tift, 2012; Tamis-LeMonda et al., 2014; Vihman, 2017). At 8 months of age, gestures emerge; typically, the use of pointing, showing, and reaching are exhibited without vocalization (Behrman, 2018; Clark, 2016) and coincides with the infants focusing upon the mouths of speakers, regardless of the specific
language being used (Lewkowicz & Hansen-Tift, 2012). The use of gestures is a precursor to speech, allowing infants and toddlers to “practice” communication and elicit communication from others (Goldin-Meadow et al., 2014). “Gesture is an integral part of language—it forms a unified system with speech and, as such, plays a role in processing and learning language and other cognitive skills” (Goldin-Meadow & Brentari, 2017, p. 1). Prior to 12 months of age, vocalizations occur with gestures as infants begin to form pseudonyms for words (Goldin-Meadow et al., 2014). By 12 months, infants will begin shifting their attention back to the eyes of the speaker (Lewkowicz & Hansen-Tift, 2012). At this same time, the infant’s perceptual system is amplified to recognize consonant and vowel production within the language environment (Escudero et al., 2018), leading to their first word productions at approximately 12 months of age.

In playing “Pat-a-Cake,” reciprocal engagements will emerge where the infant will take the hands of the adult and begin to chime in during portions of the vocals and motor actions for the NR. The listening and responding aspects found in this NR and others are also a function of communication skills. Learning the parameters of the NR, finger plays, and games, requires learning sound production, timing, choral singing and speaking, movements, chanting, turn taking, rhythm, role playing, voice inflection, and animation. These delightful and enjoyable skills also include humor, fun, and fantasy, all of which add to the appeal of the NRs children love. Placing infants into a rich and playful early literacy environment provides the needed fuel to enliven brain development and language acquisition (Diamant-Cohen et al., 2018). “In order for children to succeed in literacy, they need early exposure to high quality language and literacy experiences from the youngest ages” (Moses et al., 2018, p. 390). Unfortunately, even in infancy language processing skills may begin to present poverty related differences (Pace et al., 2017).
Consideration must be made for the influence of home learning experiences and the timing of the supports made; these first years enhance language and are related to subsequent receptive language skills and provide foundational influence for later PK and K letter-word identification (Rodriguez & Tamis-LeMonda, 2011).

**Toddler Development**

By the time a child reaches the age of 3, the activity level of the 3-year-old’s brain is 150% more active than an adult’s brain (FACE, 2013). Such high levels of brain activity are indicative of how nimble and promptly phonological development occurs during the first 18–24 months, making early word learning possible in such a short period of time (Vihman, 2017). As an infant matures, the brain conducts a neuronal pruning process leading to the set language(s) through environmental exposure (Bales, 2014; Hines, 2018). The neuron pruning process involves PN or declining plasticity, which in theory resolves the movement from a broad perception of multisensory coherence and sensitivity to a specialized and gradual expertise based upon the experiences and environment one is exposed to (Kubicek et al., 2014; Lewkowicz, 2014; Vihman, 2017). The most important learning time for individuals is found within the first 8 years of life. Within this time, a critical stage for literacy development occurs around the six-to-12-month interval (FACE, 2013; Gilani et al., 2018; Jeppson et al., 2013; United States Department of Education (USDOE), 2015; Virtala & Partanen, 2018; Zauche et al., 2017). By 15 months of age, a toddler should have an expressive vocabulary consisting of 4–6 words; within the next 3 months, an additional 14–16 words should be freely expressed; and by the age of 2, a toddler should possess between 200–300 words (Owens, 2012). At the age of 2, TD toddlers will possess extraordinary phonological processing capacities, which allow for the differentiation and acquisition for word rhyming (Hahn et al., 2018). “Children who do not have sufficient language
exposure during this critical period are at risk for delays in cognitive, linguistic, and social skills that can span [throughout their] life” (Gilani et al., 2018, p. 6). Even if the six-to-12-month period is missed, the child’s abilities will continue to develop and endure through the remaining years of life, but they will not be occurring at the charged rate found within the initial few years of life (Jeppson et al., 2013). Considering that the first 3 years of life hold the fastest growing period, including the brain, which is growing faster than any other part of the body and working 2-and-a-half times the rate of an adult (FACE, 2013), this period can be considered the optimal time to provide children with as much literacy exposure as possible.

During the years from birth through PK, children take great pleasure in hearing and participating in NRs, jingles, fingerplays, and lap games (Lefebvre et al., 2015). A toddler’s very first game typically will be “Peek-a-Boo” or “This Little Piggy”. The first NR introduced may be “Pat-a-Cake” or “Rock-A-Bye Baby,” which are most often sung. Cloth and board books, normally in rhyming verse, are characteristically the first literacy materials placed into the small hands of an infant or toddler (Read et al., 2014). These early experiences are important for toddlers, even though they may be unable to reliably detect or produce rhymes or express what a rhyming pattern is; they can make use of rhyme to assist in word selection in completion tasks (Read & Regan, 2018). From these early beginnings, children are experiencing language and literacy and picking up on a variety of symbols (Mihai et al., 2015). As their experiences continue to grow, they learn the symbols hold meaning, directing them toward their alphabetic experiences, (Baker et al., 2018) which receptive language can predict leading to long-term educational success (Heilmann et al., 2018). Significant expansions can be made in brain development and language acquisition during this period through immersion in a fertile environment and enjoyable early literacy games (Diamant-Cohen et al., 2018; Harper, 2011;
Jeppson et al., 2013; Terrell & Watson, 2018). Mothers who provide diversity in word choices while interacting with their child will see an expansion in their child’s vocabulary later. Rowe (2012) found mothers who have greater input of differing or rare words with their 30-month-old produced larger vocabularies in their child a year later than those mothers who used lesser amounts of these word types. When compared with children who are exposed to less diverse and indirect speech, those who experience and hear large amounts of lexically diverse IDS acquire language more rapidly and have more extensive vocabularies (Jones & Rowland, 2017).

**Early Child Development**

PK is a critical time for successful academic achievement for children throughout their entire educational career (Bailet et al., 2016). The initial literacy skills demonstrated in preschool are an early predictor of future school success (Evans et al., 2016). These years further develop prior language and literacy skills and move into more complex EL skills (Rodriguez & Tamis-LeMonda, 2011). Rapid language and social skill development occur while children are in their preschool and PK years (age 3–5), allowing them to begin exhibiting surprising and humorous language play (Read et al., 2018). During these years, children should be able to conduct auditory analysis, have perception in understanding speech, divide words into syllables, begin to recognize many phonemes, blend onset and rime, blend sounds for consonant-vowel-consonant (CVC) words, identify the initial and last phonemes for words, and identify and produce rhyming words (Cassano & Steiner, 2016; Grofčíková & Máčajová, 2017). The TD preschooler and PKer should also have a lexicon base of 900–1,000 words for a 3-year-old, 1,500 for a 4-year-old, and 2,100—2,200 for a 5-year-old (Owens, 2012). While in K (age 5–6), children need to differentiate all phonemes within a word, identify long and short vowels, isolate phonemes,
blend onsets, rimes, and phonemes, delete and insert phonemes, and have an expressive vocabulary of 2,600 words (Grofčíková & Máčajová, 2017; Owens, 2012).

The data and literature attests to the importance of early language skills. Differences in early literacy skills related to SES lead entering PK children to have expansive trajectories, which remain relatively unchanged at the end of PK (Strang & Piasta, 2016); suggesting prior to the age of 3, reading trajectories can be established by examining early literacy skills and SES due to a predictive lack of gain in skill sets. USDOE (2015) estimates place these entering K students at least 12 to 14 months behind their peers academically and in social/emotional development, reflecting one-third of the word exposure level of their more affluent peers (Zauche et al., 2017). Having these insignificant gains in PK indicates these children are already missing the essential skills for EL instruction (Terrell & Watson, 2018), which necessitates interventions prior to age 3 for low SES children who are not meeting the typical developmentally tracked trajectories. Family contexts and parental influence can hinder or support school readiness and later academic success (Hughes et al., 2018). One-third of American K children do not possess the needed language skills to learn to read (High & Klass, 2014), and often fail to “catch up” and may fall even further behind the other two-thirds of their peers (Evans et al., 2016; Moyle et al., 2012). Beyond the United States, mid-year assessments of Kers in Canada for 2014 identified less than half (46.5%) were at age-appropriate levels in their language/cognitive, communication/general knowledge, social/emotional, and physical/mental developmental domains (Mullen, 2017). Those lacking the language and early literacy skills prior to entering K will typically exhibit short and long-term reading deficits (Kaminski & Powell-Smith, 2017).
During the PK and especially the K year, children identified with delayed language and literacy development receive referrals for special services at a higher rate than their TD peers (Moyle et al., 2012). Interventions during the PK and K years can provide needed reading readiness skills for later academic success. Children both above and below readiness levels have found success with the development of PA using NRs (Bolduc & Lefebvre, 2012; Harper, 2011; Kuppen & Bourke, 2017). In addition to phonological development, NRs also prepare PK and K children through narration, storytelling, and socialization (Mullen, 2017). Mothers who use decontextualized language (especially narration) concerning past or future events with their 42-month-old will produce an expansion in vocabulary skills a year later for their child (Rowe, 2012). The child’s own narrative skills will assist in the comprehension of text and eventual understanding of the stories they will personally read (Heilmann et al., 2018). “The learning experiences during the preschool years appear to build on children’s earlier competencies and support more complex aspects of emergent literacy” (Rodriguez & Tamis-LeMonda, 2011, p. 1071).

Nursery Rhyme Experience, Awareness, and Knowledge

The following section will explore NR experiences, awareness, and knowledge, outlining the progression of NR exposure that evolves through continued support by mothers and other caregivers for children to become fully knowledgeable in NRs. Initially, NR experiences will be discussed, followed by an examination of NR awareness, and lastly an in-depth review of NR knowledge.

Nursery Rhyme Experiences

Even from birth, infants are primed to acquire language. The connections between hearing speech and experiencing their own sound productions introduces infants to the world of
language. Newborn infants are born with the capabilities to hear the sounds of any of the world’s languages regardless of the vernacular of the biological parents (Bales, 2014). When a mother addresses her infant during feeding time, the infant is not only provided nourishment for physical needs, but the infant’s appetite for language is also being fed through engagement with the mother who produces sounds of communication pitched higher and uttered slower and containing exaggerated stresses, stretched vowels, and strengthened accents (Kuppen & Bourke, 2017; Lloyd-Fox et al., 2015; Myers et al., 2019). At such a time, the mother could be sharing an NR, potentially the initial contextual moment the infant first experiences rhyme (Hahn et al., 2018). The infant will not understand the words per se, but will respond to the mother’s addressment, voice, eye contact, and engaging actions, which also serves as a social and emotional bonding function between the baby and the mother (Diamant-Cohen et al., 2018).

**Nursery Rhyme Awareness**

The use of NRs, lap games, lullabies, poems, and finger plays, transfers into a strong language foundation with plenty of repetition for the infant and toddler leading to rhyme awareness and early literacy development (Raynolds et al., 2016; Reade, 2017). The descendants of each generation have related which lullabies, chants, games, stories, ditties, rhymes, riddles, poems, and jingles they preferred through their repetitive requests, leading to the enduring traditions for these unique literary mediums (Evans et al., 2016). Infant’s and toddler’s NR experiences expand into an awareness of rhyme as they begin to participate in strong parental engagements. The NRs contain a wide vocabulary to express and expose children to, where the repetition and rhythm works in attuning infant and toddler’s ears to a specific language that guides the way for a successful reading journey (Cooling, 2011; Virtala & Partanen, 2018). Further support for NRs can be found in the use of music and rhythm, which leads to an increase
in rhyme awareness for older children (Cumming et al., 2015; Virtala & Partanen, 2018).

Achieving NR awareness possesses a predictive role for a child’s subsequent literacy levels (Kuppen & Bourke, 2017) and may function as the chief factor in understanding how to segment words into units of sounds, encouraging the phonetic awareness all children need for reading success (Read & Regan, 2018). These meaningful words placed into verse format with an engaging pattern of sounds assist children in developing and remembering the oral language format first and aid later in deciphering the process of reading (Baleghizadeh & Dargahi, 2010).

**Nursery Rhyme Knowledge**

By progressing through the experiences, awareness, and into full NR knowledge, infants, toddlers, and young children are afforded additional individual practice in their verbal accomplishments, providing further reinforcement to the linguistic components tucked away within them (Dunst et al., 2011; Read et al., 2014). Having full knowledge of NRs enables children to add color to their language world. Their environment becomes the canvas depicting the developmental art of language adeptness, where the NR are used to capture the young child’s works using the collection of colorful paints found within the melody, sonority, rhythm, metrical patterns, and rhyme supplied within the NRs. Their mastery of the art of language can be demonstrated with joy, delight, and boisterous and repetitive exhibition of these NRs (Dunst et al., 2011; Fancourt & Perkins, 2017; Pourkalhor & Tavakoli, 2017), demonstrating a child’s ability to play with language as a robust predictor of their expanding verbal skills (Read et al., 2018). Because they are short, appealing, engaging, and attention getting, NR knowledge builds confidence along with literacy skills (Dunst et al., 2011; Suryani & Novia, 2017) through the improvement in PA, levels of phoneme detection, perception of rhyme, and phonemic skill development (Harper, 2011). NRs also add delightful characters and fanciful images to place in
the foreground of their artwork while stimulating creativity (Cardany, 2013; Suryani & Novia, 2017). These characters also work their way into NR books for the young, whereby they become familiar with the text and can “read” the short NR stories by initially supplying and predicting the following rhyming word or phrase for a treasured NR character. Such characters, their NRs, and other rhyming texts typically compose 38% of a child’s home library (Read et al., 2014). With full knowledge of NRs achieved through reading, listening, and reciting of their library texts, PK and K children will find amusement in altering their cherished NRs and developing some of their own rhyming patterns, phrases, and chants (Pourkalhor & Tavakoli, 2017). Such acts contribute to the powerful linkage between NR knowledge and later reading, writing, and spelling success, regardless of SES, IQ, and developmental level (Bryant et al., 1989; Harper, 2011).

NRs are typically a young child’s first experience in storytelling, which models and provides practice in the strategies, techniques, devices, and functions of storytelling, such as narration, sequencing, knowledge development, and socialization (Mullen, 2017; Terrell & Watson, 2018). Due to children’s preliterate reliance upon memory and recall in place of printed text, rhythm and rhyme provides an advantage in the oral transmission of tradition and culture through storytelling (Kiraly et al., 2016; Mullen, 2017; Pourkalhor & Tavakoli, 2017; Read et al., 2014; Terrell & Watson, 2018; Wieber & Sumner, 2016). Kiraly et al. (2016) argued children have honed the skill through such heavy practice to the point where it exceeds the levels found within adults (see also Kiraly et al., 2016; Read et al., 2014). Children not only have long-term, verbatim recall for distinctive, rhyming verse above those of adults (Kiraly et al., 2016), they also exceed adults in recall of novel word-forms and phonological sequences (Read et al., 2014; Smalle et al., 2018). Additionally, both adults and children share an awareness of the simple
rhyming structures creating a sonic pattern, which can be used to anticipate the sounds to
determine the next word in an NR sentence or phrase (Read & Regan, 2018). This predictive
power of rhyme can boost a child’s memory recall and recognition to increase vocabulary (Read
et al., 2014; Read et al., 2018). Using NRs provides children with a deeper understanding of the
syntax of language, its rules, patterns, and sentence structure (Suryani & Novia, 2017). “More
directly, rhyme has been shown to make specific words and phrases easier to remember,
especially for young children” (Read et al., 2018).

**Predictors of Success**

For a child to become a fully literate reader, their fledgling years must contain certain
experiences early on to lay the foundation to establish later educational success. The following
section discusses the essential pre-reading skills that must be ingrained in the developing child.
The first skill examined is PA, which expands into the phonological knowledge that is covered in
the next section. Following phonological knowledge, phonemic awareness is explored as a
needed skill for a developing child. The final two skill areas presented are print knowledge and
communication. Communication is further reviewed from a speech perception and production
vantage point.

**Phonological Awareness**

NR use builds a consciousness that leads to PA and the knowledge needed for later
reading success (Harper, 2011; Raynolds et al., 2016). A substantial factor in developing PA is
the oral language experienced by an infant, toddler, and young child (Grofčíková & Máčajová,
2017), because PA is not a naturally occurring language skill (Redig, 2018); the brain of the
developing child must be perceptually narrowed and tuned for the specific language(s) being
used (Kubicek et al., 2014; Lewkowicz, 2014; Melvin et al., 2017; Vihman, 2017). “While
phonology is considered a cognitive system, PA most likely develops initially on the basis of sensory information in the speech signal” (Goswami, 2018, p. 56). PA involves the detection, manipulation, and analysis of the components of speech such as syllables, onset-rimes, and phonemes (see Figure 4; Cassano & Steiner, 2016; Grofčíková & Máčajová, 2017; Kuppen & Bourke, 2017) and is related as the preeminent predictor of reading attainment (Cassano & Steiner, 2016; Harper, 2011; Kuppen & Bourke, 2017). During language acquisition, the acoustical spectro-temporal patterns held in the speech envelope are used to extract phonological units (Leong & Goswami, 2015; Leong & Goswami, 2017). The window into the world of language is PA, making it a strong predictor of later literacy skill and achievement (FACE, 2013; Goswami, 2018; Harper, 2011).

The PA window consists of six panes labeled phoneme, grapheme, onset-rime, phonemic awareness, rhyming and alliteration, and segmenting and syllabication (see Figure 9). The bottom of the window forms the foundation and contains the panels for rhyming and alliteration and segmenting and syllabication. The central portions of the language window retain the features of onset-rime and phonemic awareness. Onset-rime is the initial consonant sound and rime is the following vowel and consonants completing the word form. Phonemic awareness allows one to hear, classify, and manipulate sounds in spoken language (Chow et al., 2017). The top two narrower panes hold the smallest units of sound, phoneme and grapheme (the written representation of the phoneme). Phoneme isolation, identification, categorization, blending, segmenting, deletion, substitution, and manipulation make up phonemic awareness and form print knowledge in the process.
Acquiring PA does not follow a systematic learning process, developmental stage, or specific skill path, but it does hold an age-dependent aspect regarding detection (Lonigan et al., 2013; Mihai et al., 2015; Suortti & Lipponen, 2014). Children may move between or acquire specific components simultaneously or individually (Mihai et al., 2015), but “two of the earliest emerging phonological awareness skills are recognition of rhyming and alliteration, which makes them important skills to consider when working with young children who have limited emergent literacy skills” (Moyle et al., 2012, p. 670). The progression seems to move from larger phonological units into progressively smaller units in the English language. The awareness of larger rhyming units is acquired as a result of young children being exposed to songs, poems, NRs, and other word games (Raynolds et al., 2016). Children reared in a low SES have a greater likelihood of developing poor PA skills and subsequently deficient reading outcomes, due in part
to less exposure to such PA experiences (Kuppen & Bourke, 2017; Pace et al., 2017). PA can be supported and targeted through interventions aimed at specific skills (Kaminski & Powell-Smith, 2017; Lonigan et al., 2013), while acquisition can also be facilitated through NR, songs, games, and activities engaging linguistic and listening skills (Kaminski & Powell-Smith, 2017; Lonigan et al., 2013; Mihai et al., 2015; Patscheke et al., 2018). “The fact that nursery rhymes are more about [the] rhythm and sonority of words [rather] than their actual meaning could explain why PA skills are easily enhanced by nursery rhymes” (Lefebvre et al., 2015, p. 3)

**Phonological Knowledge**

NRs and other linguistic activities transform the language window into a colorful piece of stained-glass artwork as children progressively master fragments of the components of PA and add them to each corresponding pane. NR measures and early literacy skills are related to phonological and print-related literacy outcomes, whereby NR experiences and knowledge have proven to be the better predictor of literacy outcomes (Dunst et al., 2011). Explicit teaching of NRs focusing upon diverse learning styles and a wide range of activities incorporating word play, manipulation, and exploration to assist in NR recall can aid in stronger PA and phonemic awareness skills. “Early knowledge of nursery rhymes helps children to build awareness of sound patterns of language and plays an important role in a child’s linguistic and early literacy development” (Harper, 2011, p. 75). After hearing an NR where a young child spontaneously beings to build a string of rhyming words together, the represented pattern is a systematic form of phonological knowledge play (Read et al., 2018). Even early in life, infants have been found to produce sensory cues supporting phonological learning using syllables and phonemes in non-native languages (Goswami, 2018). “The home environment, but not SES, is significantly
associated with individual differences in phonetic discrimination ability as early as 9 months of age” (Melvin et al., 2017, p. 44).

**Phonemic Awareness**

By setting into place the interlocking pieces of onset and rime and phonemic awareness, the language window can be further enhanced through etching achieved through phonemic awareness developed from NR use. “Young children have more knowledge about phonemic structure of words than is generally supposed” (Suortti & Lipponen, 2014, p. 529). By having an awareness of phonemes, a child will be able to hear and blend sounds, spell phonetically, and encode and decode words (Harper, 2011). Remarkably, such phonemic awareness can be demonstrated by children as young as 3 years (Maclean et al., 1987; Suortti & Lipponen, 2014) and is interconnected with NRs and a language rich environment. Bryant et al. (1989) concluded NRs thoroughly enhance phoneme detection and are therefore considered a predictor of later school and reading success. Alliteration detection and production and rhyme have an established relationship with NRs and early reading (Maclean et al., 1987). Through repeated use, NRs can increase a child’s sensitivity to phonemes and thus stimulate phonemic skill development (Harper, 2011; Redig, 2018).

“Children’s rhyme judgements depend primarily on auditory sensitivity to relatively slow amplitude envelope information” (Leong & Goswami, 2017, p. 1). Contributing to the repeated use factor of NRs, Hume (2017) identified vowel elongation as one of the hooking devices associated with NRs that creates the “catchiness” and receptivity of them, leading to their memorability and endurance factor, such as Little Bo Peep who has searched the world over in verse for her lost sheep on a journey which orally permitted her to live on with little alteration to her account from the early 1700s due to the catchiness and memorable features of vowel
elongation, fluctuating lyrical patterns, and attracting lyrical rhythm (Hume, 2017; Opie & Opie, 1997). Children who miss out on the opportunity of getting to know Little Bo Peep and other such characters in NRs lag behind in PA and should be overtly instructed in phoneme segmentation (Grofčíková & Máčajová, 2017; Hebbeler & Spiker, 2016); typically, children determined to be at-risk of failing possess particularly low phonemic awareness skills. In turn, children who are lacking in phonemic awareness skills are vulnerable to reading failure, which has led to phonemic awareness being established as a prognosticator of risk for reading failure (Isakson et al., 2011).

**Print Knowledge**

The language window is further embellished with text, indicating the importance of print concept knowledge in acquiring early literacy skills. Dunst et al., (2011) synthesis of research identified a relationship between NR experience, knowledge, and awareness and print-related literacy, without regard to the child’s age (39–75 months) or developmental status. Interestingly, NR knowledge and experiences has been found to have a greater impact upon young children with disabilities. Dunst and Gorman (2011) found larger average effect sizes at 0.46 (95% CI = 0.29—0.64P) for children with developmental disabilities when comparing NR knowledge and experiences and print-related outcomes.

To gain awareness and knowledge about print, a young child must be exposed to it within their environment. Experiencing natural print contexts builds greater awareness of the importance of text and provides vaster opportunities to make the language-print connection (Terrell & Watson, 2018). One of the simplest and easiest avenues to accomplish this is through NR texts, which naturally eases the memorization children will need when transitioning into word-to-word correspondence reading. Metrically regular, rhyming texts like NRs enhance
literacy development and make perfect first readers for children (Breen, 2018). A tempting feature to this type of book is the melodic quality of the language located in the text, which is developed using rhythm, repetition, and rhyme (Read et al., 2014). Price et al. (2009) determined a change in book genre by parents produced variations in textual discussions and the lengths of the discussions between parents and their children during storybook sharing. Further, a survey reported by Read et al. (2014) listed the average percentage of rhyming books within home libraries as 38% for children aged 2–4 years. Within middle SES homes 20—50% of libraries for children 5 years old and under consisted of rhyming stories (Read & Regan, 2018). A more recent and troubling finding concerning books being used in homes of preschool and PK children listed only 10% of the last five books and the five most often read books by parents to their children could be classified as rhyming books (Robertson & Reese, 2017).

**Communication**

Lastly, the language window surface is polished through the mastery of complex language and communication skills. Effective communication is an intricate process between communication, language, and speech (see Figure 10). Communication is the process of exchanging information, whereby speech is the verbal element to the information being exchanged and language is the coded system used to represent this uniquely human process (Owens, 2012). The language element is composed of two domains: (a) receptive—listening and reading and (b) expressive—speaking and writing. Language can be further divided into three elements and five components (see Figure 4; Bloom & Lahey, 1978; Owens, 2012). The three elements composing language are form, content, and function. Form consists of phonology, morphology, and syntax, three of the five components of language. Content bears the semantics component and lastly, pragmatics can be found in the function element.
The language experience beginning at or prior to birth and through the early years count substantially for a child. “Language is causally implicated in most of what children learn in the first years of life” (Golinkoff et al., 2018, p. 1). Infants are not born with an awareness of the purpose of language or its use as an intentional tool for communication (Tamis-LeMonda et al., 2014); but they are born with a highly plastic nervous system set to progressively take in experiences and the resulting multisensory stimuli to enact neural change through their broadening perceptions and the contradictory effect in PN to enhance language development (Lewkowicz, 2014). Part of the neural perception newborns must develop is an understanding that their behaviors elicit responses. While the first few cries of a newborn are innate, they immediately begin to learn a response is obtained to their emotional cries and motor movements (Clark, 2016; Owens, 2012). Because of their inability to emotionally regulate, infants seek adult assistance during these insecure times for the sensory soothing effects of the mother from her touch, melodious IDS, singing, and movement, most of which include a rhythmic pattern and
steady tempo to alleviate their discomfort (e.g., rocking, patting, repetitive vocals; Corbeil et al., 2016; Hahn et al., 2018). Ilari (2015) suggests there may be a predisposition and equipage for metrically regular auditory stimuli due to the (a) replication of spontaneous, periodic movements in infants from differing cultural groups and (b) evidence exhibited during infant development resulting in differing levels of rhythmic entrainment stemming from diverging interactions between these predispositions, culture, age, and experience. Infants between the ages of 7–9 months respond equally well to IDS and music, but by 9–12 months the response to IDS is less than those elicited from musical stimuli (Zentner & Eerola, 2010). This adds further support to the apparent decline in IDS prominence as an infant ages and most likely the infant’s reliance upon it (Golinkoff et al., 2015). Initially, IDS offers perceptual, social, and linguistic significance for language learning in infants (Golinkoff et al., 2015).

Learning that language is a communicative form entails social immersion with responsive mothers who are attuned and reactive to the child’s communicative behaviors (Tamis-LeMonda et al., 2014; Zauche et al., 2017). NRs offer great assistance in language development (Reade, 2017). They support the structures (e.g., parts of speech, pronunciation, vocabulary, and sentence structure) and features of language (e.g., rhythm, stress, intonation, and inflection; see Figure 4; Shwetha & Phil, 2013). “Poor language development is especially problematic because language skills are the foundation for learning to read and for successful interactions with peers” (Hebbeler & Spiker, 2016, p. 193; see also Cabell et al., 2011; FACE, 2013). Language skills from the first two years of life are predictive of their later EL skills at age 5 (USDOE, 2015). Dunst and Gorman (2011) found NR knowledge and experiences to be associated with early communication, language, and literacy development. Moreover, for children with and without disabilities, the association was alike and manifested throughout development in like manner.
Using NRs builds positive attitudes concerning language experiences, awareness of sound patterns in language (Harper, 2011), and provides the experiences for a strong language base needed for later reading and school success (Golinkoff et al., 2018). A large portion of parents (78%) understand the importance of their child’s language and speech development and will seek to provide such tools as NRs to support their development (NLT, 2011).

Language communicates more than just words; it reveals the social rules, culture, behaviors, attitudes, and roles of a given group (Nasiruddin, 2013). As children mature, they internalize the voices of their parents and learn language, culture, beliefs, and values from such associations (Wieber & Sumner, 2016, p. 79). Language learning is a joint, social effort and is not merely absorbed; it requires shared child participation with maternal responses to their overtures (Clark, 2016; Dobie & Van Hemel, 2004; Golinkoff et al., 2015; Tamis-LeMonda et al., 2014). NRs provide a means for adults to socially engage in a playful and developmentally appropriate way with children and affords the younger generation the opportunity to hear, identify, manipulate, and experiment with the sounds of the language and culture (Dayton et al., 2017; Harper, 2011). Mother and child interactions woven with NRs and songs (language play) containing simple stories that introduces children to word, number, concept, and narrative elements, which assist in their language and cognitive development while building an informed foundation of the world around them (Mullen, 2017). Such “play within the framework of a child’s culture promotes socialization, learning, bonding, self-identity, and the security of structure and routine that encourages youngsters to thrive” (Wieber & Sumner, 2016, p. 80).

However, a noted change by teacher in levels of parent–child communication has led to concerns about a decrease in the degree of intimacy between parents and children (Nyitrai & Podráczky, 2016). Surprisingly, of expecting mothers, 38% were not aware of the benefits of talking to their
unborn baby and 13% of the parents believe the role of instilling communication skills in their child should be placed in someone other than the adults residing in the home with the child (NLT, 2011).

**Speech Perception**

The perception of speech is a learned trait that develops into an automated process (Arnal et al., 2016). “The ear is a very efficient transducer [i.e., a device to change energy from one form to another], changing sound pressure in the air into a neural-electrical signal that is translated by the brain as speech, music, noise, etc.” (Dobie & Van Hemel, 2004, p. 44). The ear picks up the traveling speech sound wave and funnels it to the cochlea structures, which vibrate in response to the input sound with its vibratory pattern permitting the inner hair cells to transmit content to the auditory nerve, passing the signal to the brainstem and brain (see subsection on physiology; Dobie & Van Hemel, 2004). The cochlea delivers neural information to the brain along the auditory nerve about the physical properties of the sound it detects: temporal variances, frequency, and intensity, where the perceptual correlates of frequency and intensity are pitch and loudness respectively (Behrman, 2018; Dobie & Van Hemel, 2004; Liberman et al., 2016). The temporal pattern of the neural response emitted by the inner hair cells work to align with the temporal oscillation pattern of the input speech sounds below 5000 Hz (Behrman, 2018; Dobie & Van Hemel, 2004). According to the place theory of frequency processing, “the auditory nerve is said to be ‘tonotopically’ [sic; emphasis in original] organized in that each nerve fiber carries information to the brainstem and brain about a narrow range of frequencies” (Dobie & Van Hemel, 2004, p. 46).

Suryani and Novia (2017) discovered differences in the listening abilities of students who were taught NR and those who had not received such instruction. The incorporation of NRs
provides exposure to listening contexts where listening becomes an applicable tool in promoting communication, speaking, and vocabulary development (Pourkalhor & Tavakoli, 2017).

Applying the tool of listening aids young children in the detection of the prosodic cues generally considered to be critical for language acquisition and perception (Sallat & Jentschke, 2015). The elements within the prosodic cues aid infants in detecting word and phrase boundaries, which enables them to collect knowledge concerning the linguistic patterns unique to the language they are learning (Sallat & Jentschke, 2015; Suryani & Novia, 2017). A child’s sensitivity to the prosodic contours of sentences and phrases assists in cueing and processing the final words (Read & Regan, 2018). Taking prosody a step further, combining singing with NRs can promote and possibly support auditory and language development in children when engagement is provided (Hahn et al., 2018; Harper, 2011; Virtala & Partanen, 2018).

**Speech Production**

Based upon the acoustic theory of speech production, features of the vocal tract allow for articulatory postures to generate specific sounds through the source and the resonator (Behrman, 2018). The power source is lung exhalation moving air to the vocal folds (cords), enacting modulations that produce oscillations (vibrations), which creates a pressure wave to resonate in the vocal tract and propagates out (Behrman, 2018; Dobie & Van Hemel, 2004). The vocal tract is frequency dependent; it resonates the vocal signal where only certain frequencies can pass through the filter creating greater amplitude for the specific frequency rather than for exclusionary frequencies (Behrman, 2018).

The brain is neutrally prepared and specialized to acquire speech in any language (May et al., 2018; Dobie & Van Hemel, 2004); babies are able to perceive sound and react to speech by 24 weeks of gestation and “learn” language by 25 weeks in utero (Zauche et al., 2017). At birth
newborns can discriminate their mother’s language from other languages possessing differing rhythm classes than the mother’s native language (May et al., 2018). Surprisingly, a fifth (19%) of soon-to-be parents feel communication with their baby will only provide benefits after the age of 3 months, and an additional 6% believe it is at 6 or more months (National Literacy Trust [NLT], 2011). This is after the two-month period where young infants begin cooing, exhibiting vocal control with some consonant and vowel sounds (Clark, 2016; Owens, 2012). The language synapses responsible for language learning reaches a peak at the age of 6 months for an infant, about the time babbling starts (Zauche et al., 2017). The practice in babbling is a prerequisite to reaching the milestone of vocalizing the first word (Clark, 2016; Owens, 2012; Vihman, 2017). Typically, an infant or toddler’s first word is vocalized at 12 months of age (Clark, 2016; Owens, 2012) and proceeds to add on average 10 new words a day between their second and sixth birthday (Borovsky et al., 2012). A toddler’s language skill between the ages of 1 and 2-years is predictive of pre-literacy abilities at year 5 (USDOE, 2015).

Because language is so strongly involved in the first years of a child’s life, it is important to take advantage of the window of opportunity in acquisition (Golinkoff et al., 2018). The speech parents use with their child is related to later language and cognitive skills for the child; variability in parental input yields variability in a child’s output, which may have a role in the timing and essentialness in certain areas of language development (Goldin-Meadow et al., 2014; Golinkoff et al., 2015). Timing is vital in literacy skill development; providing learning experiences at different stages can exert a pronounced influence on emerging skills during a developmental period (Rodriguez & Tamis-LeMonda, 2011). Toddlers begin using expressive language at 14 months of age, with a range of zero to 22 words (Masek et al., 2018), indicating the emergence of Hart and Risley’s (1995) 30 Million-Word-Gap. Young children reared in low
stimulating environments will hear 600 words per hour compared to 2,000 for language inspiring homes, which leads to a gap in language exposure levels amounting to 30 million words by 3-years of age (Hart & Risley, 1995).

In contrast to this, Jones and Rowland (2017) highlighted the quality of lexical diversity as being more influential than a greater quantity of discourse for children. Children who are exposed to greater lexical diversity surpass those who received greater quantities of discourse concerning their language acquisition and size of vocabulary, which they will achieve at far faster rates. The vocabulary size of a 3-year-old has been documented as 1,116 words for the professional family and 525 words for families classified as welfare level (Hart & Risley, 1995). Early vocabulary growth has more robust correlations to the later language skills for children in low SES households than those from higher SES (Golinkoff et al., 2015; Strang & Piasta, 2016). Vocabulary is indicative of brain processing speeds; the larger the size of vocabulary, the faster a child will be able to comprehend and act upon spoken words (Borovskyy et al., 2012). A child’s language knowledge supports new language learning through a reciprocal relationship. “Children organize their previous language experiences into schemas of knowledge, which further allow them to process and gain new information quickly and easily” (Pace et al., 2017, p. 292).

Language input is important and the quality and the context of the dialogue matters greatly for young children as it eases the memory load for improved language processing and expansion (Masek et al., 2018).

In answer to the quantity verses quality aspect of language input for a child, Rowe (2012) identified the need for both at differing stages of language development; quantity in the second year of life, quality in the third year, and decontextualized in the fourth year. More specifically, at 18 months old period, the quantity of the mother’s input is needed for initial vocabulary
acquisition. Once the child’s vocabulary is becoming established, at 30 months the quality of the language becomes of greater importance, where rich, diverse, and sophisticated input is more useful. By the toddlers 42nd month, a mother’s use of decontextualized speech that includes greater narration, which can keep a child engaged in a conversation for longer periods and is needed for enhanced language development, is of importance in allowing the child more opportunities for language practice.

Environmental Factors

Through repeated experiences with NRs, fables, folktales, and fairy tales, children have developed strong early literacy skills for many decades. Taking part in literacy activities with a child is foundational for language and literacy growth (Rodriguez & Tamis-LeMonda, 2011). “However, our culture has abandoned this successful model, with disastrous consequences for reading skills” in our current generation (Evans et al., 2016, p. 211). When parents fail to engage with their child, early language and literacy skills falter with them. There are vast variations within the learning environments which set developmental trajectories for children for their first 5 years (Rodriguez & Tamis-LeMonda, 2011; Sosa, 2016). One of the largest predictors of school success is reading to a child and engaging them in conversations. Sosa (2016) found parents engage in rich communication more with their child when using books and traditional toys than with electronic toys. An EL rich home environment involves engaging play that includes literacy materials, shared storybook reading, textual discourse, and scaffold learning to supply a strong foundation for infants, toddlers, preschool, and PK children (Terrell & Watson, 2018; Zauche et al., 2017).
Poverty and Economics

Poverty is linked to the reduced potential in possessing and experiencing high-quality home literacy environments (HLE; Cabell et al., 2011; Kuppen & Bourke, 2017; see also Clark, 2016). “The statistics for children living in low-income and poor families are appalling” (Pace et al., 2017, p. 288). Poverty plays an intense role in a child’s success in development, achievement, and education through a robust association between SES and language development (Kuppen & Bourke, 2017; Pace et al., 2017), which also contributes to the rate of acquisition of code-focused literacy skills (Strang & Piasta, 2016). Within the economically disadvantage and ethnically diverse family households, there is enormous variability in the early learning environments associated with quantity and quality of language input these children receive and the developmental trajectories of early language skills and the associated PK vocabulary and EL skills (Cabell et al., 2011; Golinkoff et al., 2015; Masek et al., 2018; Rodriguez & Tamis-LeMonda, 2011; Sosa, 2016; USDOE, 2015). Living in poverty produces increased stress in the home, which places amplified consequences upon a child’s language development through diminished parenting quality and the lack of enriched home learning environments (Cabell et al., 2011). In addition to limited educational resources and opportunities, poverty-stricken children are subjected to a diversity of toxic stressors, such as food insecurity, disrupted routines, instability, insecure attachments, crowded homes, abuse, and neglect, and are exposed to greater levels of violence, drugs, and mental health issues as well (Garcia & Weiss, 2017; Hughes et al., 2018; Pace et al., 2017). Children below the age of 5 who are living in poverty are at greater risk and are more vulnerable than older children (Pace et al., 2017, p. 288) because low SES places children at risk for DDs in the areas of language, cognition, readiness skills, and overall school achievement (Rodriguez & Tamis-LeMonda, 2011). Further still is a
significant increase in the likelihood of these children having reading issues, to repeat a grade level, and to be diagnosed with learning disabilities (AAP, 2014). “There are also striking racial/ethnic differences in the poverty rate among children” (Pace et al., 2017, p. 288), with respectively American Indian, African American, and Hispanic groups comprising the majority of those living in households experiencing low, poor, or deep poverty income levels (Koball & Jiang, 2018). Chow et al. (2017) found genetic and environmental influences on language and reading skills to be generally stable, which leads to the potential actuality that varying SES and home learning environments contribute at an even greater rate to the diminished language and reading skills of low SES children (see also Rowe, 2012; van Bergen et al., 2016).

Even prior to birth these children face entering the world with lower birth weights, a significant likelihood of being born premature, and greater levels of compromised health than their counterparts with better socioeconomic benefits (Donkin et al., 2014; Garcia & Weiss, 2017). Low birth weights were twice as high for African American infants as Caucasian infants from 2006 to 2016 for single births (Womack et al., 2018). Infants born into poor households have higher risks of health issues, such as lead poisoning and drug exposure, and have higher levels of infant and childhood mortality rates (Garcia & Weiss, 2017; Pace et al., 2017). Those who do survive face the family’s inability to provide quality nutrition, housing, and childcare (Donkin et al., 2014). Not feeling a continuous state of safety, security, and care creates discontinuity in brain connections leading to disrupted and ineffectual development (Ghosh, 2016). Deprived economic standings will also lead to these children having fewer books, educational toys, writing materials, and a greater amount of television viewing (Garcia & Weiss, 2017; Rodriguez & Tamis-LeMonda, 2011; Sosa, 2016), which can lead to a lack of language input, parent–child interaction, maternal responsiveness, enrichment activities, and guided play
“The absence of books and the lack of a verbally rich atmosphere have a crippling effect on children’s essential language and literacy skills” (Evans et al., 2016, p. 213). Deficiencies in parent–child conversations and the quality of parental care contribute to an expanding gap in language development in children from low SES. The lack of stimulating language input and disparity in learning materials extends beyond the households and can be found within the community and school settings (Pace et al., 2017, p. 296). By the age of 3 years, deprived children are showing signs of the negative impacts on their cognitive development. They possess less developed vocabularies, delayed language skills, know fewer letters, are less likely to be able to write their names, and show less knowledge concerning books (Donkin et al., 2014).

In addition to the differences in early literacy development, there is a lack of NR knowledge in the lowest SES group as well. “The children from families with middle SES backgrounds had higher NR knowledge scores compared to the children from families with low SES backgrounds” (Dunst, 2011, p. 4). Grofčíková and Máčajová (2017) concluded a significant difference between the NR experiences of middle and lower SES was indicative of the highly educated, middle class parents affording greater opportunities for exposure to NRs in numerous formats for their children, which the lower SES children lack. “Higher levels of parental education and parental employment status are protective factors for childhood poverty” (Pace et al., 2017, p. 288). The highest SES group has compounded benefits compared to the other groups. High SES parents make use of the advantages afford them by investing in their children through the sharing of leisure time and the provision of academic activities (Garcia & Weiss, 2017). Considering such benefits, the expanse between the lowest and two higher SES groups widens as the middle and high SES children learn at a swifter rate, which can be attributed to
their early home environment and the stimulus it provides to their developmental and cognitive abilities. The phenomenon is generally known as the Matthew Effect (Hughes et al., 2018; Strang & Piasta, 2016). It typifies the thought “that children who demonstrate early difficulties in PA are slower in their word level decoding and as a result experience less exposure to vocabulary and have fewer opportunities to engage in reading practice” (McNamara et al., 2011, p. 421; see also Strang & Piasta, 2016). This leads to an ever-widening gap that increases exponentially as they move through their educational years. The gap is evident in students preceding their entry into PK and persist through to the age of 13 (Duncan & Magnuson, 2013; Strang & Piasta, 2016; Zauche et al., 2017) and can be demonstrated to expand within a short 6 months’ period (Hughes et al., 2018), however recent research suggests specific gaps in code focused EL skills exist earlier (Strang & Piasta, 2016). For those who entered K in 2010, social class was a powerful factor in their language and literacy abilities (Garcia & Weiss, 2017). Reardon (2013) reviewed data from 12 studies that evidenced a literacy achievement gap growth of 30–60% over 3 decades when comparing students from the 1970s to those of the 1990s and efforts to decrease the gap have not met with success (Strang & Piasta, 2016).

**Adult Behaviors**

The environmental behaviors exhibited by adults where a child lives plays an integral role in the child’s learning. One such behavior is the time invested in a child. The time an adult devotes to a child early on yields robust effects on development, especially the child’s verbal skills, and can have long-term implications in academic successes (Del Bono et al., 2016; Sosa, 2016). Mothers who provide meaningful language input through joint attention targeting what the child is doing and focusing upon and employs syntax to expand the conversations will facilitate language learning and mediate the effects of SES on a child’s language growth.
Interactions consisting of high-quality exchanges with shared attention are steeped with plenty of words and gestures, behavioral and scheduled routines, and equalized turn taking in initiating and extending the conversations (Masek et al., 2018; Wakefield et al., 2018; Zauche et al., 2017). Mothers who incorporate the use of gesture and actions during their meaningful exchanges with their child contribute to the child needing fewer exposures of words for receptive learning and for generalization of the words to different contexts (Wakefield et al., 2018).

Language development is a joint, collaborative process where children engage in shared activities with others to compose meaning (Owens, 2012; Tamis-LeMonda et al., 2014). “Early education time investments (at ages 3 and 5) by educated mothers lead to an increase in verbal skills at age 7 that is significantly greater than that achieved by children whose mothers are less educated” (Del Bono et al., 2016, p. F128). Mothers who expand upon what the child is interested in and create instances of joint attention are employing a tool for learning words that extends beyond the quantity and diverseness of the vocabulary words their child hears (Golinkoff et al., 2018; Masek et al., 2018). Surprisingly, the time a mother spends with her child need not be educational in nature to produce an educational benefit. Devoting time to shared activities, regardless of what the activity is, effects child attainment (Del Bono et al., 2016). Doing so will build a nurturing relationship vital for a child’s cognitive, language, and social-emotional development (AAP, 2014). The amount of time the child spends with the mother in educational, shared, and structured activities (e.g., sports, music, and art) produces a positive correlation to the child’s outcome (Del Bono et al., 2016; Garcia & Weiss, 2017). By devoting time to activities (such as shared playtime, creative arts, reading, storytelling, or sports) during this critical period of early brain and child development, it can have enduring effects. These
individual and nurturing experiences will encourage parent–child interaction, social-emotional development, and language and literacy skills (AAP, 2014; Garcia & Weiss, 2017; Rodriguez & Tamis-LeMonda, 2011).

Regrettably, close to one in 10 parents will spend less than 10 minutes a day performing language and literacy building activities (Bolton & Clark, 2012). Of the 36.2 million children in the United States reported in a national survey for the Real Aloud for 15 Minutes National Campaign (2018), only 14% of children aged 0–8 years were read to each day for at least 15 minutes, which is higher than the 8% reported in 2016. Many more mothers are not spending any time each day in such activities as using NRs or playing word games with their child to facilitate literacy development (Bolton & Clark, 2012). These are not only mothers of low SES, mothers from high SES may also have children who do not experience enriching engagements and strong parent–child interactions laden with discourse (AAP, 2014). Several reasons for an absence in mothers performing these activities include being unaware of the vital influence they have on their child’s learning and development (Bolton & Clark, 2012), demanding jobs and tiredness (BookTrust, 2017; Sosa, 2016), and spending time absorbed in technology pursuits (Bolton & Clark, 2012). Reportedly, one-third of parents are not aware that they are the most influential individual regarding their child’s language and literacy development and outcomes (Bolton & Clark, 2012). Due to long hours at work and tiredness, parents who are reading with their children are often skipping pages, denying a second story, or ending the story early (BookTrust, 2017). Many parents are spending over 90 minutes each day on social media accounts and other screen time instead of connecting with their children (BookTrust, 2017). A mother’s support can be constrained through the availability of time, money, and education, leading to child learning variances (Hughes et al., 2018). Many parents hold a false belief of being able to make up for
lost time on literacy skills prior to entering PK or K. The research on child learning environments demonstrates that a child who experienced low learning environments and low parental engagement early at 15 months of age tends to continue such experiences through K, indicating the ability to catch up on learning experiences is not likely to occur due to solidified patterns of environment and engagement behaviors (Rodriguez & Tamis-LeMonda, 2011).

A second behavior involves knowledge seeking and educational levels contributing to a mother’s parenting skills. For a mother to influence a child’s learning, she must have an awareness of the dependency her child has upon her knowledge in the role she plays as an agent in creating a conducive environment, and her efficacious actions taking part within it (Dunst et al., 2018; Edwards, 2014; Terrell & Watson, 2018). There is a wide range of variability concerning parenting beliefs about a child’s learning principles and behaviors, how they are acquired, and the role of the parent in the process (Dunst et al., 2017). Family SES, acculturation, and ethnicity are some of the contributing factors to the variations in beliefs concerning child behavior, instructional methods, and parenting roles and fulfillment (Dunst et al., 2017). All three factors can impact the way a parent structures the environment, the customary ways of interacting, maternal responding behaviors, and engagement with children and other adults (Marshall et al., 2017; Tamis-LeMonda et al., 2014). Cultural groups may have shared common beliefs, views, and traditions regarding the rearing of children and how children should play, but mothers may also have their own individual and familial beliefs, views, and traditions differing from those of the cultural group they associate to (Wieber & Sumner, 2016). Children whose mothers have knowledge of the importance of daily and repeated exposure to sounds, words, speech, and print and make a point to include them into the daily activities beyond those of the
cultural and society group they share can affect a child’s trajectory beyond those relating to the SES strata they may fall within (FACE, 2013; Masek et al., 2018).

In addition, current statistics identify the majority (40%) of 2017 births in the United States were by mothers aged 35 and above who had achieved a bachelor’s degree or higher (Mathews & Hamilton, 2019) and the average age of mothers has increased from 24.9 in 2000 to 26.3 years in 2014 (Mathews & Hamilton, 2016). Between these time periods, the fertility rates declined by 3% (births to mothers aged 15–44 per 1,000) from 2016—2017, but the preterm birth rate in 2017 rose 1%, resulting in almost 10% of births being preterm (Martin et al., 2018).

A “mother’s age and education and their access to books and other written materials [are] related to greater parenting knowledge” (Bornstein et al., 2010, p. 14). There is a positive relationship between a mother’s educational level and the time she invests with her child (Del Bono et al., 2016). Considering this, as children grow and develop, their cognitive skills are affected by the way their time is allocated and by parental educational levels, but the reallocation of a child’s time to different cognitive activities is equivalent to an additional educational year for the mother (Fiorini & Keane, 2014).

Part of parenting beliefs and knowledge for building cognitive skills include the use of NRs and other literacy building practices. For some mothers, NR use begins prior to birth, which has been found to be stimulating for the fetus and perhaps a bonding factor for the mother. During periods of NR use by the mother, the fetus will respond to portions of it by producing early mouth mirroring behaviors, which do not occur when presented with comparison stimuli (e.g., reading a book aloud; Ferrari et al., 2016). Even though the fetus may not react in like manner to the mother’s book reading, research demonstrates fetuses are responsive to the mothers’ speech and with continued exposure, a fetus can learn qualities of sound and voice that
will benefit language learning as an infant (Borsani et al., 2018; Ferrari et al., 2016). After being habituated to a rhyme being read aloud by the mother (28–34 weeks GA), older fetuses (38 weeks GA) are found to demonstrate learning behaviors through recognition (determined through heart rate decelerations) of the same rhyming passage being read aloud by a stranger after the mother had ceased performing her read-a-louds for a period of time (Krueger & Garvan, 2014).

NR singing has been found to be the most frequent form of songs used with infants; however, mothers indicate they are often self-conscious, have developed insecurities about singing, and are lacking confidence in their abilities to sing to their infants (Fancourt & Perkins, 2017; Rocca, 2015). Music can promote and enhance language development, auditory neural processing, cognition, emotional expression, and bonding between mothers and their children and therefore can be an influencing factor on an infant’s development (Dayton et al., 2017; Rocca, 2015; Virtala & Partanen, 2018). The unique structure of NRs contains indicators enabling young infants and toddlers to attend longer to ID communication, whether in speech or song format (Hahn et al., 2018). Engaging in music and movement with a child leads to an increase in attachment and connectivity to the child (Diamant-Cohen et al., 2018; McLean, 2016) and if they become part of the everyday routine in the home, these acts will contribute to consistent literacy practices and produce increases in a child’s pre-literacy skills (Dunst et al., 2013).

Mothers who may feel uncomfortable or awkward in musical formats have other alternatives available. Simple, low page count, limited text, picture books (e.g., “Mary had a Little Lamb”; “Itsy, Bitsy, Spider”) can stimulate narrations and discussions with young children, which develop narrative elements and skills to build the foundational competencies
needed for later literacy development (Nyhout & O’Neill, 2013). Having a regular reading routine with a child will stimulate prime patterns of brain development, plus aid in bonding during a critical developmental time, all of which will build language, literacy, and social-emotional skills that sets the child up for a life of success (AAP, 2014, p. 404). Of the adults reading to their child, between half and three-quarters of the parents restrict reading to the child’s bedtime routine (BookTrust, 2017; Read Aloud, 2018). Even with limited readings, just the presence of books provides a protective benefit where each additional book placed into the child’s library can be equated to a small academic step forward (van Bergen et al., 2016). Unfortunately, the greatest percentage of children (22%) in the United States have less than nine books in their homes, leading to little or no progressive steps academically (Read Aloud, 2018). For children in middle SES homes, an estimated 20–50% of a child’s library comprises rhyming stories (Read et al., 2014). Having such rhyming books affords children the opportunity to demonstrate their ability to anticipate upcoming words in a new text, which is a skill young children acquire without training or even possessing an awareness of rhyme (Read & Regan, 2018). Read et al. (2014) found the use of rhyming storybooks by supportive parents provides an avenue for active prediction by children that contributes to enhanced word retention and learning. Regrettably, one of the standard gifts, an age-appropriate storybook, seems to be fading, as books are now seldom offered as presents for children (Nyitrai & Podráczky, 2016). For the children fortunate enough to have the gift of NR books in their library and enjoy meaningful engagements with the adults around them, the NRs can aid in developing their reading and listening skills due to these distinctive rhymes possessing different components of phonological skills (Evans et al., 2016). For instance, using Cobb’s (2007) text, “The moon is
round, as round can be. Two eyes, a nose and a mouth … like me!” (p. 91) from the NR “The Moon is Round,” Mullen (2017) illustrates the phonological components within the NR:

Hold your baby face to face . . . so that he can watch how your mouth creates specific sounds. As you lightly touch his face, he learns to associate the word with the body parts. In your words, he hears a monosyllabic rhyme in lines two and four emphasizing the phoneme “ee.” He also hears the phonemes “b” and “m.” The repeated exposure to the comparison of the moon and your face will help him to recognize, much later, the technique of simile in both prose and poetry [emphasis in original]. (p. 46)

In performing the NR, song, and movements, a mother will also be creating a nurturing environment and strengthen her parenting skills for use with her child, regardless of any developmental disability a child may have (Diamant-Cohen et al., 2018). Even without the benefit of physical storybooks, having a greater amount of storytelling at home produces better understanding of stories and tales in infancy, toddlerhood, and beyond (Nyitrai & Podráczky, 2016; Terrell & Watson, 2018; Wieber & Sumner, 2016). Having a “lack of story grammar schema makes it difficult to process stories and then to remember the important components that are commonly measured on standardized reading assessments” (Pace et al., 2017, p. 292).

Knowing about the construct of stories prior to formal instruction benefits early school achievement through greater knowledge of the structure and coherence of narratives (Pinto et al., 2016).

In addition to these parenting behaviors, mothers possessing deficient mental health, repeated mental health issues, or lengthy mental health crises, and include prolonged exposure to such environments have children who demonstrate lower developmental language skills, conduct
issues, insecure attachment, poor social/emotional development, and negative social behaviors (Diamant-Cohen et al., 2018; Donkin et al., 2014; Golinkoff et al., 2015). The depression a mother experiences influences the neurodevelopment of her children (Wen et al., 2017), making it less likely for the mother to engage in the necessary bonding and attachment measures and the learning activities associated with language acquisition (Golinkoff et al., 2015). In such cases of mental health and poverty, 40% of children will come to have insecure attachments leading to further negative lifelong factors and deficits (Moullin et al., 2014). Having a strong attachment base is associated with superior outcomes within all domains of childhood development (Barlow et al., 2016). “Two of the most prominent factors explaining early SES gaps in child development—literacy and executive function—have each been associated with attachment” (Moullin et al., 2014, p. 14). More specific, attachment is associated with early language development, which leads to weaker language skills at the age of 3 years for children who have weak connections with their mothers (Moullin et al., 2014). The lack of social interactions, attachment, and engagement leads to unformed or improperly formed synapses within the infant’s brain (Jeppson et al., 2013). Coupled with early literacy and language development, executive functioning in the developing brain entails the child’s working memory, mental flexibility, and self-control; all three of which can support or hinder a child’s linguistic acquisitions and functioning (Curby et al., 2015; Moullin et al., 2014; Preßler et al., 2013). The musical aspects of NRs and other songs can aid individuals who are experiencing increased levels of stress, mental health issues, tumultuous environments, and physical violence by assisting in emotional regulation, deescalating potentially explosive situations, and promoting coping skills for adults and children (Dayton et al., 2017). Low-income levels have associations with depression, high stress levels, reduced parenting behaviors, and mental health issues, all of
which lead to lowered activity levels (Donkin et al., 2014). The level of activities is partly explainable by limited maternal responsiveness, which also has a corresponding socioeconomic and sociocultural contextual gradient associated with it (Tamis-LeMonda et al., 2014).

Maternal responsiveness possessing continuity, contingency, and embodiment has the potential to increase language skills in young children (Hudson et al., 2015; Jeppson et al., 2013; Tamis-LeMonda et al., 2014). The level of a mother’s responsiveness strongly predicts the receptive, expressive, and overall language levels of children at the ages of 3 and 4 years (Hudson et al., 2015). Even further, it produces higher levels of language in children experiencing delays in talking (Hudson et al., 2015). Children who are delayed in talking are known to have higher language scores at the age of 3 and 4 years if they have mothers who respond more positively to their children (Hudson et al., 2015).

A mother’s responsiveness to her child should embody many characteristics for it to lead to successful fruition. Two of these are continuity and contingency, which refers to meeting the developmental window for the temporal and conceptual bound infant action and parental response to stimuli within the environment. Meeting the time contingent window of language development is of particular importance early on when children are beginning to discover language (Tamis-LeMonda et al., 2014). Well timed support in the first year corresponds to receptive language skills later for the child (Rodriguez & Tamis-LeMonda, 2011). There is also a socially contingent aspect to language learning. Immediate, reliable, and accurate responses are needed for the child to learn within social language atmospheres (Roseberry et al., 2014). Because of the inherent lack of social contingency in basic video, children below the age of 3 years are unable to learn language from it (Roseberry et al., 2014). Also, of importance is the situation in which a child hears a new word, apart from the amount or type of language input
(Masek et al., 2018). When an object has a child’s attention and elicits behaviors from the child, the repeated labeling of the object (didactic language) to the child manufactures language rich contextual clues to word development and meaning making experiences (Golinkoff et al., 2018; Zauche et al., 2017). During these responsive and engaging activities, mothers should scaffold the activities using adaptations and accommodations to meet the developmental skill levels of the child (Tamis-LeMonda et al., 2014; Vygotsky, 1978).

Parents embody their responses to a child’s behaviors through multimodal stimulus and inputs abounding in content and combined with gestures to signal the topic regarding the focus of the activity (Tamis-LeMonda et al., 2014, p. 124). Infants use gaze, exploring objects, gestures, and vocalizing to communicate with those around them; if mothers engage, respond, or attend to these indications, the infants will develop language at an increased rate (Jerger et al., 2017; Leong et al., 2017; Tamis-LeMonda et al., 2014). These body actions or “motionese” include gestures, exaggerated actions, and body movements that draw attention to the objects or actions being referred to in the dialogue and for most adults are natural and unconscious adaptations to speaking to children (Masek et al., 2018; Wakefield et al., 2018). When a mother intentionally directs her gaze to an object during engagements and joint attention occurs, the child’s attention to the object increases and the duration of joint attention is extended (Wass et al., 2017). The incorporation of “motherese” or IDS also facilitates language learning in such instances, where a mother may unconsciously adapt the linguistic qualities of her voice and modify her facial expressions in response to the child’s sensory and linguistic needs (Clark, 2016; Ghosh, 2016; Golinkoff et al., 2015; Peter et al., 2016). In these actions the mother’s voice includes elements of prosody, wider ranges of pitch, slower tempo, extended pauses, and modulation of tones; her facial expressions will contain exaggerated and repeated actions, wider
eyes, raised eyebrows, and exaggerated lip movements (Leong et al., 2017; see also Ghosh, 2016; Kubicek et al., 2014). During these periods, there is an increase neural synchronization signaling more robust mutual cortical oscillatory phase alignment between the mother and child, possibly leading to greater language encoding by the child because they are in plain language “on the same wavelength” (Golinkoff et al., 2015; Jiang et al., 2012; Leong et al., 2017; see also Yun, 2013). If the event is interrupted by a phone call or another disturbance, the child’s language learning suffers, irrespective of the same word being presented for an equal number of times within the same length of time (Masek et al., 2018, p. 19; see also Reed et al., 2017). The tools of “motionese” and “motherese” assist in the connectivity needed to bring about temporal alignment between the mother’s and infant’s brains, which creates a joint association to improve the transference of learning to aid in language development (Leong et al., 2017) and assists in greater efficiency in information processing for the child (Kubicek et al., 2014). A “distracted parent” is not able to engage to a level where temporal alignment can take place (Masek et al., 2018). Additionally, because they may feel foolish and awkward, some parents may omit these uniquely effective behaviors that a young child’s brain is attuned to (Bales, 2014; Myers et al., 2019; see also Ghosh, 2016). IDS provides infants with the stimulus to attend to language, a way to build social interactions with others, and information about the many aspects of language through distinctions (Golinkoff et al., 2015).

**Technology, Television, and Toys**

Technology today has expanded into almost every available realm of the human world and is prolific in availability, new innovations, and overall usage (Vittrup et al., 2016). Children are now fully immersed into a technological world that has infiltrated an entire generation. Today’s children are dramatically different from the previous generation; hence their
generational name of iGens. Hirsh-Pasek et al. (2015) considers current standings to be a global experiment regarding digital technology. The recommendations of the AAP (2014) for toddlers below the age of 2 years is 0 minutes of electronic media and those above the age of 2 to engage in no more than 2 hours per day. However, toddlers under 2 years are spending close to 90 minutes a day on mobile and screen media (Rideout, 2017). Older children are spending an even great amount of time using technology. Those aged 2–4 years are involved in 210 minutes per day in mobile and screen media and those 5–8 years are spending an additional 6 minutes beyond this (Rideout, 2017). Counter to recommendations, 33% of parents feel media exposure early in life (0—3 years) is of importance for their child’s early brain development, and 33% of the parents believed children could fall behind academically if restrictions are placed on technological tools in EC (Vittrup et al., 2016).

There are conflicting reports and evidence concerning children and technology and screen media. The concerns include irregular sleep patterns, behavior and attention problems, language delays, and poor socialization. Other reports indicate technology and screen media can provide learning benefits for children, but under certain conditions. Cheung et al. (2017) identified a significant association between touchscreen use by infants and toddlers and sleep onset time in night and daytime patterns to where each additional hour of tablet use equated to almost 16 minutes of less total sleep. A demonstrated significance was found with mobile media device use and its association with expressive speech delay for toddlers 18 months of age (van den Heuvel et al., 2019). Radesky et al. (2014) found statistically significant associations between poor self-regulation and excessive amounts of media use in infants and toddlers. In their review, Anderson and Hanson (2013) concluded background television has a negative impact on high-quality interactions between parents and their children, which can be further confounded by
other technology leading to additional parental distractions from engaging with their child; what McDaniel (2015) refers to as “technoference.” When parents consider their child’s age and development, the content, and the context it is used in, technology and screen media has demonstrated some conditional benefits, however the AAP (2016) related infants and toddlers are not able to learn from technology and media screen usage due to immature symbolic competence, memory, and attentional skills leading to what has been termed as a video deficit. Until infants reach the age of 18 months, they are not capable of learning from media screens (AAP, 2016; Barr et al., 2018). However, according to Wartella et al. (2018), he placed the age at around 3 years. In contrast to nonuse of media, Hirsh-Pasek et al. (2015) offered criteria for solitary digital media apps for phone and tablet learning in children (ages 0–8 years). Their guidelines stipulate apps must engage the child, actively involve them in the content, provide meaningful experiences, and provide social interaction. However, because of a toddler’s inability to transfer learning (transfer deficit) and apply it in another context, use of screens in solitary use is not a viable learning tool, making the human and physical object interactions critical for learning (Barr et al., 2018). The primary component to toddlers learning from commercial media is adult facilitation during the use and reinforcing the content being depicted (AAP, 2016; Terrell & Watson, 2018). This is supported by Fiorini and Keane’s (2014) longitudinal study on children’s time allocation, which demonstrated the distribution of a child’s time affects the development of cognitive skills. Specifically, educational activities (e.g., reading/listening to stories, conversations, and assisting in chores) are the most productive forms for cognitive development, which parents can strengthen even further with their own productive, social, and facilitative input. Use of live interactive video chat technology in word learning can be beneficial in situations where the adult and child share in socially contingent interactions, but without
contingency, vocabulary expansion failed to occur during live interactive chatting (Roseberry et al., 2014).

Parents reported their own use of technological and media devices, relating they are spending close to 7 hours each day, excluding work usage, consuming digital technology (Vittrup et al., 2016). This leaves little free time to engage with a child if the parents are working and sleeping 8 hours each day for a total of 16 hours. When children are viewing their parents completely engaged with technology for extended times, one can expect the child to emulate what is being modeled to them. Lauricella et al. (2015) identified a parent’s high level of television and media technology usage correlated with increased technology usage by their child. Positive parental views toward technology and media are associated with increased usage by their children (Lauricella et al., 2015; Virtala & Partanen, 2018). Parents of children with avid television consumption habits have toddlers partaking in 50% more than toddlers whose parents do not share the same television viewing habits (Lauricella et al., 2015).

In a great many cases, technology is being used to entertain children, with 90% of parents agreeing that media technology is used to keep their child occupied while they are attending to other tasks, sometimes weekly, but 71% stated they do so daily (Vittrup et al., 2016). With parents working full-time, taking care of a household, running errands, and tending to life needs, families experience time constraints leading to the adults placing children in front of or holding screens to entertain them, most with little to no supervision (Del Bono et al., 2016; Sosa, 2016; Vittrup et al., 2016). Where children (0–8-year-olds) are using the devices the most is in the car (38%), but surprisingly 33% are using them during mealtime (Rideout, 2017). Vittrup et al. (2016) found employment was marginally related to technology use to occupy a child, and 80% of parents either agreed with or had no opinion on using technology in such a manner with
children. This coincides with parents who are at home or unemployed still utilizing the entertainment factor to occupy their children more than those with employed adults (Vittrup et al., 2016). Parental views on their child’s screen time indicate almost 70% view their child as spending the correct amount of time utilizing technology (Rideout, 2017), although parents often underestimate the time children are engage with electronic media (Vittrup et al., 2016).

The technological and media world has also invaded the toy boxes of children, including electronic, digital, and virtual features to many of the toys children possess today. Children’s toys should be safe, affordable, and developmentally appropriate; foster imaginative play, social interactions, and growth development; allow for exploration, problem-solving, enhanced relationships, and physical stimulation (Healey & Mendelsohn, 2019). Toys that promote enhanced communication and interaction between mothers and their child should be emphasized to parents (Sosa, 2016). Toys are important in a child’s environment for their facilitation of cognitive development, language interactions, symbolic and pretend play, problem-solving, social interactions, and physical activity (Healey & Mendelsohn, 2019). “It is important to remember that children younger than 3 years of age prefer and learn more from adult interaction” than from electronic, screen media, and technology (Terrell & Watson, 2018, p. 157). Sung (2018) found a significant association between a mother’s engaged behaviors with her child and the child’s level of play when using a traditional stuffed dog instead of a digital stuffed version of the animal. Traditional toys (e.g., stuffed animals, puzzles, blocks, dolls, and cars) encourage greater cognitive development and more creative play than electronic toys (Wieber & Sumner, 2016). When a child and parent spend playtime with electronic toys, fewer adult words, conversational turns, parent responses, and content words are produced than when play is conducted with traditional toys (Sosa, 2016), due in part to the parent allowing the toy to fill the
talking role (Wieber & Sumner, 2016). Not only are parents more likely to respond less, but the children will also produce less vocalizations when play involves electronic toys (Sosa, 2016).

Perhaps more enhanced parental knowledge and innovations can be attributed to part of Sung’s (2018) study with a stuffed digitally animated dog where mothers had greater interactive behaviors overall with the digital dog than a traditional one. However, greater significance of active play for the mother and child appeared in the use of the traditional dog. In another instance, Lauricella et al. (2014) found greater overall parental engagement using a computer storybook than when using a traditional book. Parent and child interactions rated as high in quality are typified by “shared attention infused with words and symbols, patterns of behaviors like routines, and balanced interaction in which the child and mother took turns initiating and continuing the conversation through language or gesture” (Masek et al., 2018, p. 18). Regardless of the type of toy, to facilitate child development, engagement with the mother is required where playful interactions must be abundant in language, pretend play, problem-solving activity, reciprocal exchanges, cooperation, and creativity (Healey & Mendelsohn, 2019).

Screen media and technology can also be found within children’s bookshelves. Children today have many book options besides the traditional paper editions, including electronic, digital, and interactive. Play involving interactive traditional books or traditional toys can facilitate richer language building activities when compared with play using electronic toys (Sosa, 2016). Developers and marketing companies have created greater exposure to children for specialized books with voice-recorded reading claiming to offer developmental benefits (Healey & Mendelsohn, 2019). Regarding which book format is beneficial, Lauricella et al. (2014) concluded, the delivery format of a storybook, paper or electronic, does not impact children’s
learning, but engagement may differ according to the format. However, the study did find the computer storybook elicited greater parental engagement overall.

**Physiological Factor**

The following section outlines the physiological factors influencing language acquisition for young children and the recent research within each of the fields. The first area to be addressed is brain research, which is followed by current findings in the field of fetal research. The final area of auditory research will end the physiological factors section.

**Brain Research**

During human gestation, the brain develops in seven stages over 3 trimesters for a total of 40 weeks of development before birth in full-term pregnancies (see Figure 11). Prenatal development is also divided into three primary phases: germinal (0–2 weeks), embryonic (3–8 weeks), and fetal (9 weeks-birth; Borsani et al., 2018; Boyd & Bee, 2012; de Graaf-Peters & Hadders-Algra, 2006; Stiles & Jernigan, 2010; Vasung et al., 2019). In human development, the central nervous system (CNS) has been documented as the most complex organ system (Jenkins & Kochanek, 2008). The stages of development for the CNS consist of neurulation, neurogenesis, migration, differentiation, synaptogenesis, apoptosis, and reorganization and myelination (see Figure 8; Bergen & Woodin, 2017; Borsani et al., 2018; Budday et al., 2015; de Graaf-Peters & Hadders-Algra, 2006; Krishnan & Johnson, 2014; Newville et al., 2018; Stiles & Jernigan, 2010).
Figure 11

**Periods of Human Gestation and Brain Development Events**

![Diagram of human gestation and brain development](image)

*Note.* In Part A the three trimesters are represented in progression. The classification of newborns according to GA at birth: extremely preterm, preterm, and term levels are noted with the upper dotted lines. Specific brain developments are noted with black arrows in Part B according to the gestational week (GW) within their specific trimesters. From “Babies Born Early Can Have Brain Injury,” by J. Newville, M. C. Ortega, and J. R. Maxwell, 2018, *Frontiers for Young Minds*, 6, 1–8. CC BY.

Following fertilization and 2 weeks of cellular division in the germinal phase, the nervous system of a developing embryo begins to form within the 2nd and 3rd weeks of gestation. At the end of the 2nd week, the embryo has formed two layers of cells, epiblast and hypoblast (Stiles & Jernigan, 2010). A portion of the epiblast cells will differentiate into neural stem cells through a complex process of molecular signaling brought about from multiple gene expressions from specific populations of embryonic cells (Krishnan & Johnson, 2014; Stiles & Jernigan, 2010). The neural stem cells will differentiate into all the cells needed for the CNS (Borsani et al., 2018;
During the induction phase in the 2nd week of gestation, the neural plate forms, leading to the formation of the neural tube occurring in a procedural folding, curling, and fusing process during the neurulation stage following in the 3rd week (Bergen & Woodin, 2017; Borsani et al., 2018; Budday et al., 2015; de Graaf-Peters & Hadders-Algra, 2006; Jenkins & Kochanek, 2008; Krishnan & Johnson, 2014; Newville et al., 2018; Stiles & Jernigan, 2010). From the completed neural tube in the 4th week, all parts of the brain and spinal column will form, with the upper portion eventually developing into the fetal head and the tail transforming into the body of the fetus (Bergen & Woodin, 2017; Borsani et al., 2018; de Graaf-Peters & Hadders-Algra, 2006; Krishnan & Johnson, 2014; Newville et al., 2018). In the 5th week, the fetal head forms three subdivisions: (a) prosencephalon—forebrain, (b) mesencephalon—midbrain, and (c) rhombencephalon—hindbrain (de Graaf-Peters & Hadders-Algra, 2006; Jenkins & Kochanek, 2008; Krishnan & Johnson, 2014; Stiles & Jernigan, 2010). “The developmental direction is “from the neck up,” [emphasis in original] beginning with the brain stem and ending with the cortex,” all of which requires differentiation of the neural cells to form structures and functions (Bergen & Woodin, 2017, p. 19). In GWs 5–10, the hemispheres of the brain develop to the point where the first synaptic connections occur in a recognizable cortical layer within the 5th week during early neurogenesis (proliferation), which is the second stage of development; this leads in to the migratory formation of the cortical plate in Week 7 and the development of an early cerebral cortex in the 8th week when the first synapses appears (see Figure 8; Borsani et al., 2018; Budday et al., 2015; de Graaf-Peters & Hadders-Algra, 2006; ). It is also during the 8th week when the fissure separating the left and right hemispheres of the brain first appears and neurogenesis occurs, where neuroblasts produce neurons and glioblasts form neuroglia that
produces the “glue” needed for neurons to stick together to form the major structures within the brain (Boyd & Bee, 2012; Jenkins & Kochanek, 2008; Stiles & Jernigan, 2010). Within the 12th week of gestation, neuron migration peaks along with the occurrence of a second phase of synaptogenesis in the cerebral cortex during the period of GWs 12–17 (Bergen & Woodin, 2017; Borsani et al., 2018; de Graaf-Peters & Hadders-Algra, 2006; Krishnan & Johnson, 2014; Newville et al., 2018; Stiles & Jernigan, 2010).

Migration occurs in two forms, passive and active; passive migration occurs in an “outside-in” pattern and active in an “inside-out” process (Borsani et al., 2018; de Graaf-Peters & Hadders-Algra, 2006; Krishnan & Johnson, 2014; Stiles & Jernigan, 2010). After the birth of new neurons from neuroblasts, they must migrate to the regions they are specified for. In passive migration, the new cells push the older cells in an outward expansion, where the oldest cells are closest to the surface in the subcortical structures, which includes the hippocampus where granule cells undergo neurogenesis throughout the human lifespan (see Figure 8 and 11; Borsani et al., 2018; de Graaf-Peters & Hadders-Algra, 2006; Krishnan & Johnson, 2014; Stiles & Jernigan, 2010). Active migration of the new neurons occurs as they follow radial fiber in the cortex, guiding the neurons past the older ones in the migratory process, peaking at 20 weeks GA (Borsani et al., 2018; Krishnan & Johnson, 2014; Stiles & Jernigan, 2010). Current estimates relate the production levels of new neurons to be between 200,000 to 250,000 each minute during the gestational periods between 8 and 18 weeks, which is regulated according to brain regions following specific timetables, such as the cerebrum, thalamus, lobes, medulla oblongata, and hippocampus (see Figure 12; Budday et al., 2015; Jenkins & Kochanek, 2008). Although the hippocampus begins development in utero, it has unique capabilities allowing it to undergo neurogenesis into adulthood, integrating new functioning neurons in other areas (see Figure 12;
Anand & Dhikav, 2012). The hippocampus is important for language and reading, as well as memory. The recall of verbal information is associated with the left hippocampi, while the right stores visual information in the brain (Anand & Dhikav, 2012).

**Figure 12**

*Hippocampus Developmental Timeline of Prenatal and Postnatal Events*


Synaptic formational rates increase steadily to 25 weeks GA, after which a rapid 600% increase occurs and extends beyond birth (see Figure 8 and 11; de Graaf-Peters & Hadders-Algra, 2006). The 24th week marks the GA of viability for preterm births and the point where most brain structures are completely developed (Boyd & Bee, 2012). The 24th and 25th weeks of gestation introduces regressive actions which are (a) a naturally occurring death of cells involving the loss of at least 50% or more of the neurons within a specific brain region and (b) synaptic exuberance and pruning where substantial amounts of connections are made leading up
to the elimination of up to 50% of them (see Figure 8 and 11; Stiles & Jernigan, 2010). These processes continue throughout the lifespan of the individual and enable the construction of complex, reorganized, and refined neurological pathways that are more efficient and personalized to life experiences (Boyd & Bee, 2012; Stiles & Jernigan, 2010). These gestational processes enable synchrony between the two hemispheres, demonstrating cerebral-cerebellar and cortical-subcortical connectivity correlating to the presence of motor, visual, auditory, and temporal networks (Borsani et al., 2018). The complex neurological pathways undergo myelination beginning during GW 28 and continuing up to age 12, making neuronal signal transmissions even more efficient and forms the brain’s white matter (Krishnan & Johnson, 2014).

Post birth the infant’s environment and mother plays a powerful role in further brain development and growth. IDS has been identified as one such factor associated with an infant’s (aged 4–13 months) brain function in the left and right temporal lobes, with greater frontal lobe activation levels associated with IDS, which only occurs with stimuli from the infant’s own mother (Naoi et al., 2012). By 6 months post birth, infants demonstrate preferences for multimodal social interaction, which demonstrates IDS produces response variances according to the infant’s age and degree of familiarity with the individual producing the stimulus, suggesting “a differential function for frontal and temporal areas in processing infant-directed speech by the different speakers” (Naoi et al., 2012, p. 1735).

When the IDS is combined with a direct gaze, further enhancement of brain activation occurs in the inferior frontal gyrus, frontal and temporal cortices, anterior superior temporal cortex, and to a lesser degree the temporo-parietal region (see Figure 13; Lloyd-Fox et al., 2015).
Figure 13

Language and the Left Hemisphere Structural Connections and Pathways

Note. The dorsal pathway connects (a) the premotor cortex with the posterior superior temporal gyrus and (b) Broca’s area 44 to the posterior superior temporal gyrus. The ventral pathways connect (a) Broca’s area 45 and 47 to the superior temporal gyrus and (b) the middle temporal gyrus and the frontal operculum and the anterior superior temporal gyrus. From “The Brain Basis of Language Processing from Structure to Function,” by A. D. Friederici, 2011, Physiological Reviews, 91, p. 1359. Copyright 2011 by American Physiological Society. Reprinted with permission of author and publisher (see Appendix C).
By 7 months of age, infant brain imaging reveals the activation of the auditory region within the superior temporal area and the motor regions in the Broca’s area and cerebellum in response to native and non-native speech syllables (see Figure 13; Kuhl et al., 2014). Specialization for speech is exhibited in the brain through greater activation in the auditory areas for native language and greater firing levels in the motor areas for non-native ones, which is the same pattern identified within adults (Kuhl et al., 2014). “Concerning the connection between the language-relevant regions, i.e., the (pre)frontal cortex and the temporal cortex, the literature generally agrees on two pathways, a dorsal and ventral pathway,” with the dorsal connecting the superior temporal gyrus and the premotor cortex, which is thought to offer auditory-motor integration; the ventral connection from the frontal lobe (Broca’s area) to the anterior temporal cortex, which is believed to support sound-to-meaning mapping (see Figure 13; Friederici, 2011, p. 1360). Because different hemispheres and asymmetrical areas of the brain are involved in linguistics, functionally independent neural networks are possible, which creates different temporal rates that make it possible to have impaired temporal processing rates independent of the other (Goswami et al., 2016; Owens, 2012).

Peter et al. (2016) found differential speech processing activation patterns in the brain in 9-month-old infants for IDS and ADS using a single vowel production that demonstrated the exaggerated articulation, greater pitch, and more affective delivery, allowing for mature processing of the IDS, which was not seen in the use of ADS with infants. Greater levels of IDS exposure could create preferential neural processing leading to greater success in the detection and attention to information being presented when directly addressed using IDS (Peter et al., 2016).
**Fetal Research**

The prenatal environment provides stimulating surroundings for a growing fetus; it has also proven to be a rich setting for researchers to investigate. Current behavioral and fetal research identifies sensory experience as a potentially important determinant of behavioral development prior to birth (Lecanuet et al., 1995). With the nervous system developing early on in utero, the sensory system soon follows behind it. Prior to birth, fetal capabilities to detect and process sensory information appears (see Figure 8 and 12; Lecanuet et al., 1995). Sensory receptors begin developing in a set sequence of pain and tactile, smell and taste, motor and auditory, and lastly visual (see Figure 8; Borsani et al., 2018; Ferrari et al., 2016). Tactile reflexes have been noted between 7- and 8-weeks GA; however, pain reception and fetal pain experience have been and continue to be debated, with the earliest determination of pain sensing being 20–21 weeks GA (Bellieni, 2019; Borsani et al., 2018). Bellieni (2019) determined pain to be a phenomenon which emerges midway during gestation at the point when a fetus has a viable chance at surviving prematurely, but this has come under question as fetal surgeries and operations have become a medical option (p. 4). Grossu (2017) noted in her issue analysis, “an unborn baby between 20 and 30 [sic] weeks post-fertilization will feel pain more intensely than even a newborn or adult because during this age the unborn baby has more pain receptors per square inch of skin than at any other time” (p. 5). Taste buds begin forming at 8 weeks GA and by 14 weeks stimuli from taste pores are likely to be received (Borsani et al., 2018). The olfactory system presents during the 4th week of gestation and by the end of the 25th week chemical detection is possible (Borsani et al., 2018). The inner ear of the fetus begins forming at 4 weeks GA and 11 weeks later, synapses from inner hair cells are functional (Borsani et al., 2018; Litovsky, 2015; Voegtline et al., 2013). Early movement of a fetus is found at 7 weeks GA.
and by Week 16, most full-term newborn movements are present (Borsani et al., 2018). By 22 weeks, fetuses are making coordinated and patterned movements suggesting early planning (Ferrari et al., 2016). Social behaviors performed between twin fetuses reflecting executive planning have been identified as early as the second trimester, with the fetuses exhibiting greater movement during social interactions between the pair than nonsocial (Castiello et al., 2010). During the 8th week GA, the visual system begins forming and by the 24th week the formation of the retinal structures commences (Borsani et al., 2018).

Mirroring behaviors of fetuses have been noted using vocal stimuli incorporating NRs, suggesting a motor resonance to audio and a precursor skill to babbling and socialization (Ferrari et al., 2016). Ferrari et al.'s (2016) findings of fetal responses to mothers who sung NRs, where the fetus reacted with mirrored motor responses of the mouth for specific vocalizations (LA), demonstrates a supposed predisposition to respond to maternal stimuli within a gestational timeframe that may contribute to the attunement towards the mother in the developmental areas of behavior and emotions. Given that fetuses have a functional auditory sensory system at 15 weeks GA, which matures along with motor systems prior to birth, the integration of the two systems seems plausible. Voegtline et al. (2013) found fetal response to the mother’s voice elicited an orienting movement, whereby the fetus reduced motor activity and heart rate at the onset of the mother’s read-aloud. Provided with an extended period and regular exposure to the prosodic variation in the maternal spoken voice, the conclusion was drawn as to the possibility of mothers having the distinctive ability to channel auditory learning to the fetus in utero, leading to the postnatal recognition of and preference for the mother’s voice (Voegtline et al., 2013, p. 9).

Regarding auditory learning while in utero, newborn infants exhibit crying melodies demonstrating the influence of the surrounding speech prosody, which was likely learned prior to
birth as the 2–5-day window following birth seemed doubtful (Mampe et al., 2009). More recently, Lee and Kisilevsky (2014) identified newborn babies’ preferences for their mother’s voice over their father’s. Interestingly, they also noted no difference between responses to the parental voices during the gestational period of testing. These thoughts build upon Hykin et al.’s (1999) fMRI detection of fetal temporal lobe activation (see Figure 13) in response to a projected NR recording of the mother’s voice. Partanen et al. (2013) used combinations of repeated NR melodies during gestation and electroencephalogram recordings to detect neural behavior in response to the “Twinkle, Twinkle, Little Star” altered melody. Upon birth and at 4 months of age, the infants displayed anterior temporal areal activation, indicating fetal exposure to melody patterns can produce neural representations lasting for several months and correlates to the number of exposures to the melody (Partanen et al., 2013). Fetal specialization extends beyond voices into languages, allowing newborns to distinguish between a surrogate language (whistled communicative language) and the family’s native language and an unfamiliar language, suggesting at birth infants have neural language specialization in place for speech located in the anterior temporal regions (see Figure 13). May et al. (2018) previously established newborn infants use prosodic information to classify languages according to their rhythmic, timing properties, and the neonate’s processing abilities. For fetuses to demonstrate a preference for their mother’s voice, crying melodies, and distinguish languages, they must be able to process auditory temporal cues. Using recordings of onset and offset sounds of varying pitch, Háden et al. (2015) determined 1-to-3-day old neonates possess the ability to detect the onset and offset sounds, along with the presentation rates they were offered in, as shown by electrocardiogram, leading to the conclusion the detecting and processing of primary temporal occurrences by neonates is functioning prior to delivery; having such abilities could “allow them to access
information encoded in the tempo of both speech and music and to enter into dialogue with others later in development where timing is crucial to achieve synchrony and facilitates even preverbal communication” (Háden et al., 2015, p. 27). Teie (2016) proposes the sounds presented in utero that make up the fetal acoustic environment provides the basis to support the fundamental elements of music based upon two thoughts: (a) typical sounds within the fetal environment are present in the music of every culture and (b) the features of music within all cultures are traceable to the fetal environment.

The connection between a mother and her fetus can be uniquely felt through a heightened awareness of each other, resulting in a strong bond and attachment between them. The bonding connection carries over to the prenatal period, and “during the sensitive period of bond formation, infants’ brains are sensitized to the mutual influences between physiological systems, behavioral indicators, and their interactions” (Feldman, 2012, p. 42). Shortly following birth, newborns will exhibit a specialization for determining their preference for their mother’s face in situations where the hours old neonate can associate the mother’s voice to her face (Sai, 2005). This research is supported by Simion and Giorgio’s (2015) determination for “both an inborn predisposition and the exposure to certain experiences, shortly after birth, to drive the system to become functionally specialized to process faces” (p. 1). Another specialization can be found in fetal exposure to language. To make the face and voice connection, the newborn must have enough visual acuity to distinguish facial features. Fulford et al. (2003) found localized brain activation in the fetal frontal cortex (see Figure 13) when exposed to cycles of bright light followed by darkness. Using exploratory models to test light intensity in utero, Del Giudice (2011) determined during the final 2 months of gestation, some human fetuses could encounter enough illumination to develop visual experiences. Recently, Reid et al. (2017) used a light
projection process to determine third trimester fetal preference for stimuli depicting an upright facial configuration over the inverted replication.

Numerous examples highlight mothers affecting the physiology of the fetus and the intimate connection they share. One such phenomenon attesting to such awareness is a capability for adjustments in the fetal cardiac system, whereby the fetal rate of activation is responsive to the mother’s own cardiac stimulus activity leading to entrainment (Van Leeuwen et al., 2009). In a reverse response, 24- and 36-week GA fetuses can affect mothers through their fetal startle response to sound, which produces a marked sympathetic reaction seen in the mother’s increased heart and electrodermal rates within 10 seconds of the stimulus (DiPietro et al., 2013). The reflexive activity of yawning was examined by Walusinski et al. (2005) where they identified fetal yawning patterns of one or two yawns per hour, which is followed by periods of wakefulness and greater activity. They also noted an absence of data and research on potential links between fetal yawns and sleep rhythms and maternal rhythms. Another reflexive action found in utero is the startle eye blink, which is noted in 30-week-old GA fetuses who ultimately habituate to the stimulus sounds (Bellieni et al., 2005). Given both startle reflexes and the fact newborns cry immediately upon birth, correlations between the neonate behavioral states and fetal behavioral displays were examined (Bellieni, 2019). Huggenberger et al. (2011) assessed the startle eye blink response through noise exposure within 2–7 days of birth. The newborns’ responses were related to their fetal growth rates and gestational stress exposure to discover a greater startle eye blink for those with further gestational growth and less gestational stress (Huggenberger et al., 2011). They also noted the absence of the ability to habituate to sound stimulus following birth. The response and habituation to vibroacoustic noise was examined earlier by Gingras et al. (2005) in a study to assess differences between fetuses exposed to
substances and those absent from such substances. A surprising discovery was made during ultrasound viewing of the application of the vibroacoustic stimulus to the fetuses in either their quiet or active sleep states. Upon production of the stimulus in several cases, the fetus would exhibit what was later termed a fetal homologue of crying, where the unborn infant made a short expiration and an initial inspiration followed by a prolonged expiration with jaw opening, taut tongue, and chest depression, which then transitioned into three augmented breaths including greater chest expansion, head tilting, and chin quivering ending with a held inspiration, exhalation, and then a return to normalcy (Gingras et al., 2005). Over three-quarters of a century ago, physician George H. Ryder (1943) collected notable records of a rare phenomenon he had himself recently experienced and termed, vagitus uterinus. He located 131 cases of vagitus uterinus spanning nearly 400 years from 1546–1941, whereupon nine of the earliest reports were eliminated as they could not be authenticated. Vagitus uterinus occurs under certain conditions where the amniotic sac is breached, the fetus is stimulated, and air enters the uterus allowing the fetus to produce cries (Blair, 1965). Hopkins (2000) theorizes prenatal crying is needed exercise to prepare the developing fetus to achieve the act of full crying immediately upon birth, a thought which can be further strengthened by Gingras et al.’s (2005) video of fetal homologue behavior.

**Auditory Research**

Biologically, the human being hears with the brain; the ears provide a conduit for the auditory information to reach the brain to process and hear. Throughout an individual’s life, even in fetal life, sounds abound, waiting to be captured and processed by the brain. The collecting of these sounds begins with the pinna (the external portion of the ear) and auditory canal where the sound waves within the environment are funneled toward the tympanic membrane (ear drum)
that separates the outer and middle ear (Campbell et al., 2003; Dobie & Van Hemel, 2004; Knight et al., 2017). Within the middle ear are three small bone structures, which are set in motion from the vibrations produced by the air pressure waves striking the tympanic membrane (Knight et al., 2017; Szymanski et al., 2019). The three bones to which the sound waves pass and are amplified are the hammer, anvil, and stirrup. The stirrup is positioned at the oval window, separating the middle ear from the inner ear by a membrane the stirrup footplate vibrates against to create waves on the opposite side (Campbell et al., 2003; Dobie & Van Hemel, 2004). It is at this point where the sound wave vibrations enter the skull and the inner ear, which is a labyrinth of fluid-filled channels in the bones of the skull (Campbell et al., 2003; Dobie & Van Hemel, 2004).

Located within the inner ear are the vestibular, auditory nerve, and the cochlea, which contains the actual hearing organ, the organ of Corti (Litovsky, 2015). Once the sound vibration leaves the oval window, it sets the fluid in the channels in motion, traveling to the cochlea and organ of Corti (Knight et al., 2017; Liberman et al., 2016). Hair cells in the organ of Corti are embedded in the basilar member and are shielded above by an overlying membrane, where the tops of the hair cells extend to (Litovsky, 2015). The hair cells are receptive cells that pick up the vibrations from the basilar membrane, creating movement of the hair cell tips against and away from the overlying membrane (Dobie & Van Hemel, 2004; Knight et al., 2017). Different regions of the basilar membrane demonstrate greater sensitivity to a particular frequency of vibration, and the region producing the greatest action potential to the auditory center of the brain is the one with the most vigorous vibrations (Campbell et al., 2003). The outer hair cells act as amplifiers for low level sounds and number almost 3 times as many as the inner hair cells (Dobie & Van Hemel, 2004). The inner hair cells are bio transducers whose function is to
translate vibratory stimulus into neural discharges (Dobie & Van Hemel, 2004). The hair cells convert the mechanical vibrations into an electrical signal conducted to the auditory nerve, which sends the translated signals in neural code to the brain and brainstem, where they are perceived as sounds (Dobie & Van Hemel, 2004; Campbell et al., 2003). Differing frequencies of sound are coded by specific auditory nerve fibers, making the auditory nerve tonotopically sensitive to which nerve fiber carries specific information (Dobie & Van Hemel, 2004). The neural information being sent to the brain and brainstem relay transmissions regarding the frequency, temporal variation, and level of the sounds (Dobie & Van Hemel, 2004).

Because of the sensitivity of the hearing process and the chain of actions and reactions needed, many problems can arise. Most of the latest research concerns hearing loss and breakdowns occurring within the chain. Distortion of sound can occur if the signal contains more than one frequency leading to an inability to understand, discriminate, or distinguish aspects of a related message (Dobie & Van Hemel, 2004). Hearing disruptions typically fall within three types: conductive, sensorineural, and mixed (Dobie & Van Hemel, 2004). Conductive disturbances occur due to damage to the ear canal, tympanic membrane (eardrum), or ossicles (hammer, anvil, and stirrup bones) or conditions such as otitis media, blockage, perforation of the tympanic membrane, viral infections, or encephalitis (Campbell et al., 2003; Dobie & Van Hemel, 2004; Knight et al., 2017). Sensorineural issues are associated with problems within the inner ear, auditory nerve, brainstem, or temporal lobe (Dobie & Van Hemel, 2004). The organ of Corti is one of the more delicate anatomical parts of the human body and is susceptible to damage, particularly the hair cells and neurons it contains (Campbell et al., 2003; Dobie & Van Hemel, 2004). Mixed issues involve at least one impairing component within each of the conductive and sensorineural areas.
Hearing peaks at the age of 10 years and proceeds to gradually decline with age, making hearing the greatest sensory issue associated with ageing, affecting more than 40 million people in the United States (Dobie & Van Hemel, 2004; Knight et al., 2017; Litovsky, 2015; Müller & Barr-Gillespie, 2015). Current research is targeting hair cell regeneration. Within humans, growth of new hair cells does not occur, which questions the possibility for the use of reagents to trigger regrowth. McLean et al. (2017) located small molecules that differentiate into hair cells and proliferate in high numbers in mice, showing promise as a therapy for cochlear hair cell death due to damage to the cochlea. Another option is the transplantation of hair cells derived from stem cells. Gene therapy for certain cases of genetic hearing loss has recently gained attention. Using missing restorative genes seems to be a viable option for certain cases of recessive inherited deafness. On the opposite side, research on inhibiting or editing genes as a potential strategy for treatment has seen promise in lab animal experiments. One other gene therapy undergoing recent research is in utero genetic therapy to correct genetic defects, but the research is in the early stages and has yet to be completed in humans (Gao et al., 2018; Müller & Barr-Gillespie, 2015). Pharmacological research has yet to produce a drug to treat hearing loss. Most of the drug research is aimed at preventative measures, such as hearing loss from platinum chemotherapy drugs, use of antioxidants to prevent ototoxicity, loud noise damage, and drugs to reduce inflammation (Kurabi et al., 2017; Müller & Barr-Gillespie, 2015). A newly uncovered finding suggests the synapses between the hair cells and the cochlear nerve terminals are the first area to experience degeneration prior to the sensory cells themselves in individuals over exposed to noise and age-related hearing loss (Liberman et al., 2016). Termed hidden hearing loss, which is attributed to the loss remaining hidden during audiogram examinations, cochlear synaptopathy
most likely alters one’s ability to comprehend complex stimuli, such as speech, during situations where listening becomes difficult due to auditory factors (Liberman et al., 2016).

Almost two out of 1,000 babies are screened for hearing loss in the United States, resulting in 98% of them receiving hearing screening before the age of 1 month (Centers for Disease Control and Prevention [CDC], n.d.). Of those screened almost 2% failed the initial evaluation and 53% of those resulted in a diagnosis of no hearing loss, but five out of six children will experience otitis media (ear infections) before the age of 3, making it a possible contributing factor to diminished hearing losses in the United States (Centers for Disease Control and Prevention [CDC], n.d.; National Institute on Deafness and Other Communication Disorders [NIDCD], 2016). Internationally the prevalence of hearing loss is reportedly higher at one-tenth of the child population, with some reports listing it at an even greater rate (CDC, n.d.). Between 6–8% of the world population have disabling hearing loss, which is substantially higher than previous years (Wilson et al., 2017). Children who are born deaf, have diminished hearing, or experience prolonged temporary hearing loss at an early age are not able to take advantage of the same opportunities as their typically hearing peers, resulting in biological differences in their auditory neural development (Flexer, 2017). Provided with the needed early brain auditory stimulus through corrective measures at the earliest age possible, children who are born deaf and have hearing loss either permanently or temporarily will likely progress in development along with their hearing peers if they receive high levels of quality auditory language information in large quantities, especially during critical periods of language and brain development (Flexer, 2017).
Targeted Populations

Some population groups of children encounter greater difficulty in acquiring language than others. Within the following section, an examination of these specific populations will be made. One of the groups seeing a rapid rise is ELL, which will be reviewed first. Next, an examination of the disabled populations will be made, and lastly, populations identified as at-risk will be considered.

English Language Learners

In the United States, one out of five families speak a language other than English at home (United States Census Bureau [USCB], 2017). This translates into a large population of children, almost 2.5 million (Kids Count, 2018), who are entering schools without the proficiency needed for success in the classroom. The United States has seen an increase of ELL to almost 10% of the student body, with the largest portion of the percentage being concentrated in the lower elementary grades (NCES, 2018b). The home language of almost 77% of the ELL was Spanish (NCES, 2018b), making 25% of the population bilingual mostly in Spanish and English (Owens, 2012; Palmer, 2013).

Even though language is a lifelong enterprise, brain plasticity and age are two influencing factors when it comes to L2 acquisition and bilingualism (Birdsong, 2018; Nichols & Joanisse, 2016; Owens, 2012). Age of acquisition and proficiency with the languages show unique differences in the right cingulate gyrus and the left Para hippocampal gyrus making them independently predictive of first language and L2 success (Nichols & Joanisse, 2016). Learning two languages requires knowledge of two separate cultures and being equally bilingual is rare, as one language of the individual usually shows greater efficiency, which may not be the native language of the family (Owens, 2012). “Simultaneous bilingual acquisition can be characterized
by initial language mixing, followed by a slow separation and increasing awareness of the differences; in final separation of the phonological and grammatical systems there may be [an] enduring influence of the dominant system in vocabulary and idioms” (Owens, 2012, p. 221). Brains of individuals who simultaneously learned more than one language early in life, meaning prior to the age of 3 years, have lower gray matter volume in cortical areas in both hemispheres associated with language when compared to individuals who learned more than one language in succession (Kaiser et al., 2015). In addition to gray matter, age and proficiency independently predict brain activity and white matter microstructure in the brains of bilingualists (Nichols & Joanisse, 2016).

“Children should be exposed to and learn good examples of the living language which later become the scaffolding for building fluency and freedom of expression in L2” (Campfield & Murphy, 2014, p. 217). NRs and children’s songs reflect and enhance the speech rhythms of the native language, which could fine tune temporal attention and enhance recall that may scaffold language learning in a L2 (Hannon et al., 2016; Prosic-Santovac, 2015). Flexer (2017) advises parents to speak the language they are more fluent in, have the most knowledge of, are more experienced with, possess the largest vocabulary in, and hold the best information to. Children learning two languages demonstrate a lag of several months in phoneme discrimination that may indicate the increased burden learning two languages creates and ultimately delays their use of phonemic information (Owens, 2012). Using NRs that highlight the stress and unstressed syllables aids in the development of structural knowledge through continuous speech in learning a L2 (Campfield & Murphy, 2014). Exposure to language rich in prosody, such as rhyme, NRs, stories, and lengthy episodes of discourse, allows for possible perception of some patterns and regularities within the language; enough to complete minimal forms of syntactic analysis leading
to the acquisition of inherent meanings and improved understandings of word order and word function (Campfield & Murphy, 2017). Because they are emotionally engaging, motivating, and provide an avenue to internalize and reinforce language, NRs allow for practice in phonetics and prosodic skills through a large body of material, which has been found to be of great benefit to children who are learning English as a foreign language through prosodic bootstrapping (Campfield & Murphy, 2014; Baleghizadeh & Dargahi, 2010). Raynolds et al. (2016) suggested Spanish-speaking children may struggle more with learning the phonological skill of rhyming rather than with segmenting the initial consonant phonemes. Children from low SES bilingual homes demonstrate differing language developmental trajectories than those from middle class monolingual homes and enter school with varying language skills, leading to an underperformance when compared to other social classes (Hoff, 2013). But these issues associated with learning a L2 with children can be mitigated through the facilitation of social interactions and joint attention with an adult while including language rich activities such as NRs (Conboy et al., 2015).

**Disabled Populations**

The federal government recognizes the following categories of disability: ASD, deaf-blindness, DD, emotional disturbance, hearing impairment, intellectual disability, multiple disabilities, orthopedic impairment, other health impairment, specific learning disability (SLD), speech or language impairment, traumatic brain injury, and visual impairment (Hebbeler & Spiker, 2016; Spring, 2012). Zablotsky et al. (2017) noted a significant increase in the number of children (3–17 years old) who had ever received a diagnosis of DD, increasing from 5.76% to 6.99% in 2016. This corresponded with an increase in infants born with low birth weights from 6.34% to 6.44% in 2016 (Womack et al., 2018). By far, the largest percentage of children
identified with a disability fall under the category of SLD at close to 34%. SLDs include such areas and identifiers as auditory processing disorders, dyslexia, nonverbal learning disabilities, visual processing disorders, sensory processing disorders, and attention deficits (National Association of Special Education Teachers [NASET], n.d.).

Of the SLDs the most common learning disorder is dyslexia, which is also present in every orthographic system (Skeide et al., 2018). “Developmental dyslexia is a multifaceted disorder of learning primarily manifested by difficulties in reading, spelling, and phonological processing” (Di Liberto et al., 2018, p. 70; see also Molinaro et al., 2016), creating subtle signs of difficulties with PA and motor coordination (Goffredo et al., 2016, p. 3). Dyslexia carries with it a genetic element that may present in offspring. Swagerman et al.’s (2017) twin study identified the genetic variants to dyslexia between parents and their children where differences in a child’s reading ability was attributed to the genetic component for dyslexia while excluding environmental and cultural factors, ultimately concluding the genetic component attributes greater influence on a dyslexic child’s reading achievement than the outside factors.

In the dyslexic brain, at the time “neuronal populations migrate beyond their target layers, they also carry along their axons into upper layers of the cortex where they get myelinated and form white matter heterotopias [misplacement and displacement] … after deactivation of genes regulating layer formation” leading to an increased thickness of the cortical layer (Skeide et al., 2018, pp. 495–496). In the left auditory core region of dyslexic individuals, myelination is greater when compared to controls, specifically in the fourth layer of the Heschl gyrus within Brodmann areas 41 and 42 (see Figure 13; Skeide et al., 2018).

Dyslexic individuals are found to have auditory complications and phonological problems, which could perhaps be attributed to their hypermyelination and increased cortical
thickness and lead to auditory detection, processing, and entrainment issues. “Dyslexics’ perceptual difficulties in capturing the full spectro-temporal complexity of speech over multiple timescales could contribute to the development of impaired phonological representations for words, the cognitive hallmark of dyslexia across languages” (Leong & Goswami, 2014b, p. 1). During speech reception and processing, the dyslexic individual will have a reduction in higher-order speech processing when compared to a TD peer (Molinaro et al., 2016). Children with language impairments are also significantly less rhythmic when performing motor tasks than individuals without impairments of an equivalent age linguistically and chronologically (Georgiadou et al., 2015). Cumming et al. (2015) found children with specific language impairments (SLI) exhibit difficulty in rhythm tasks for speech and for music. System-wide effects may occur in the dyslexic brain because of a lack of rhythmic entrainment at 2 Hz (delta) including an inability to predict stressed syllables within an acoustic stream that holds the temporal structures of phonological representation for words and the prosodic structure accompanying it, leading to overall weaknesses in phonetic abilities (see Figure 6; Soltész et al., 2013). Poor AM perception by dyslexics typically co-occurs in the syllable rate and one other area—stress or sub-beat (see Figure 7). Phonological similarity judgements concerning rhyme reflect sensitivity in detecting slow AM patterns, which children with dyslexia typically lack (Leong & Goswami, 2017). “Greater theta-beta/low gamma band phase synchronisation [sic] is suggestive of more regular spacing of phonemes within syllables, where greater delta-theta phase synchronisation [sic] is suggestive of more regular spacing regarding syllables and stressed syllables” (Araujo et al., 2018, p. 12). Additionally, Soltész et al. (2013) found individuals with dyslexia lack anticipatory mechanisms located within the delta oscillatory stream, which affected their auditory attention and rhythmic behaviors. “The intrinsically hierarchical temporal nature of
speech processing, captured by the amplitude envelope phase hierarchy, makes it plausible to propose that atypical cortical entrainment of oscillations below 10 Hz in dyslexia would have system-wide effects” (Soltész et al., 2013, pp. 9–10).

Developments within the past decade have led to significant advances in the detection of neurobiological disorders, supporting and extending the known literature of the time. When compared to children the same age and reading levels using EEG, dyslexic children demonstrate significantly weaker 0–2 Hz delta band speech encoding when listening to single sentences (Power et al., 2016). When utilizing EEG technology to detect the auditory, visual, and audio-visual oscillatory entrainment with speech, Power et al. (2013) identified the atypical auditory temporal speech processing of low-frequency delta oscillation entrainment to a differing phase of rhythmic syllabic input in dyslexic children (Power et al., 2013). Di Liberto et al., (2018) used EEG data to quantify the cortical tracking of speech perception with the phonetic features of natural speech, which identified impaired low-frequency cortical tracking in dyslexic children. Working with MEG, Molinaro et al. (2016) identified irregularities within dyslexic readers as impaired neural delta band entrainment in speech, reduced synchrony of the delta band in the right auditory cortex and the left inferior frontal gyrus, and impaired coupling between neural oscillations in the right auditory cortex and left inferior frontal regions (see Figure 13).

NRs have been filtered for use in studies with children who exhibit disabilities to identify specific frequency perceptual differences in speech, entrainment, and phonetic abilities. Children with SLI display difficulties in temporal integration of filtered NRs at rapid timescales (Goswami et al., 2016). Children with combined SLI and poor phonology and reading abilities demonstrated considerable difficulty with both low-pass (delta; < 4 Hz) and band-pass (beta and low gamma; 22–40 Hz) levels of filtered NRs, which suggests a sever impairment in the
temporal modulation processing (Goswami et al., 2016). Atypical phase entrainment in childhood at the delta band and potentially the theta band to the temporal modulations in speech may be related to the phonological impairments characterizing dyslexia in all languages, making stress patterns, stressed syllables and prosodic structure less efficiently identifiable and requiring dyslexics to have greater reliance on speech features at higher modulations in the speech envelope to develop phonological representations for speech recognition and production (see Figures 6 & 7; Cutini et al., 2016). Children with SLI with poor phonology and reading demonstrate significant speech recognition impairments with low-pass filtered speech stimuli (Goswami et al., 2016). Children with oral SLI only demonstrated difficulty with processing temporal modulations within the low gamma frequencies between 30–50 Hz associated with phonetics (Goswami et al., 2016). Illiterate, low literate (adults who are newly literate at less than 4 years), and highly literate adults do not possess equal temporal modulation structures. Illiterate adults have less synchronization than those who have learned to read; their phase alignment in the low AM levels of delta and theta is significantly less phase aligned when they are speaking in social communicative situations (Araujo et al., 2018). Possessing just a few years of literacy can produce cultural, social, and biological effects. By effecting changes in an individual’s brain and conversational speech to generate a cultural variation, literacy therefore becomes a marker of acoustic change where greater levels of literacy correspond with more tightly controlled spacing in phonological units in words, greater regulation of spacing in syllables and stressed syllables, faster speech rate, better speech comprehension, larger vocabulary development, more complex syntax, increased usage of polysyllabic words, and high levels of PA (Araujo et al., 2018). Children diagnosed with ASD also demonstrate weaknesses in their PA skills, yet they have well developed word recognition levels equal to their TD peers
Gabig, 2010). Their phonological deficits may contribute to their increased difficulty in decoding nonsense words, as well as to their smaller vocabulary size.

NRs have also been used in an unaltered state in studies to detect temporal alignment, auditory attention, and combined sensory stimulus responses. When using the rhyme “Humpty Dumpty” during internally generated rhythm tasks and rhythmic copying tasks, children with language impairments (without a co-occurring diagnosis) were found to perform significantly slower than their peers, but surprisingly and noteworthy, when performing entrainment tasks with the same rhyme in paced and non-paced instances with a visual/auditory external stimulus, the children performed similarly to their control matched peers (Goergiadou et al., 2015). This finding contrasts with prior research noting deficits in entrainment in individuals with disabilities. These studies used either adults or children with dyslexia, however newer understandings link dyslexia with SLI as originating from the same fundamental problem that manifest themselves differently and varying only in levels of severity or developmental stage (Bishop & Snowling, 2004). Additionally, the studies included taping to the beat of a recorded NR, reciting NRs to a metronome beat (Leong & Goswami, 2014a), pushing a button when identifying a violation in timed delivery (Power et al., 2013), pushing a button upon detection of white noise (Soltész et al., 2013), and selection of an NR button for a vocoded NR stimulus (Leong & Goswami, 2014b). Two of the studies included a visual stimulus: Power et al.’s (2013) study included video recordings of a woman producing the stimulus of the syllable “ba,” and Leong and Goswami’s (2014b) study included animated cartoon icons for the four NRs used to ease the memory load during responses. Interestingly, in Power et al.’s (2013) study the children with dyslexia achieved similar results to the controls in the visual only entrainment, but not for the auditory only or combined visual and auditory stimulus. Power et al.’s (2013) and
Georgiadou et al.’s, (2015) study results followed with the opinion that visual speech information likely resets the auditory theta phase to peak alignment for processing impending speech through greater control over spacing within the phonological units of words (Araujo et al., 2018; Power et al., 2013; Schroeder & Lakatos, 2009).

NRs have been included in some studies as part of intervention strategies to determine their viability for use with children exhibiting disabilities. “Nursery rhyme experiences are one important kind of learning opportunity for enhancing the early literacy and language development of young children with or without disabilities or delays” (Dunst & Gorman, 2011, p. 5). Thomson et al. (2012) offer rhythmic training as an aid in developing phonological skills forming the foundation in literacy acquisition for children diagnosed with auditory processing disorders and dyslexia. “A combination of musical (i.e., rhythm) and linguistic (i.e., syllabic) approaches could be particularly beneficial for educating children with dyslexia” (Leong & Goswami, 2014a, p. 158). Because children with dyslexia and SLI possess deficiencies in perception of musical beat and motor synchrony with a beat or stress rate, interventions and early exposure to musical and rhythmic structure could be beneficial, specifically at an oscillatory rate of 2–10 Hz (delta and theta bands), which would allow practice and possible improvement in neuronal rhythmic oscillatory entrainment similar to prosodic phrasing in speech at the syllable and phoneme AM rates (Goswami et al., 2016; Leong & Goswami, 2014a). Cumming et al. (2015) cautions children with SLI possessing only morphological difficulties may not benefit from interventions using beat training. Use of NRs with young children identified with disabilities has demonstrated similar effects in their literacy, language, and communication in comparison to their TD counterparts (Dunst & Gorman, 2011). “Combining both prosodic/rhythmic and phonemic cues in auditory training programs may offer advantages for
children with developmental dyslexia, …. [which] may be especially true for those who appear resistant to conventional phonics training methods” (Thomson et al., 2012, p. 139). Further support was found in the inclusion of NRs in integrated multimodal exercises (visual, auditory, somatosensory, and motor sensory) with a focus upon rhythmic perception and production, combined with musical auditory training presented improved perception of temporal components of speech, auditory attention, PA (syllable fusion), reading, and repetition of pseudo-words, which persisted weeks after the end of the training period (Habib et al., 2016). Araujo et al.’s (2018) study of aged adults with skill levels classified as illiterate, low literate, and highly literate determined the production of Portuguese NR’s learned in childhood delivered uniform results across each skill level of adults, yet the illiterate adults’ social conversational skills produced less phase synchronization between AM bands and included lower amounts of syllables and theta band energy.

**At-risk Populations**

Although the term at-risk holds a negative connotation, children are born every day into negative situations carrying heavy risks for academic failure, whereas other children do not enter the world with such encumbrances. There are numerous factors placing a child at-risk. Besides the risk factors the individual child possesses, family and household variables can contribute greatly upon whether a child will carry benefits or deficits in life. Kominski et al. (2009) identified categorical risk factors in three family areas as family and household, family economics, and physical environment, and an additional risk factor area associated with the individual (see also Dunst & Hamby, 2016). Dunst and Hamby (2016) found cumulative family risk factors to be a greater predictor of academic achievement throughout a child’s educational years. Using the categories employed by Kominski et al. (2009), Dunst and Hamby (2016) used
4 years of National Assessment of Educational Progress scores to determine three or more risk factors within any of the four risk areas produced a negative correlation to create a cumulative family risk factor measure with variances ranging from 40–60%.

By ranking the 22 risk factor indices, Kominski et al. (2009) determined the physical environmental risk factor category carried the most influence for a child. Of all the indices and specifically within the physical environment category, living in a rented home was the greatest risk factor for children academically (Kominski et al., 2009). Other indices within the physical environment included living in a multi-family home, residing in an overcrowded home, living in a household lacking complete plumbing, and having a home without a fully functioning kitchen. Regarding the overcrowded home, Farver et al. (2006) added further support in relating the size of a family as a restrictive factor to a child’s academic success.

The second greatest risk factor for children can be found within the family and household risk category as well. Kominski et al. (2009) places living in a single parent household as holding significant influence on student outcomes academically. Additional indices within the family and household are residing in a non-English speaking home, having parental education below a high school graduate, belonging to a linguistically isolated household, co-residing grandparental care, having foreign born parents or parents who possess a residential status of less than 5 years, and co-residing grandparental care for more than 3 years (Kominski et al., 2009). The number of years an immigrant family has resided within the United States is also negatively correlated with the size of family and the stress levels of the parents, but there is a positive correlation with the literacy level of the parents and mothers who were bilingual and possessed a reading skill ranking at higher levels (Farver et al., 2006).
The final family risk factor category involves the economic status of the family. The most influential index in the economic area is for families to live below the federal poverty level (Kominski et al., 2009). Further indices include households receiving food stamps, adult unemployment, requiring public assistance, and long-term unemployment for the parents (Kominski et al., 2009). Within the lowest SES group, there is systematic heterogeneity amongst children at risk for later academic difficulties, particularly those from low SES (Cabell et al., 2011). Farver et al. (2006) reported a link between SES and children’s development concerning school success. For most state and federally funded preschool programs, the main eligibility criteria are for children who are from households below the federal poverty guidelines.

The individual risk factor category is one pertaining solely to the child and covers the personal risk factors a child carries that places greater risks upon the child. The third greatest risk factor and the greatest within the individual risk factor category is a severe lack of English fluency (Kominski et al., 2009). Beyond having limited command of the English language, other risk factor indices a child may retain is possessing a limiting disability, not being enrolled in school, being born either in or outside of the United States for less than 5 years, and the presence of multiple disabilities (Kominski et al., 2009).

“As the number of family risk factors accumulate, the chances increase that there will be a mismatch between what children bring to their kindergarten and first grade experiences and what schools expect of them if they are to succeed” (Farver et al., 2006, p. 196). The accumulation of risks brings about the acknowledged phenomenon of the “Matthew Effect” in language and literacy skills where children with strong PA skills develop keen word attack and identification skills, greater motivation to read, and stronger overall fluency; likewise the reverse creates even further expansion where the weak get left further behind when the stronger children
strengthen their skills and the weaker ones falter creating greater variance between them (Burger, 2014; Duff et al., 2015; McNamara et al., 2011; Terlitsky & Wilkins, 2015).

Early in a child’s life, the amounting effects can produce what is recognized as the 30-Million-Word Gap so named by Hart and Risley (1995) who tracked infants from 7–9 months until age 3 years and followed up again at age 10. They found children from low SES homes had smaller vocabularies and were learning words at a slower pace, leading to widening trajectories and culminating at 3 years of age having heard 30 million fewer words in their low SES homes. Hart and Risley (2003) again assessed the children in their study at the age of 10, finding the rate of vocabulary growth at age 3 years to be strongly associated to vocabulary skills at age 10. For even longer school careers, Duff et al. (2015) found 4th grade reading skills were related to the rate of change in 10th grade vocabulary growth. The progressive gap in achievement for children who can read at the end of third grade have a 75% greater likelihood of graduating from high school than the students in third grade who demonstrate a lack of mastery of the reading material (Zauche et al., 2017). From observational data in infancy, predictions were made and supported regarding the vocabulary level at age 3 years, which in turn predicted language skills at age 10 (Hart & Risley, 2003). A study by Romeo et al. (2018) examined the relationship between early language exposure and verbal skills, replicating findings where behaviors in higher SESes correlated with greater vocabularies and number of language experiences for the children (see also McNamara et al., 2011; Pace et al., 2017). In contrast, low SES children from infancy through high school show lower levels of oral language skills in an ever-expanding gap that widens with age progression as opposed to their more advantaged counterparts in the specific areas of language processing, language comprehension, and language production, which includes the likely SES sensitive area of vocabulary (Hoff, 2013; Zauche et al., 2017).
Romeo et al. (2018) specified instead of adult words heard, the number of conversational turns occurring between the child and the adult became the mediating factor within their study (see also Hirsh-Pasek et al., 2015). Neuroimaging further identified “children who experienced more conversational turns exhibited greater activation in the left inferior frontal regions (Broca’s area) during language processing, which explained nearly half [of] the relationship between children’s language exposure and verbal abilities” (see Figure 13; p. 707). The accumulation of the findings evidences the role of a child’s environment and neurological development in language skills and SES (Romeo et al., 2018). By examining low and high SES toddlers’ language development, early discrepancies were found to be present at 18 months of age with a gap amounting to 6 months in their language development, which would require an additional 8 months for the low SES children to achieve to the high SES 18-month-old’s level in speech and accuracy (Fernald et al., 2013).

The accruing risk factors early in life affects whether a child is ready for learning in PK and K. Children who enter K are not considered to be equally prepared for classroom learning and are in fact widely varied, which has been mainly correlated with SES (Garcia & Weiss, 2017; Hilbert & Eis, 2014). Reardon and Portilla (2016) determined at the current gap closure rate for K readiness in the United States, it would take an estimated 60 to 110 years for socioeconomic readiness levels to equalize, as recent gains have been relatively negligible (see also Garcia & Weiss, 2017). The authors of the study tentatively attribute the slight decrease in the gap to a significant decline in the income and White-Hispanic school readiness gap, but Reardon and Portilla (2016) stress further investigation of additional preschool data is needed. Garcia and Weiss (2017) related for almost every gain there was a negative offset and attributed the slight gains made to parental investments in their children, such as books in the home and
enrichment activities. Currently, children who enter K with a delay will likely end their year at a level typifying a continued delay (Hilbert & Eis, 2014). Even further, for entering Ks who possess readiness gaps, the gaps are known to persist through fourth grade for SES and racial and ethnic groups and most likely endures and mayhap expand even further (Garcia & Weiss, 2017; Reardon & Portilla, 2016).

**Summary**

There has been a long tradition of using NRs with children. The historical component of NRs confirms the innate qualities that led to their perpetuation through many years of transmission throughout the world. Even with such sinister origins, there is still tremendous value in the rhymes. There have been disturbing reports that the usage of NRs is currently declining and possibly attributable to the lack of mothers engaging with their young children at home (Hudson et al., 2015). Current research suggests NR usage leads to the development of early literacy skills credited to later reading success (Prosic-Santovac, 2015). “English nursery rhyme deliberately uses a range of metrical patterning (e.g., trochaic [Strong-weak], iambic [weak-Strong], dactyl [Strong-weak-weak]) and children find these different rhythmic patterns very enjoyable” (Leong & Goswami, 2015, p. 5). There is a building body of knowledge on fetal and infant brain research attesting to the language learning properties needed to promote early learning, which may form solidified engagement patterns either continuing, assisting, or debilitating emerging literacy skills (Diamant-Cohen et al., 2018). The prosodic qualities found within NRs provide fuel for neural activation and language development. Because the phonological skills found within the use of NRs are tied so closely to later reading ability, it is critical NRs remain in use between mothers and toddlers within the home environment. With poverty and societal behaviors placing influence on family relationships, NR use during play
periods with mother–child engagement offers stimulating potential for a child’s language development, which can counteract any potential negative effects from low SES and other family factors leading to a large percentage of PK and K children being far behind their peers upon entering classrooms.

Additional information is needed concerning the changes in the development of NR knowledge and the environmental variables associated with the levels of NR use. This would also shed additional light upon the association between NR knowledge and EL. There is also little known about the use of NRs in childcare and educational systems today. Hahn et al. (2018) noted “songs and nursery rhymes have only very rarely been studied as a potential vehicle for language learning in infancy and no study yet has focused on rhyme” (p. 132). The topic of interventions achieving better outcomes regarding the closure of SES gaps in entering PK and K children, the Matthew Effect, and the 30-Million-Word Gap needs further addressment (Garcia & Weiss, 2017). To better attend to parenting knowledge, information is needed in who parents consult regarding issues with their children, what cultural factors and familial beliefs affect parenting skills, the advice these individuals provide to parents, the skill levels of the parties, and the community offerings for parents (Marshall et al., 2017). Research needs to be conducted on the technological tools used and the potential enhancements and hindrances they create in parent–child engagements and language development opportunities (Vittrup et al., 2016).

The current study was needed to obtain information concerning the developmental changes toddlers undergo in gaining NR knowledge and variables within the home associated with NR use. Discoveries in these areas could add more information regarding the association between NR knowledge and EL variables. The study could offer insights into where toddlers are gaining their level of NR knowledge and if it relates to educational or childcare institutions. The
need noted by Hahn et al. (2018) concerning NRs and music being used as a learning mechanism could potentially be filled. The possibility of NRs being used as an intervention tool might also be addressed with the study. Some information regarding who mothers consult for parenting knowledge might also be related. Information concerning technology use and its role in mother–toddler engagements and the toddler’s language learning opportunities may be developed from the study.
CHAPTER THREE: METHODS

Overview

The purpose of this hermeneutic phenomenological study was to understand current mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddler enrolled in childcare facilities in Northwest Louisiana. This methods chapter begins with an examination of the construct of the study detailing the type and design of it. A restatement of the research questions is made, which is followed by the sites involved in the study. A view of the participants is presented, along with the sample pool they were drawn from, the size, type of sample, and the procedures used during selection are detailed. In the next section, the procedures to conduct the study can be found. This is followed by the researcher’s role, the four data collection methods, and the methods employed in the analysis of the resulting data. After the methods of analysis, the trustworthiness and ethical behaviors concerning the study are scrutinized. Lastly, a summation of the chapter is offered in the concluding section.

Design

A qualitative, hermeneutic, phenomenological design was used to explore current mothers’ lived experiences using NRs to facilitate language development in their toddler. The method used for this study was qualitative to promote an in-depth and detailed inquiry to gain an understanding of current mothers’ experiences using NRs in facilitating language development with their toddler (Patton, 2015). The method of qualitative research was suited to this study because it sought to understand and relate the mother’s perspectives through careful observation and analysis of patterns in their own behaviors and descriptive words, from which implications were made (Creswell & Poth, 2018; Patton, 2015; van Manen, 1997).
The design of the study was phenomenological, which is the study of the essences of the lived experiences of a phenomenon research explications (van Manen, 1997). In the study, the phenomenological research undertook the task to describe the known understandings and the associated meaning of the human experience of current mothers using NRs in facilitating language development with their child (Patton, 2015). During the study, I sought to analyze the mother’s disclosed experiences, interactions, behaviors, attitudes, and beliefs. Within the home environment, what the mothers were affecting and thinking (as related through their descriptive words) concerning NRs was examined and reduced to identify specific patterns, which yielded a description of the universal essence of NR usage by the mothers with their toddlers. These points within the study required a qualitative phenomenological method because phenomenology encompasses an individual’s personal perception and accounting of an object or event (Smith, 2016). Patton (2015) further elaborated a phenomenological study is one that “focuses on descriptions of what people experience and how it is they experience what they experience” (p. 117). For the phenomenologist, worldly experiences are the source of questions concerning how human beings live in the world in all its vulnerable, intimate, realities, edifices, and sentiments (van Manen, 1997).

I employed the specific design approach of hermeneutic phenomenology. Hermeneutic phenomenology adds an interpretive aspect to the research process (van Manen, 1997), rather than adopting a solely descriptive design as in transcendental phenomenology (Patton, 2015). Phenomenological research seeks to clarify the essence of lived experiences through the rich language descriptions, while hermeneutics is the interpretation of the language of the text. The lived experience is reflective (hermeneutic) of a past occurrence, which is translated into text. According to van Manen (1997), the purpose of hermeneutic phenomenology is to describe and
interpret the lived experience, because individuals’ statements concerning their lived experiences are meaningful and should be secured in a language format, which becomes an interpretive process. In pursuing hermeneutic phenomenological research, an awareness of the functional interaction requires the researcher to have a serious and committed interest in the phenomenon, investigate fully the lived experience, reflect on essential themes, describe the phenomenon through dedicated writing and rewriting processes, remain strongly orientated to the phenomenon, and consider contextual balance through the parts and whole of the research (van Manen, 1997). To achieve a rich description for an interpretation of the phenomenon, the research must borrow from the etymological accounts of the multiple existing realities of the participants (van Manen, 1997). Because the topic is one close to the researcher, the research question was formulated where it could be interrogated with deep feeling and in a manner where the researcher could truly live it and become it to identify the nature of the NR experiences between mothers and their toddlers. Therefore, to interpret the lifeworld of the mothers in the prospective study and draw meaning from the descriptions of their use of NRs with their toddler and form an understanding of them, the use of a hermeneutic phenomenological approach was regarded as appropriate.

**Research Questions**

The following section presents the questions addressed within the study. The central research question is presented first. Following the central research question, the sub-questions that support the central research question are related. The three sub-questions focused on in the study concluded the section.
Central Research Question

What are mothers’ perceptions of their lived experiences using nursery rhymes to facilitate language development in their toddlers?

Research Sub-questions

Sub-Question 1

What are mothers’ perceptions of the ways nursery rhyme usage affects their relationships with their toddlers?

Sub-Question 2

What are mothers’ perceptions of the ways nursery rhyme usage affects their toddlers’ language development?

Sub-Question 3

What are mothers’ perceptions of the ways their knowledge of nursery rhymes contributes to their experiences with their toddlers?

Setting

This hermeneutic phenomenological study was conducted in one purposefully selected parish in Northwest Louisiana. The setting was selected because of the large potential population source and access to participants of great diversity, which assisted in obtaining maximum variation within the potential participants. Within the parish, there were 16 identified EC facilities with a total enrollment capacity of 1,158 children, serving enrollees whose tuitions are fully subsidized (free), partially subsidized (discounted), and non-subsidized (full paying; see Figure 14).
### Figure 14

*Types of Early Learning Centers*

<table>
<thead>
<tr>
<th>License</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type 1</strong></td>
<td>Early learning centers owned or operated by a tax-exempt faith-based organization; does not receive state or federal funds from any source</td>
</tr>
<tr>
<td><strong>Type 2</strong></td>
<td>Early learning centers not accepting public funding; exceptions are nonprofits who are eligible for the Child and Adult Care Food Program (CACFP)</td>
</tr>
<tr>
<td><strong>Type 3</strong></td>
<td>Early learning centers authorized to accept some form of public funding to serve disadvantaged children (CACFP, Head Start, or NSECD funding)</td>
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In 2012 the Louisiana State Legislature passed the Act 3 law, also known as the Louisiana Early Childhood Education Act, which called for the formation of an EC education network, the establishment of performance standards, the creation of performance targets for children below the age of 3 years, and the composition of academic standards for K readiness directed towards the birth–5 age range (Louisiana Department of Education [LDE], 2012). The act was drafted in response to the fact Louisiana contributed $1.4 billion on EC programs, with more than $300 million spent towards education programs; but results demonstrated only 52% of entering K students were deemed ready for formal K instruction (LDE, 2012). In 2018 literacy assessment results indicated 50% of entering K students were at or above K readiness levels (Louisiana Department of Education [LDE], 2019). This was followed by the 2019 scores,
demonstrating a further decline of 7% with only 43% of entering K students possessing the needed skills to adequately learn with conventional K instructional methods (Louisiana Department of Education [LDE], 2020).

Following the 2012 EC statutes, the state and parishes’ network currently consists of several programs and types to prepare children for K (see Figure 14). For the study, childcare facilities from all three licensing types, Types I, II, and III, were targeted within one Northwest Louisiana parish where mothers have their toddlers enrolled. The parish and network’s 16 targeted facilities identified as either tax-exempt faith-based centers (Type I), privately funded centers or limited publicly funded centers solely through the United States Department of Agriculture’s Child and Adult Care Food Program (Type II), or state authorized publicly funded centers (Type III; see Figure 14).

Type I and II early learning centers receive children whose tuitions are privately covered by the parents and families of the enrollees. Publicly funded programs support the children in Type III licensed early learning centers, which also covers the tuitions for these enrollees. There are early learning centers jointly funded where a portion of their roster positions are privately funded with tuition paying parents and families. However, these early learning centers must fully license as a Type III facility and follow all the legal regulations associated with the licensure. Part of these regulations are to participate in the Louisiana accountability rating system, be listed within the state’s online early learning center finder for parents, enroll children through the state’s online coordinated enrollment system, and receive children within the Child Care Assistance Program.

Toddlers who meet the guidelines for age and residency for Type III centers are registered within an early learning program through the state’s online coordinated enrollment
system, which bases enrollment upon a hierarchy of criteria. For most of the programs, the child entry into the early learning centers follows the criterial ranking of (a) disability status, (b), categorical status (c) income, and (d) other child risk factors for each center’s approved publicly funded roster openings. For children possessing a disability status, the disability must be confirmed through a current individual education plan or individualized family service plan. Categorical statuses are typically those falling within one of the at-risk categories of documented disability, ELL, homelessness, migrant workers, foster care, and receiving public assistance. The income criteria levels vary by program from less than 100% - 200% of the federal poverty level.

Facilities under a Type III license are required to participate in the Early Education Performance evaluation system. For the targeted setting, the average facility score for the network is 5.01 on a scale of 0–7.00, which according to the Louisiana Unified Rating System corresponds to a proficient performance rating in the CLASS evaluation tool and the informational metric tool, yielding a three-star Louisiana state rating out of a five-star system. The current ratings were based upon the 2019–2020 school year where some facilities utilized the previous year’s rating, which was the state policy established due to the disruptions of COVID-19, while some facilities opted into their new and higher performance rating for the year (Louisiana Department of Education, 2020).

For this study, the ECCW (pseudonym) is under the administration of the PK supervisor and is managed through the ECCW coordinator serving the one-parish network. Each facility is managed by a site leader or principal, depending upon the type of facility and funding. All three center types were targeted to obtain needed participants and to achieve maximum variation for the study.
Participants

The participants for this study were purposefully selected from those meeting the selection criteria to “best inform the researcher about the research problem under examination” (Creswell & Poth, 2018, p. 148). Because of the need to gather adequate information for analysis, snowball sampling was also employed (Creswell & Poth, 2018). The purposefully selected participants were adult mothers of toddlers enrolled in identified EC facilities. The participants were also selected to achieve maximum variation. Use of a questionnaire (see Appendix D) provided the criteria for group variation into high usage of NRs and those who have low usage of NRs. Having maximum variation provided a greater likelihood of obtaining different perspectives of the phenomenon (Creswell & Poth, 2018).

For the study, data saturation was attained at 10 participants when the data became repetitive and additional data were not producing new information. Having data saturation required the incorporation of saturation or redundancy sampling procedures where information becomes repetitive and additional participants are not likely to generate new data (Creswell & Poth, 2018). Purposeful, in-depth, small samples can succeed in providing insightful, meaningful, and valid results. Patton (2015) stresses qualitative inquiry is unrestrictive regarding sample sizes, relating it need only be judged in relation to the purpose and rationale of the study and researcher.

Once informed consent was obtained, the participant questionnaire (see Appendix D) was provided to ascertain whether the potential participant met the study criteria and variability areas needed for maximum variation. The questionnaire was developed by Boudreau (2005) who sought to obtain information regarding parental perceptions of their child’s early literacy skills and their own parenting practices associated with their child’s literacy experiences and
environment in the home. To meet the study needs and with the author’s permission (see Appendices D & E), some questions were updated to correspond to technological advances, questions were added for study needs, and modifications were made where needed to the questionnaire. In the additional questions section, four questions were added to address parent technology use, which were based upon a study by Lauricella et al. (2015). Demographic information and a choice of pseudonym for the participants was included in the questionnaire as well. Each participant was offered an NR book and a $10.00 gift card to Amazon or Walmart, in addition one participant received a $100.00 Amazon or Walmart gift card.

**Procedures**

Prior to initiating the hermeneutic phenomenological study, Liberty University’s Institutional Review Board (IRB) application (see Appendix F) for the use of human research participants was completed, submitted, and approved (Creswell & Poth, 2018). The IRB ensures participants are protected and treated with respect during the research process (Patton, 2015). Once IRB approval was obtained, I reestablished earlier associations with the district, network, and identified EC facilities, which were originally established during the permission gaining process for IRB approval. Subsequently, a meeting with individual directors in the identified EC facilities in Northwest Louisiana was held where information about the study was shared and site permission was gained to contact mothers of toddlers meeting the criteria for the study (see Appendices G, H, & I & Figure 15).

Prior to contacting potential participants and collecting data, approval was sought and granted from the IRB, district, network, and the EC facilities (see Appendices A, G, H, & I). Once approval was achieved, I anticipated recruiting mothers during operating periods of the facilities. With the disruptions brought about by the COVID-19 pandemic and the mandates for
health and safety, recruiting occurred through non-physical processes. Notices were provided through printed document, text, email, and messenger to mothers registering and any with a toddler currently enrolled with the target facilities within the parish. Mothers who were interested and meet the requirements for the study contacted me via text, messenger, email, or phone and a recruitment document (see Appendix J) was sent to the potential participants. The recruitment document outlined the study and included expectations concerning the time, tasks, and consent requirements.

Following IRB approval and during the site approval process for facilities serving zero- to 4-year-old children, information for scheduled parental involvement sessions was to be obtained. However, due to the COVID-19 pandemic, all parental involvement activities were discontinued, following health and safety mandates. As a part of most public grant funding guidelines, parental contact is typically required multiple times throughout the year. During the earliest scheduled parent session for the program, I had anticipated presenting information to attendees concerning the study, disseminating the recruitment document (see Appendix J), and obtaining informed consent (see Appendix K) for the research. With the COVID-19 pandemic, the recruitment document and informed consent were electronically issued to the mothers. Those who were interested in participating completed the consent forms (see Appendix K) and responded to Page 1 of the questionnaire (see Appendix D) that included the participant’s qualifying criteria to verify their eligibility. Participants who were confirmed to meet the study criteria completed the questionnaire in its entirety (see Appendix D).

Using the questionnaire (see Appendix D), contact, and biographical information of the mothers meeting the participant criteria, I contacted each of the mothers to arrange an interview (see Figure 15). Participants who did not meet the needed criteria (i.e., does not meet maximum
diversification needed) were informed via email or messaging service (see Appendix L). The location of the interview was to be selected by the parent for their comfort and ease. However, following non-physical contact guidelines, phone or video conferencing were the options presented. Informed consent and confidentiality disclosure information (see Appendix K & Figure 15) were reiterated prior to the individual interview. I followed the social rules typically applied and observable in ordinary conversations (Rubin & Rubin, 2012). The interviews were audio recorded, and I noted in memo form (see Appendix M) the behaviors, expressions, and characteristics of the participants and my own feelings, reactions, and any potential significance to what I observed (Patton, 2015). The participant’s reflective journal guide (see Appendix N), which detailed the use of the journal during the study, was presented and the participant selected a preferred method for journaling, either physical or electronic. Mothers who preferred the physical format received a journal with an attached pen to facilitate usage and the requirements for sending an electronic image of their response for each prompt. After receiving electronic journaling prompts, the mothers journaled their responses regarding memories, recollections, and any additional information concerning their NR experiences, usage, roles, and knowledge they may have had.

After obtaining the interviews, each participant’s interview was transcribed using Otter.ai. Each of the mothers had an opportunity to review the transcription and present any needed changes and additions. The reviewing of the transcripts by the participants allows for a deeper meaning to be gained from the texts and produces stronger theme development (Patton 2015, van Manen, 1997). I reviewed each transcript for any preliminary insights, analysis, and interpretations noted in memo form (see Appendix M). Patton (2015) recommends the use of memo writing to identify gaps and develop concepts, which also strengthened the study. By having the individual interviews occurring first, additional points could be addressed during journal prompting and the focus group interview.
Participant journal responses were in electronic format and compiled into a journal database (NVivo) to form preliminary insights, analysis, and interpretations that were memoed (see Appendix M). The participant reflective journals and individual interviews provided the needed information to formulate the questions posed during the focus group interview. The use of individual interviews, participant reflective journaling, and focus group interview allowed for the triangulation of data sources (Patton, 2015). Use of triangulation provides validity through corroborating evidence for a theme or code extracted from different sources (Creswell & Poth, 2018; Patton, 2015). The focus group interview was conducted electronically and with two of the participants physically present, which was possible due to some pandemic restrictions being lifted.

**Figure 15**

*Procedures Flow Chart*

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**The Researcher’s Role**

The nature of qualitative research places the researcher in a position to be an instrument of inquiry (Creswell & Poth, 2018; Patton, 2015; van Manen, 1997). To understand the experiences of the participants, it was necessary that I become fully engaged with them. I took the stance of mindful empathic neutrality towards the participants. I developed an awareness of mind to obtain an
understanding of each person’s situation and perspective without judgement, while communicating authenticity to assist in constructing rapport and trust with the participant in an open atmosphere (Patton, 2015). I developed a relationship with the participants by cultivating respect without judgement, through a stance of understanding, sincerity, empathy, and familiarity.

Once a relationship was established with the participants, I moved to understand the essence of the participants’ lived experiences with their toddler and the phenomenon found involving NR use. Phenomenology focuses upon “capturing and describing how people experience some phenomenon—how they perceive it, describe it, feel about it, judge it, remember it, make sense of it, and talk about it with others” (Patton, 2015, p. 115). I took on a participatory, observational, and facilitator role in a range of settings over the period of the study where the extent of participation and type of observations fluctuated and changed over time to bring about meaningful findings (Patton, 2015).

For the phenomenological study, several assumptions were made. Each of the mothers were assumed to have her own unique experiences using NRs with her toddler. Yet, it was postulated commonalities would exist between the participants’ experiences to create a combined essence of their shared stories, which would emerge through methodological applications. Being able to get as close as possible to the participants to obtain the essence of their experiences is the one epistemological belief I held. The last assumptions involved the values and biases and preconceived notions I brought to the study. Within the construct of the study, the disclosure and acknowledgement of the values and biases and preconceived notions I claimed was the final axiological assumption taken for the study.

My personal biases and values were brought to the study included being an educator and mother with a high regard for reading, literature, and literacy. As an EC educator, I possess a vast
knowledge base on the topics of learning, parenting, and literacy that were guarded against. Living, working, and rearing children in Northwest Louisiana for 21 years also led to connections with numerous families in the area. The potentiality existed that the mothers would be ones I had encountered or knew. To avoid influence on the study in such a situation, preconceptions were set aside through a process of bracketing and self-reflection to preserve a true expression of the mother’s experiences. Other cultures and SESs other than those of my background which were encountered required the engagement of measures to counter any biases and values regarding the differences. A final point shielded against were my prior beliefs and theories on the study outcomes and attempting to confirm those.

Using a hermeneutic phenomenological approach, I was objective by orienting to the mothers’ experiences and remaining faithful to their lived experiences (van Manen, 1997). By remaining true to the phenomenon (object) and representing it honestly through description, demonstration, presentation, and interpretation, I formed the context and meaning of the phenomenon. Insightfulness, perception, and discernment ruled subjectively, which allowed me to reveal the phenomenon to the greatest and most abundant level possible. Subjectivity in hermeneutic phenomenology research required staying strongly connected to the mothers’ experiences through personal connections, while avoiding the pitfalls of subjectivity, self-indulgence, and preconceptions (van Manen, 1997). My focus remained upon the phenomenon and the interpretations of the participant’s human experiences, without wavering to extraneous elements.

**Data Collection**

The study utilized the data collection methods of individual interviews, participant reflective journals, focus group interview, and follow-up questionnaire. The methods are presented in the order they were conducted. The order was selected to obtain the needed data from the interviews to
guide and generate prompts for the reflective journals to elicit more useful information. The participant’s reflective journal was used throughout the collection period for the participants to have the greatest expanse of time to note reflections and recollections, which were electronically transmitted (see Appendices N & O). The focus group interview was placed after the interviews and reflective journals to elicit clarification upon points, draft meaningful questions for the participants, and to follow up on information and questions lacking further details and information. Placing the focus group interview last also allowed the mothers to share together, which potentially led to points that otherwise would not have been brought to light, and it also provided a culminating period for the study to ease extraction.

Qualitative data describe through a strong accounting of the contextual particulars to encapsulate and relate the individual’s experiences through personal text to form an accurate story of the experiences (Patton, 2015). For this to occur, I became close to the participants whose story focused upon their experiences of using NRs with their toddler. The verbalized description of the external and internal behaviors of the participants developed into a recordable understanding of the essence of their experiences. A thick, rich description of the phenomenon emerged through contact with the mothers in their own environments and providing opportunities to develop a closeness between myself and each participant, which allowed for personal absorption of the actualities and minutiae concerning the use of NRs by the mothers in her daily life with her toddler (Patton, 2015).

**Individual Interviews**

The first form of data collection for the study was the individual interviews with the mothers. “Qualitative interviewing begins with the assumption that the perspective of others is meaningful and knowable and can be made explicit” (Patton, 2015, p. 426). To discover the phenomenon of how mothers describe their experiences with their toddler during times where NRs
were used, the mothers related these through discussions of their personal experiences from the past. I interviewed each participant to discover the unobservable, things observed but not understood, and to discover the relationship between them to enter their world from their perspective.

The interviews were scheduled for the convenience of the participants. The choice of time and format was at the discretion of the participant. Prior to the interviews, questions were developed to probe the participant’s experiences of the phenomenon (see Appendix O). “The phenomenological interview involves an informal, interactive process and utilizes open-ended comments and questions” (Moustakas, 1994, p. 114). After I developed an open and social conversation, the purpose of the interview was recaptured to direct the focus upon the participant and her experiences. After the redirection, a recording of the interview was started. During the interview process for the study, the guiding question and the three supporting questions were addressed. To illicit the answers to the study questions, interview questions (see Appendix P) were developed from and grounded in the literature. I stayed close to the experience as lived by asking concrete questions related to specific occurrences, situations, individuals, and occasions (van Manen, 1997). I included four types of open-ended questions: introductory, transition, key, and closing, which preserved the goals of the research and elicited the needed effect while maintaining a personal and conversational tone (see Appendix P; Rubin & Rubin, 2012).

1. Tell me about your early background as a child, your family’s structure, your early educational background, the influential people in your life, and the important points during it. (SQ3)

2. What is your first recollection of nursery rhymes (if any)? Describe it and the nursery rhyme events during these times in your early life. Were there specific rhymes that held special feelings or memories? (SQ3)
3. Tell me about becoming a mother and your motherhood experiences. (SQ1)

4. Describe how your early nursery rhyme involvement (if any) from childhood affected your later motherhood. (SQ3)

5. Describe your child’s prenatal life and outline your experiences and interactions with him/her during this time. (CQ, SQ1)

6. How do you describe the progression of your child’s nursery rhyme knowledge development from birth to 12 months of age and the way it came about? Describe as specifically as possible when, how, and at what age you first began using nursery rhymes (if any) with your child. (SQ2)

7. What effect do you feel your toddler’s nursery rhyme knowledge has had upon his/her pre-reading (literacy) development? (SQ2)

8. Describe the age-related changes from 12–36 months of age in your toddler’s nursery rhyme knowledge. Particularly the length and difficulty (complexity) of the nursery rhymes. (SQ2)

9. How does your toddler’s nursery rhyme knowledge development relate to his/her brain (cognitive) development? What involvement does it have in his/her language, pre-reading (literacy), and social development? (SQ2)

10. Describe the format of the nursery rhymes you used (if any) in your child’s nursery rhyme learning? Did the format change? If so, how, and when? (CQ)

11. List and describe the delivery formats of the nursery rhymes (if any) you opted to use with the play interactions you shared with your infant and toddler and how they were included in your play interactions. (CQ)
12. How would you describe your relationship with your toddler, during the period from birth to 48 months, while using nursery rhymes (if any) versus when in other activities? (SQ1)

13. During your child’s time with you, were there any surprises, questions, aha moments, or puzzling points during times of nursery rhyme usage or during other activities? (CQ)

14. If you were to relate information to new mothers about nursery rhymes, what would you share and hope to leave them with? (CQ)

15. Describe the features of nursery rhymes that you feel makes them unique or different? (SQ3)

16. Why do you feel there has been very little research on young children’s nursery rhyme knowledge? (SQ3)

17. What do you think the future of nursery rhymes will be in the next decade? (SQ3)

18. What else would you like to expand upon or add to the interview that may have been overlooked? (CQ, SQ1, SQ2, SQ3)

Questions 1 and 2 asked the participants to reflect upon their childhood. The questions picked up from the questionnaire (see Appendix D) I reviewed to reestablish a tentative rapport. Patton (2015) states “rapport is built by conveying empathy and understanding without judgement” (p. 458). The lead-in question was chosen to open the participant up to talking by asking non-threatening questions that could be easily answered. The first question established the time to reflect upon the participant’s earliest days as a child to prepare them for the following question regarding the potential construction of NR knowledge in the mother’s own childhood. The questioning format was altered, expanded, and added to depending upon the responses of the
participants. The second question provided the impetus for the third and fourth questions regarding specific NR experiences they may have had in childhood.

To guide the participant’s thoughts toward motherhood, Question 3 was added to ease the transition. It was also worded to be open-ended enough to generate exploration of motherhood in general. Question 4 was prefaced with a statement to forewarn the participant to connect their childhood experience with motherhood. The importance of HLEs and the variables associated with early literacy skills all point to the contributions made by parents within the household (Evans et al., 2016, Rodriguez & Tamis-LeMonda, 2011). Research attempts have been made to explore generational differences in NR knowledge without success (Dunst, 2011). Considering these two points, Question 4 explored the possibility of generational and home variables in the NR experiences or non-experiences of the participants.

Question 5 opened with a transitioning statement asking the participants to delve into the prenatal life of their toddler. This question was elicited from the recent discoveries of prenatal learning through recognition of an NR, which expanded upon earlier studies of prenatal recognition of a mother’s vocalization of an NR (Ferrari et al., 2016; Krueger & Garvan, 2014; Mustard, 2006; Voegtline et al., 2013).

The next four questions entered the developmental aspects of the toddler regarding NR usage or non-usage. Using a transitioning statement to announce the movement to a new time frame for the participant, Question 6 examined the progression or inactive NR knowledge development in relation to the ages and stages of the toddler. The impact of the development upon literacy was explored in Question 7. Question 8 followed the progression or inactive NR complexity as the toddler developed and aged. Dunst (2011), Harper (2011), and Goswami (2017) each addressed the connection between NR knowledge and its relationship to
phonological and literacy development in young children. Question 9 delved deeper into the relationship to explore the cognitive and social aspects of NR usage or non-usage. Mullen (2017) identified the ways in which NRs enhance the five domains of development that included both cognitive and social fields.

Questions 10–12 asked the participants to explore their relationship with their toddler from birth to 48 months. Questions 10 and 11 sought to identify the formats of the NR and the delivery forms used or omitted and how the participant described the relationship with their toddler during this time. These two questions were worded with examples to be used in case clarification was needed. They were only used during instances where the initial question failed to generate a thoughtful or insightful response, or if the participant appeared to encounter a problem, only then did I offer illustrative examples to illicit a deeper response (Patton, 2015). One study in the literature found the use of an innovative DVD of classic NRs and stories assisted in the homes of at-risk children to produce expansive growth in vocabulary during a 9-month period and particularly high reading scores 3 years later (Evans et al., 2016). Question 12 invited the participants to describe the differences in their relationship with their toddler while using or omitting NRs as compared to another activity. By using the comparison, the participants could pinpoint exact differences within their experiences.

The following five questions provided an opportunity for the participants to expand upon areas omitted and were open-ended concerning use or nonuse. Question 13 opened the NR field up to identify unexplored ambiguities. The next questions allowed the participant to take on the role of the experienced mother and provide important information concerning NRs to new mothers. Patton (2015) described the role playing as the participant taking the role of the person in “the know” where they are the expert sharing with a novice. Question 15 sought the
participant’s opinion and values associated with NRs. By having the participants predict the future of NRs and form conclusions to the lack of research, the participants were asked to think deeply and reason upon the topic. “Answers to these [types of] questions tell us what people think about some experience or issue” (Patton, 2015, p. 444).

Question 18 offered a last opportunity to provide valuable insight. It was posed last to leave the participant in the expert role regarding parenting practices with toddlers. It allowed the participants to have a final say in the interview process and did not end with the interviewer as the expert on the topic. By posing the closing question, responses may have potentially led in directions that might have never occurred to the interviewer (Patton, 2015).

**Reflective Journals**

Journaling is a widely used data collection process in the field of narrative research (Creswell & Poth, 2018). Journals are valuable for what can be learned from them, but also for the participant as a reflective stimulus (Patton, 2015). Van Manen (1997) goes further in stating, “journal … writing, it is likely that such sources may contain reflective accounts of human experiences that are [of] phenomenological value” (p. 73). After the individual interviews, each participant received a reflective journal guide containing specific details and tips concerning the recording of thoughts, remembrances, questions, and notes of experiences of NR use with their toddlers (see Appendices M & N). Each mother selected a preferred method for journaling, either physical or electronic. Mothers opting for the physical format received a journal with an attached pen to facilitate usage. After receiving electronic journaling prompts (see Appendix O), the mothers responded in their preferred mode by answering the questions and statements regarding their memories, recollections, and any additional information concerning their NR experiences, usage, roles, and knowledge they may have had. The guide (see Appendix N) included small amounts of
information, the length of time to journal, and the journaling schedule. The mothers were directed to note anything regarding NR experiences, usage, roles, and knowledge they may have recalled. The mothers also received periodic electronic notices to assist in timely use and stimulate recall in addition to the prompts. There was an expectation of at least 10 posts, but requirements regarding how frequently to journal or the lengths of any post was open, which followed the suggestions of Hayman et al.’s (2012) article regarding journal strategies.

**Focus Group Interview**

Focus group interview was important because it offered the mothers the opportunity to hear the other participants’ responses and offer additional comments and insights beyond their own individual interview comments (Patton, 2015). By having the opportunity to interact, participants gain greater insight into their personal feelings, understandings, and behaviors (Patton, 2015). It was anticipated the meetings would take place in a public library or conference room where seating, privacy, and accommodations would be available and conferencing equipment would be accessible for use if needed. However, because of the COVID-19 pandemic, only two of the participants were physically present, while the rest contributed through conferencing. The participants were able to openly share their experiences, ideas, and perceptions. Along with the environment, Creswell and Poth (2018) stress the researcher should encourage every participant to talk and guard against those who may dominate response times. To counteract such behavior, guidelines regarding respectful responses and social politeness were addressed prior to starting.

The interview questions for a semi-structured focus group interview were drawn from the individual interviews and participant reflective journal analysis. Areas I encountered needing clarification or elaboration from the analysis were formed into questions for the focus group to
address and gain further insight into the phenomenon (see Appendix Q). The emerging essential themes were also addressed to bring further clarity to the data. The questions were carefully crafted through considerable reflection, input, and insight to arrive as a set of predetermined, sequential, and open-ended questions that were posed as spontaneous queries (Krueger & Casey, 2015). The questions were:

1. Many children experience frequent ear infections or hearing loss. What have your experiences been during times when your child may have had similar ailments, how did you address them, and what were the impacts the ailments may have brought about? (CQ)

2. Most NRs incorporate motion with the text. What have your experiences been in how you or your child use gestures or sign language with or in place of words? Describe these incidences. (CQ, SQ2)

3. Some mothers have mentioned prenatal classes. After taking prenatal classes or just in general, did anyone enroll their toddler in baby classes at any point after being born? What led you to do so? (CQ, SQ2)

4. The next question is a fill-in question concerning parenting. The most difficult part of parenting today is _______ because _______ (CQ, SQ1)

5. Several mothers spoke of concerns for their toddler’s development. Were there any points in your child’s development that you were concerned about? What was concerning? (CQ, SQ2)

6. The next question concerns when you are in tune or on the same wavelength with your toddler. In the moments when you “click” with your child, describe the circumstances around them. (CQ, SQ1, SQ2)
7. This question follows-up on the earlier question on development. For those who were worried, how worried were you about language development in your toddler? What made you worried? (CQ, SQ2)

8. Because of the restrictions and the loss of normality brought about by the pandemic, has COVID-19 influenced your interactions, choices, or nursery rhyme experiences with your child? In what way? (CQ, SQ1, SQ2)

9. One mother highlighted the importance of music and family talents. Does anyone in your family have musical experiences or talents that are musical in nature your child may have been exposed to on a regular basis? (CQ, SQ3)

10. Is there anything else anyone would like to expand upon or add to the interview that may have been overlooked or would like to share further on? (CQ, SQ1, SQ2, SQ3)

Question 1 asked the participant to reflect and consider their experience and the potential impact of auditory problems their toddler may have experienced. The question was developed due to a couple of mothers mentioning their toddler had experienced ear infections requiring the placement of Eustachian tubes to be surgically inserted into their toddler’s ears. Frequent or long-term auditory problems can impact language acquisition for young children and may occur at critical language development points, leading to further impacts (Litovsky, 2015).

Because the use of sign language allows infants to communicate prior to verbal communication, Question 2 was introduced (Tamis-LeMonda et al., 2014). Some of technology channels air NR shows with sign language clips; the question was introduced to illicit any information indicating the toddlers were communicating prior to the age of 12 months. This question also led into the third question, which queried whether the toddlers ever participated in
baby classes where sign language may have also been offered. Baby classes typically have NRs as part of their programs as well.

Question 4 was an open-ended question where the mothers completed the sentence, offering views on the difficulty they have experienced in parenting in general. “The truly open-ended question permits those being interviewed to take whatever direction and use whatever words they want to express what they have to say” (Patton, 2015, p. 447). The question followed up on the third individual interview question and the fifth journal prompt. Because of the potential for complications and difficulties to lead to negative effects on toddlers, the question was introduced.

Because of the responses within the individual interviews and the journal responses, Question 5 was developed. The mothers had previously related several developmental concerns and feelings of worry in their responses in their interview and journaling. The question touched upon the feelings tied to their parenting thoughts and knowledge. Questioning emotions connected to the mother’s affective domain touched upon another area of their experiences (Patton, 2015). The question was open-ended to where an array of developmental areas and milestones could be broached in the group. This question also led to the seventh follow-up question.

To explore the connectedness with their toddler the mothers had previously touched on in the bonding periods addressed in the individual interview through Questions 5 and 6, Question 6 was developed for the group to respond to and explore the point further. Patton (2015) identified the importance of following up with questions and probing to obtain greater depth and detail to the phenomenon. The question was open-ended to allow for any circumstance to be broached by the mothers.
As previously related in Question 5, Question 7 was added to expand upon the specific topic of language development in their toddlers. To bring the mothers back to the previous question, a transitionary comment was included, which assisted the mothers in the interview process (Patton, 2015). The question sought to identify as specifically as possible their levels of worry about their toddlers’ language acquisition, and their knowledge concerning the importance of the toddlers achieving language at critical time periods.

Question 8 was added after one of the mothers related how she had delayed her toddler’s preschool entry. The question was open-ended to develop any further adjustments and influences COVID-19 may have brought about. The final question was added to offer a last opportunity to provide valuable insight. It was posed last to leave the participants in the role of knowledgeable mothers concerning their toddlers. It allowed the mothers to have a final say in the interview process and did not end with the interviewer as the expert on the topic. By posing the closing question, responses could potentially have led in directions that otherwise would have never been considered or voiced to the interviewer (Patton, 2015).

Follow-Up Questionnaire

A follow-up questionnaire was developed after the individual interview, reflective journals, and the focus group interview when an essential theme emerged needing further exploration (see Appendix R). The follow-up questionnaire was electronically sent to eight of the mothers and two were completed by the mothers after the focus group interview. Patton (2015) refers to questionnaires as a photograph at a given time. The mothers were asked to reflect upon the time frame from birth to the date the questionnaire was completed. The essential themes emerged and were further explored to bring clarity to the data. The questions were carefully crafted through considerable input and insight to arrive at a set of predetermined questions.
Questionnaires “enhance the validation, and triangulation of data, as well as improve the breadth and depth to the research so that a rich, detailed account may be formulated” (Ramsook, 2018, p. 17). In addition to two biographical questions, the questionnaire asked:

1. Have you introduced any words in a second language to your child through nursery rhymes, songs, fingerplays, etc. (Example: “Frère Jacques” and “Cancion de los Números”? )? If yes, what rhymes, songs, and concepts have you covered? (CQ, SQ3)

2. How many nursery rhyme books did your toddler have before participating in this study? (CQ, SQ2)

3. Check off the programs your toddler engaged with at any point from birth to today and the corresponding format it was used in. (CQ, SQ2)

4. Check off the formats used by your toddler from birth to today and list the corresponding programs frequently engaged with for each. (CQ, SQ2)

Because exposure to multiple languages affects language development timelines, Question 1 inquired into the potential use of additional languages taught after one mother introduced the topic in her individual interview (Pourkalhor & Tavakoli, 2017). Leading with a direct and specific question, question one transitioned to a listing format for the mothers to complete. The question allowed for a determination to be made if multiple languages were used and how they were used.

Question 2 was introduced to determine the number of NR books the toddler was exposed to. Having literacy materials within the home assists in language experiences for the child supporting language growth (Pace et al., 2017). The question was developed to clarify the number of NR books separate from the other genres of books in the home. Previous information sought in the parent questionnaire did not classify the books by genres or rhyming.
The third question was developed after several mothers indicated their use of NR shows in their interactions with their toddler. Adding a visual component to the questionnaire to aid in recall, the question listed seven NR shows previously mentioned by the mothers. With pictures to assist in identification, the mothers were asked to indicate the formats from 12 popular delivery mediums. An additional “other” option allowed the mothers to write in any unlisted delivery system they may have utilized. Ramsook (2018) related “questionnaires with open and closed ended questions serve to corroborate data” (p. 17).

The fourth question followed up on the previous question to corroborate the mothers’ listings in the third question and the prior data collection in the individual interviews, reflective journal, and group interview. The question asked the mothers to identify the formats they used and to list the programs their toddlers frequently watched from birth to the current date when they completed the questionnaire.

**Data Analysis**

Van Manen (1997) addresses data analysis as being complex and multi-dimensional with numerous layers. To unravel the threads of meaning, I reflected methodically and extensively upon the data yielded by the descriptive material and the text borrowed from the mothers to identify units of meaning, the structures of meaning to the text, or thematic instances throughout the data (van Manen, 1997). Reflecting upon the data of the mothers’ lived experiences and analyzing it produced the thematic nature of the phenomenon and provided governance and stability for the joint research and writing (van Manen, 1997, p. 79).

The data for this study were considered regarding the parts to the whole and whole to the parts in thematic analysis, also known as the hermeneutic circle or spiral (Gadamer, 1989; Paterson & Higgs, 2005; van Manen, 1997). The first spiraling step created the texts of the
literature review and the mothers’, followed by a preliminary analysis of both. Exploring the horizons about what the text said in relation to the goals outlined within the research questions regarding the mother’s NR experiences, where preliminary themes arose was the second spiraling step. The third step concerned the fusion of the two horizons, where triangulation and interpretive analysis was conducted. After the first fusion, a coordinated interpretation of the mothers’ NR experiences appeared by returning to the whole for a second fusion in the fourth spiraling step. An integrated interpretation was made in the final spiraling step by returning to the whole with the research questions in mind and through the processes of reflection, recognition, rethinking, and rewriting in the hermeneutic circle. The processes used in analyzing the data for the themes of the lived experiences of current mothers’ experiences using NRs in facilitating language development with their toddler are outlined below.

During the first spiraling step, an in-depth literature review was made to bring about the historical horizon through attempts to initially understand the phenomenon of mothers’ experiences. A horizon is the range of vision one has from a vantage point when considering a text or topic (Gadamer, 1989; Paterson & Higgs, 2005). By reviewing the professional and research material on the question, I focused on the new knowledge I sought and expected to find (Moustakas, 1994). A new understanding of the phenomenon was obtained from the literature review, which was formed into a text of the current concepts and knowledge on the topic of NR use by mothers with their toddlers to facilitate language development.

Following the literature review, data were collected and transformed into a text for analysis. The individual interviews of the mothers’ NR experiences were transcribed using Otter.ai and uploaded into the NVivo system for later analysis. Following the schedule, mothers’ reflective journal responses were added into NVivo as they were received. Next, the focus group
interview was uploaded into the database. This text formed the present horizon leading to a preliminary analysis of the texts through the processes of an initial reading and subsequent re-readings of them.

Clarification of what the text was relating was obtained through the exploration of the horizons in the second spiraling step. Van Manen (1997) offers three approaches to isolating themes in a phenomenon: holistic, selective, and detailed. The themes make up the experiential structures of an experience within a phenomenon (van Manen, 1997). To facilitate these processes, NVivo software was used. By completing each of the three approaches, I sought to identify the meaning captured in the mothers’ experiences using NRs in facilitating language development with their toddlers through the content and reduction of the experiences (van Manen, 1997). In analyzing the text of each of the data sources, the horizons and preliminary themes and interpretations emerged. Each of the data sources were examined using the three approaches.

Using the holistic approach called for attention to every piece of the text as a whole (van Manen, 1997). Locating a statement within the whole to extract and appropriately defines, describes, signifies, or relates the meaning of the text is the purpose behind the holistic approach. To determine the statements, I discovered the balance between the parts and whole (van Manen, 1997). By going back to the research questions, the parts of the texts, and the whole picture of the phenomenon, the horizons of the mothers’ experiences appeared by holding the research questions and whole picture in mind while rereading the texts and hearing what was related through them.

In using the selective approach, I read the text multiple times searching for statements, phrases, or expressions deemed essential, revealing, or identifying of the phenomenon (van
Manen, 1997). During the process, I used NVivo to select portions of the mothers’ text to highlight and code. The text seeming relevant to mothers’ experiences using NRs in facilitating language development were selected and extracted to form themes.

In the detailed approach, each sentence or statement was examined for revealing content of the mothers’ experiences using NR to aid in language development with their toddlers (van Manen, 1997). This correlated to Moustakas’ (1994) horizontalization where each participant’s responses are initially given equal consideration. Using NVivo, I added any pertinent phrases, statements, or sentences made by the mothers relating additional insight into their experiences facilitating language with their toddler. By asking what each sentence or section revealed, I uncovered hidden meanings that may have otherwise been overlooked.

In the third spiraling step, the merging or fusion of the horizons occurred to create themes and form meaning clusters. The fusion of the horizons was the melding of the historical horizon (literature review) of the research literature to the present or current horizon of the text of the participants (Gadamer, 1989; Paterson & Higgs, 2005). The horizons from each data source were brought together to coalesce into formal themes to begin formulating answers to the research questions and perform interpretive analysis. Constant comparisons of the parts (data sources) occurred in this stage. This process clarified themes and eliminated extraneous ones, allowing for greater interpretation of the mothers’ text and their experiences using NRs to aid in language development with their toddlers. The determining factor for this process is “to discover aspects or qualities that make a phenomenon what it is and without which the phenomenon could not be what it is” (van Manen, 1997, p. 107). Using NVivo during this analysis period unified the data from each source into defining themes. A fusion of the mother’s themes of their experiences and my themes was achieved.
The themes from each of the mother’s individual interviews were reduced to essential themes. Triangulation within the mother’s individual interviews occurred next. Once individual essential themes were identified, a synthesis of all the individual mothers’ interviews was made. Triangulation within the journal reflections occurred as well. They were reduced into essential themes by prompts and then as a whole. The analysis of the focus group interview was reduced into essential themes. After completing the first round of reduction, further triangulation was completed. The mothers’ individual interviews were triangulated with the follow-up questions that materialized and were posed. The focus group interviews were triangulated with the participant reflective journals. The reduction of the mothers’ journal responses and focus group interviews were triangulated with the individual interviews. At this point the results of the follow-up questionnaire were entered and triangulated with the earlier themes of the text.

A second fusion occurred in the fourth spiraling step where the themes of the text were examined against the whole of the text. Keeping the research questions in mind, I made an interpretation of the significance of the themes. During this time, I maintained a strong orientation to the phenomenon to test the themes in relation to the research questions. In making a coordinated interpretation of the meaning of the mothers’ lived experiences, I underwent a “process of insightful invention, discovery or disclosure—grasping and formulating a thematic understanding,” which was not restricted, but an unfettered perception of the meaning (van Manen, 1997, p. 79). The results of the triangulation of themes to develop meaning clusters from the third spiraling step were analyzed against the whole of the text. From the meaning clusters of the thematic statements, phenomenological paragraphs were drafted into linguistic transformations (van Manen, 1997). The hermeneutic process of composing linguistic transformations was a creative operation I went through and recorded while doing so.
The fifth and final spiraling step brought about an integrated interpretation of the mothers’ experiences using NR to aid in language development with their toddlers. By returning to the whole of the phenomenon, I ensured the interpretation fit with the whole of the phenomenon. During follow-up conversations with the mothers, clarification of the fit of the interpretation to their experiences were reviewed. During the conversations, the participants and I sought an interpretation for the thematic significance through an interpretive conversation (van Manen, 1997). The phenomenon was understood as a whole because its parts were integrated and defined (Paterson & Higgs, 2005; van Manen, 1997). A fully, interpretive description of the essence of the mothers’ experiences using NR to aid in language development with their toddlers was drafted to answer the research questions for the exact point in time. To complete the process, writing and rewriting occurred. To fulfill the purpose of hermeneutic phenomenology, I performed the complex process of recognizing, reflecting, rethinking, and rewriting to produce a comprehensive interpretation of the phenomenon (van Manen, 1997).

**Trustworthiness**

Patton (2015) addresses the importance of trustworthiness by stating the “livelihood of evaluators and researchers depends upon their integrity and credibility” (p. 58). To accept the interpretive findings of a study, they must be trustworthy. To establish the needed trustworthiness, my role as a research tool in making interpretations necessitated my performing under a level of high quality. I fully disclosed and guarded against biases, maintained conscientiousness, stayed true to the purpose and design of the study, conducted several levels of triangulation, and performed checks for trustworthiness. To establish trustworthiness several strategies can be used to enhance the confidence of one’s findings while conducting a naturalist inquiry (DePoy & Gitlin, 2016).
For this study, the trustworthiness checks used included credibility, dependability, transferability, and confirmability, all of which are addressed in the following section.

**Credibility**

Credibility in qualitative research addresses the accuracy and truthfulness of the findings as evidenced through the study design and analysis, along with data interpretation. For the current study, the credibility was enhanced by using established research methods for phenomenology. DePoy and Gitlin (2016) identified six techniques to enhance credibility of analysis: triangulation, saturation, member checks, reflexivity, audit trail, and peer debriefing. For this study’s data analysis stage, triangulation between the data collection forms strengthened the study’s credibility. Checks with the participants on the data collected and the interpretations of the data were made at several stages within the study. Once transcripts of each individual interview were obtained, participants were given the opportunity to review them for accuracy and additional information. I reflexively memoed impressions, patterns, and thought processes occurring throughout the process. Patton (2015) regarded reflexivity as “a way of emphasizing the importance of deep introspection, political consciousness, cultural awareness, and ownership of one’s perspective” (p. 70). Increased credibility was achieved through the disclosure of the background, qualifications, and experiences of the researcher for the study. A lengthy examination and review of the previous literature on the topic of NRs was completed. The participant’s willingness to participate in the study was insured with honesty and frankness concerning the study. An option to leave the study at any point was an established and disclosed policy. Engagement with the participants occurred over a significant amount of time to establish trust and rapport.
Dependability and Confirmability

Dependability and confirmability relate to how clearly and logically the research identifies the evidence and the strategies employed to enable replication of the study (DePoy & Gitlin, 2016). Consistency is the key to dependability and confirmability; consistency within the data collection instruments, procedures, and in the research process. A complete description of the research design and the implementation of it was disclosed in the current study to develop dependability for it. I conducted thick and rich descriptions during the data collection processes to yield a detailed description of the phenomenon, all of which were recounted in the manuscript. During the analysis, I made notations and memos while deeply immersed in the data, where a conscious decision was made to examine each piece of datum from different perspectives. Memo writing assisted in the engagement with the data, aided in finding gaps in the data, and urged the development ideas throughout the study (Patton, 2015).

The confirmability of a study relates to the level of objectivity maintained during data collection, analysis, and interpretation (DePoy & Gitlin, 2016). All claims made within the study were supported through evidence and research strategy. Triangulation between the participants and the collection methods lead to the confirmability in the study. I disclosed my personal experiences, biases, and preconceived notions regarding the study. Acknowledgement of the reasoning behind the approach was made along with the weaknesses of the study. A full disclosure of the methods used in the study was generated to strengthen the confirmability.

Transferability

The degree to which the findings are transferable to similar situations and contexts to those within the study will exhibit the level of transferability within it (DePoy & Gitlin, 2016). Disclosure was the key to transferability in the study. I revealed the sampling and selection processes of the
mothers for the study. The number of participants, their general location, and background information were related. The length and number of interviews and other data collection methods and processes were disclosed. I fully relayed the time frames for this study and the data collection methods. Ample and thick description were incorporated throughout each portion of the writing processes (Patton, 2015).

**Ethical Considerations**

Ethics pertains to the proper behavior during the process of conducting research, especially the protection of participants (DePoy & Gitlin, 2016). The ethical aspects of the current study included approval, disclosure, consent, anonymity, entry and exit of the study, analysis, reporting, and writing. Each of these areas are addressed in the following paragraphs.

In the area of approval, preliminary approval was obtained from the ECCW network, districts, and facilities. The formal approval process began with the IRB (see Appendix F). Following the IRB approval, formal local permission from the ECCW networks, districts, and facilities was obtained as a consideration of ethical protocol (see Appendices F, G, H, & I). Records of each of the approval areas were maintained on file. The disclosure, consent, and anonymity involved the area of the participants. Disclosure of the purpose of the study was issued to the participants and any involved parties, which included the ECCW networks, districts, and facilities (see Appendix G, H, & I). The right to not participate or leave the study at any point was related to the participants (see Appendix K). Consent to participate in the study was obtain for each individual, and they were informed on use of aliases to ensure anonymity would be maintained (see Appendix K).

The ease of entry and exit were carefully made during this study to ensure ethical considerations were made. Several facility visits eased the entry process and developed rapport
with the facilities. The purpose of the study, how the information would be used, and how the results would be reported were disclosed (Patton, 2015; see Appendix K). The interview questions (see Appendix P) were reviewed by a knowledgeable peer trained in the interview process. Reciprocity was employed to ease the exit process. The participants received copies of the study, a gift of an NR book, a $20.00 gift card to Amazon or Walmart, and one participant received a $100.00 Amazon or Walmart gift card.

The ethics area of analysis and reporting covered the topic of security as well. The use of security access codes for electronic and paper records and data were employed. Aliases were also used in the report of the findings. During analysis, I examined the data from multiple perspectives to achieve optimal interpretations. Checks of the data and interpretations were sought from all the participants. A final copy of the study was provided to each of the participants, given they have ownership to the interpretation of their experiences of the phenomenon. As such, it was important to use their words and language within the report. During the study, the American Psychology Association (2013) guidelines and ethics standards were strictly followed.

**Summary**

This chapter began with a brief overview identifying the problem, purpose, and significance of the present study. During this chapter of methodology, an examination of the qualitative method was addressed to relate the need for employing it in the study. The use of a phenomenological design was selected to gain an understanding of current mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddler. The approach of hermeneutic phenomenology was found to best meet the study’s needs in gaining an interpretation of the mothers’ experiences.
In trying to understand the lived experiences of mothers, it was important to obtain the data from participants who met the selection criteria and from the soundest methods possible in extracting it. The study incorporated snowball, purposeful, and criterion selection processes to locate participants who were mothers of toddlers enrolled in a PK setting. The setting of the study was the ECCW network in Northwest Louisiana. The methods of data collecting included the use of individual interviews, participant reflective journals, focus group interview, and follow-up questionnaire. During the data analysis processes, van Manen’s (1997) approaches were employed for the texts from each of the data collection methods. Extensive trustworthiness measures were taken to obtain credibility, dependability, confirmability, and transferability for the study. Triangulation, reflexivity, thick and rich description, and disclosure were the main processes used to obtain it. Numerous ethical considerations were made to protect the participants. Approval, disclosure, consent, and anonymity were enlisted for this purpose.
CHAPTER FOUR: FINDINGS

Overview

The purpose of this hermeneutic phenomenological study was to understand mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers. Within the chapter, a full textual description of each participating coresearcher is offered. Following this, essences of the mothers’ experiences are related and addressed in relation to each of the research questions. The discussion is organized by the themes that emerged through the analysis of the mothers’ experiences.

Participants

The participants in the study were 10 mothers of toddlers. I employed a combination of purposeful sampling and snowball sampling was employed to achieve variation in the genders and ages of the toddlers. The gender makeup of the toddlers was five males and five females. The toddlers ranged in age from 15 to 45 months, and most were within the range of 2- to 3-years-old (see Table 1). The mothers’ ages at the time they gave birth to their toddlers ranged from 22 to 29 years. Three mothers had no prior births or children in the home. The majority of the mothers were married, with two identifying as single and one as a divorcee.
Table 1

Participant Demographics and Selection Method

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Mother’s age</th>
<th>Ethnicity</th>
<th>Toddler gender</th>
<th>Toddler’s age</th>
<th>Selection method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy</td>
<td>27</td>
<td>Caucasian</td>
<td>Female</td>
<td>27 mo.</td>
<td>Purposeful sampling</td>
</tr>
<tr>
<td>Bianca</td>
<td>32</td>
<td>Caucasian</td>
<td>Female</td>
<td>41 mo.</td>
<td>Purposeful sampling</td>
</tr>
<tr>
<td>Emmie</td>
<td>31</td>
<td>Caucasian/Latino</td>
<td>Male</td>
<td>35 mo.</td>
<td>Purposeful sampling</td>
</tr>
<tr>
<td>Faith Ann</td>
<td>26</td>
<td>Caucasian</td>
<td>Female</td>
<td>15 mo.</td>
<td>Snowball sampling</td>
</tr>
<tr>
<td>Havana</td>
<td>25</td>
<td>Caucasian</td>
<td>Female</td>
<td>45 mo.</td>
<td>Purposeful sampling</td>
</tr>
<tr>
<td>Isabella</td>
<td>29</td>
<td>Caucasian</td>
<td>Male</td>
<td>28 mo.</td>
<td>Maximum variation</td>
</tr>
<tr>
<td>Kimley</td>
<td>26</td>
<td>Caucasian</td>
<td>Female</td>
<td>36 mo.</td>
<td>Snowball sampling</td>
</tr>
<tr>
<td>Lauren</td>
<td>27</td>
<td>Caucasian</td>
<td>Male</td>
<td>31 mo.</td>
<td>Snowball sampling</td>
</tr>
<tr>
<td>Mila</td>
<td>24</td>
<td>Caucasian</td>
<td>Male</td>
<td>25 mo.</td>
<td>Purposeful sampling</td>
</tr>
<tr>
<td>Nora Beth</td>
<td>31</td>
<td>Caucasian</td>
<td>Male</td>
<td>26 mo.</td>
<td>Snowball sampling</td>
</tr>
</tbody>
</table>

Amy

Amy is a 28-year-old, single, Caucasian mother of a 27-month-old daughter, who is her only child. Amy chose to use NRs before her daughter’s birth. Amy completed the 11th grade of high school and subsequently received her high school equivalency credentials. Amy wants to ensure her daughter does not struggle in school as Amy did. Amy had planned to enroll her daughter in a child development center for the educational and social interaction she felt her
daughter needed earlier in the year, but with the onset of the COVID-19 pandemic, she opted to wait an additional year. Amy finds difficulty obtaining the time she needs with her daughter:

“It’s just structure really, having the time that you’ve got, [and] you need [time] with your kids.”

Her parenting practices were influenced by her mother and father, but she related that she does parent a little differently. In addition to worries about her toddler’s cognitive development, Amy shared her concerns about language development and her daughter’s eye development; the latter is being addressed through medical guidance.

**Bianca**

Bianca is a 32-year-old Caucasian practical nurse with years of experience in pediatrics, a married mother with a busy home environment, “and would say life is fast paced” for her three children, as the family has two full-time working adults. Bianca focused on her youngest child, her 41-month-old daughter, during the data collection period. Bianca feels her own NR knowledge has increased over her 12 years of motherhood, as family is a strong focus and music plays a noticeable role within her blended Caucasian and Hispanic home. She “is a strong believer in talking to your children and communication is a key factor in raising children.”

Bianca views having a healthy balance of structure and routine as the most difficult parts of parenting. She related the need to spend time with her kids but said “sometimes it’s hard when life gets busy. As a parent you [get] caught up on everyday worries and bills, and work and you got [to have] that healthy balance of structure.” Bianca shared concerns about her daughter’s eyes because of the effects of hyperopia (far sighted) and the additional condition of astigmatism, both of which may potentially affect her daughter’s learning.
Emmie

Emmie, a 31-year-old Caucasian/Latino divorced mother of three who is currently in a committed relationship and will soon have her fourth child, was previously employed as a childcare provider within a child learning center. Emmie’s 35-month-old son is the toddler she considered when thinking about her experiences using NRs to facilitate language development. Music is an important aspect within Emmie’s life as she believes in the arts. Emmie played music to her son while he was in utero, which was a practice she continued after her son was born, and Emmie was continuing to perform those same lullabies at the time her interview was conducted. Most of Emmie’s parenting practices were developed from colleagues in childcare centers, and she related, “With my kids I have always used trial and error with their practices to find what works for my children.” The one concern Emmie has about her toddler is his speech. She feels his pronunciation and clarity are an issue that is being addressed through speech therapy.

Faith Ann

Faith Ann is a married 26-year-old Caucasian mother of two children. Faith Ann possesses an associate degree in business education and is currently staying at home with her two young children. During the process of relating her experiences, Faith Ann focused on her youngest, a 15-month-old daughter, who was also the youngest toddler of all the participating mothers. While pregnant with her daughter, Faith Ann would sing and rock her infant son to sleep. She also spent additional time just singing, rubbing her abdomen, and talking to her daughter during her pregnancy. Faith Ann obtained most of her parenting practices from her mother, “but some of it I just winged.” She finds societal judgement of the parenting practices of mothers today to be the most difficult aspect of parenting. When Faith Ann’s daughter lagged
behind Faith Ann’s son in language development, Faith Ann related she was initially worried because her daughter was not saying anything, which was ultimately resolved when her daughter did make advances in talking.

**Havanna**

The youngest mother at the time of the birth of her toddler, Havanna is a 25-year-old married Caucasian mother of three. The youngest of her three children, who was the one she focused on during her reflections, is her 45-month-old daughter. Havanna has an associate degree in science relating to oil and gas technology. However, she is currently employed as a licensed barber and performed services from her own shop where her daughter, from infancy, spent most of her days while her mother was working. Havanna would talk, sing, and rub her abdomen while her daughter was in utero. She lists her grandparents as the “influencers for how I parent and why I do the things I do.” Havanna also relies on her mother when needing to consult someone about parenting issues. She finds protecting her children from outside influences to be a difficult point when parenting today. Havanna shared she was “very, very worried that she, [her daughter] was going to be autistic or have . . . some borderline tendencies because she never smiled or laughed or anything like that” until she was 9- to 10-months-old.

**Isabella**

Isabella is a married 29-year-old Caucasian mother of four who is a few hours away from graduating with her bachelor’s degree in elementary education with prior hours in occupational therapy. She currently works as an instructional aid within her local public school system. During data collection, Isabella reflected on her experiences with her youngest child, a 28-month-old son. The distractions and fast pace of life are what she finds to be difficult; she related, “It is difficult for us to slow down and have bonding time without it impacting schedules.
The many distractions also make it difficult to bond.” Isabella turns to her parents and grandparents when she needs advice on parenting issues and listed these individuals as the greatest influencers to her parenting practices. Isabella’s concerns about her son’s language development were a result of her son sustaining a head injury when he was 20 months old; she related that the after-effects of the injury are continuing, resulting in a persistent speech delay for which her son is receiving services to correct.

**Kimley**

Kimley is a married 26-year-old Caucasian mother of two and was seeking to provide the stability for her children that was missing in her own transient childhood by working as a part-time personal assistant. Kimley focused on her 36-month-old daughter while sharing her motherhood experiences. Family and friends were the greatest contributors to her parenting practices. When seeking further parenting advice, Kimley looks to her friends. She identified the greatest parenting difficulty as “figuring out what works for your child, because every child is different.” Kimley’s greatest concern was her daughter’s speaking abilities because she was diagnosed with ankyloglossia, commonly referred to as a tongue tie. Kimley related that when her daughter was not talking “in the beginning, [I was] very [worried] because of her tongue tie. I thought we might have to have a surgery or go to speech therapy or something, but that issue was resolved.” Although Kimley’s daughter was delayed in her speech, when she did begin speaking, Kimley reported that she progressed rapidly.

**Lauren**

Lauren is a single 27-year-old Caucasian mother of a 31-month-old son and possesses a bachelor’s degree in sociology. She is a residential childcare provider and has cared for children for 16 years. She became a mother through adoption, which was finalized 10 months prior to
data collection. Lauren began her parenting role when her son was 2 months old and opted to leave work for a short period to bond with her new son. Lauren reported her mother and grandmother were influential people. Her mother is who she turns to when she encounters a parenting issue; Lauren also finds other mothers to be helpful with problems and the advice they relate. There were immediate concerns with the adoption of her son, as drug exposure had occurred while he was in utero. Lauren related, “In the very first few months, I was very worried. I was concerned before he was even kind of able.” Fears of developmental issues emerging pervaded the early months when infants are rapidly developing. Those fears were set aside when Lauren’s son began to speak and talk in complete sentences. Her son had developed to the point where he was ahead in some areas and attending 2-year-old preschool part-time.

Mila

Mila is a married 24-year-old Caucasian mother of a 25-month-old son. She has additional education beyond high school where she received academic honors. Music is an important aspect in the family and was used prior to birth to engage with her son. She and her husband both talked, sang, and read to their son while he was in utero. Mila’s grandmother played a large role in her parenting practices and as a role model. When in need of parenting advice, Mila turns to her mother for additional guidance. Mila identified difficulty in parenting as occurring from “never knowing what you’re gonna have to do next, because you don’t have the answers as a parent; you just have to wing it.” The past year brought concerns about her son’s speaking abilities; Mila related that,

he can say some words, but he does not form sentences or things of that sort. I think he knows what we’re talking about all the time. He just doesn’t speak as much as I feel like kids his age do.
Mila’s worries about her son being behind his peers were alleviated some when her son began attending daycare and was interacting more with other children. She noted there had been a huge impact on her son’s speech development.

**Nora Beth**

Nora Beth is a married 31-year-old Caucasian mother of two, has an associate degree in business administration, and helps her husband on the family’s rural farm. While relating her motherhood experiences, Nora Beth focused on her 26-month-old son. During her pregnancy, she sang and read to him. Nora Beth feels mothers find difficulty in “finding balance between the business of life and giving your child the time they need. It’s harder for women these days, I think to find balance between [the] social, work, and home life.” The parenting practices Nora Beth possessed were influenced by her mother; she is also the one Nora Beth relies on when issues occur and is in need of advice. When she does receive motherly advice, Nora Beth related that “I do put my own spin on the advice she gives me” when applying it in her own life. At one point when her son did not meet the 50-word vocabulary developmental milestone, Nora Beth was concerned about his language development. Her concerns have abated as her son has begun to vocalize more.

**Results**

The following section outlines the results of this hermeneutic phenomenological study to understand mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers. The results of the study are related through the major themes identified within the study data, which were obtained through considerations regarding the parts to the whole and the whole to the parts in thematic analysis, also known as the hermeneutic circle or spiral (Gadamer, 1989; Paterson & Higgs, 2005; van Manen, 1997). Following the theme
Theme Development

The purpose of this hermeneutic phenomenological study was to understand mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers who are enrolled in childcare facilities in Northwest Louisiana. Data were obtained from individual interviews, journals, and group interviews. The data from the three sources were inputted into NVivo and coded through a holistic, selective, and detailed approach to isolate and extrapolate themes. Using the isolated themes and results of the literature review, similar themes were merged, and extraneous themes were eliminated. Triangulation of the different sources occurred and an examination of the themes to the whole was conducted. Meaning clusters were used to develop thematic statements, which were subsequently employed to make an integrated interpretation of the phenomenon, completing the hermeneutic spiraling circle (Gadamer, 1989; Paterson & Higgs, 2005; van Manen, 1997). Eight major themes emerged from the data analysis: (a) bonding and connecting; (b) engagement and interaction; (c) teaching and learning catalyst; (d) repetition, reinforcement, and retention; (e) early language development; (f) unique appeal; (g) soothe, calm, and sleep; and (h) tradition and nostalgia. These themes are explored in the following sections.

Major Theme 1: Bonding and Connecting

The first major theme, bonding and connecting, was viewed in relation to two of the research questions. Every mother related some form of a bonding or connecting experience with her toddler when using NRs. From a total of 37 coded sections within the NVivo database, the data were further pared down to 28 coded sections, which were subdivided into three subthemes.
(see Table 2). Most of the codes were from the individual interviews, some were taken from the journals, one was from the group interview, and three mothers touched on the topic in their questionnaires.

**Table 2**

*Major Theme 1: Bonding and Connecting*

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>During pregnancy</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>While reading</td>
<td>62</td>
<td>7</td>
</tr>
<tr>
<td>When singing</td>
<td>130</td>
<td>22</td>
</tr>
</tbody>
</table>

The three subthemes were connected to the NR experiences of the mothers in that their use of NRs created a bond and connection with their toddlers during the pregnancy and while reading to and singing with their toddlers. During Bianca’s third pregnancy, she felt a stronger connection because she had learned “over the years that fetuses begin hearing in the womb. I started out singing in songs and rhymes with her and bonded more in the pregnancy.” When connecting with her 36-month-old daughter while reading, Kimley described it as an intimate, quiet, calm, and cuddling experience. Regarding singing, Isabella expressed,

> for me, I think it’s more of the one-on-one time that you actually get to spend with your child, that makes a big impact with them. Because it’s . . . that one-on-one time with them creating a bond. But it’s also . . . keeping it kind of fun for them. Because it’s not just sitting there . . . loving on each other. It’s sitting there and you’re singing . . . like the “Pat-a-Cake” song. You’re actually doing stuff with them, and it’s fun for them at any age.
The use of actions incorporated in the NR “Pat-a-Cake” Isabella spoke of also supports the next theme of engagement and interaction.

**Major Theme 2: Engagement and Interaction**

The only concomitant major theme, engagement and interaction, was a prominent theme and was viewed in association with the three research sub-questions and the central research question. From 63 sections, the node for engagement and interaction was pared down to 52 coded sections of data (see Table 3). Most of the data were related within the individual interviews and supported through the journals and the group interview. Close analysis led to the identification of four subthemes within the NVivo node: singing, movement, stimulation, and social exchanges.

**Table 3**

*Major Theme 2: Engagement and Interaction*

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singing</td>
<td>129</td>
<td>10</td>
</tr>
<tr>
<td>Movement</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>Stimulation</td>
<td>67</td>
<td>13</td>
</tr>
<tr>
<td>Social exchanges</td>
<td>80</td>
<td>8</td>
</tr>
</tbody>
</table>

The engagement and interactions the mothers related concerning NR use occurred during singing, movement, stimulation, and social exchanges. These instances occurred as a result of either the mother or the toddler bringing about the action. Lauren discussed in the individual interview how she thought NRs created moments where,
I think we interact a lot more, I guess because we’re singing and dancing together. The one, “You Are My Sunshine,” has been my song to him since I’ve had him, and it means even more now. I guess compared to anything else, it’d be more interaction between us.

Her reflection exhibits both the singing and movement expressed by other mothers as well. Faith Ann shared how the NRs prompted her when her daughter was little and was not up and mobile: “I would have her on my lap, playing with her, moving her arms, moving her hands, touching her feet, try[ing] to get her little senses up and everything, while she was watching it and singing to her,” which demonstrated the stimulation aspect of the engagement and interaction. Nora Beth described a scenario where her son would be playing unengaged with other children and adults in the room. If an NR were to be played or sung by the children or adults, her son would “stop what he’s doing and engage in that activity with them [un]til the nursery rhyme is over,” pulling him into a social engagement with the group.

**Major Theme 3: Teaching and Learning Catalyst**

When considering the central research question and two of the sub-questions, the use of NRs as a teaching and learning catalyst materialized frequently in the data, which led to the third major theme. The mothers spoke of several ways in which NRs were a catalyst to their teaching and learning. From 159 pared sections, there were nine areas where NRs brought about learning benefits for the toddlers (see Table 4). These areas were alphabet, animals, body parts, life skills, literacy, manners, numbers and counting, rhyming, and NR shows. Language benefits were also noted by the mothers related to NRs being used as a catalyst for teaching and learning. The area of early language development is explored within its own theme in the following sections. The data for the teaching and learning catalyst node in NVivo were generated from individual interviews, the group interview, journals, questionnaires, and follow-up questions.
Table 4

Major Theme 3: Teaching and Learning Catalyst

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alphabet</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Animals</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Body parts</td>
<td>29</td>
<td>23</td>
</tr>
<tr>
<td>Life skills</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Literacy</td>
<td>41</td>
<td>28</td>
</tr>
<tr>
<td>Manners</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Numbers and counting</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Rhyming</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Nursery rhyme shows</td>
<td>52</td>
<td>44</td>
</tr>
</tbody>
</table>

Bianca spoke of several areas in which NRs were a catalyst for teaching and learning through the following statement:

When I did start having my first kid and to the third kid, I’ve actually utilized nursery rhymes . . . when it comes to teaching the children. It’s very easy to relate when it comes to . . . learning body parts, animals, learning how to rhyme, letters, numbers, situations, emotions, [and] manners; there’s a lot of nursery rhymes about manners.

Many of the mothers during the interviews would sing the NR songs they used as the catalyst. One such mother was Kimley. “I can count to 10, I can count to 10, I can count to 10 in English.” She continued, “and then you go, I can count to 10, I can count to 10 in Spanish, and then you
do it in Spanish, and then French and any other languages you want to introduce.” Kimley attested to her daughter learning to how to count early from using the NRs.

Specific NR shows were an area that required follow-up questions. They were mentioned in the first and third individual interviews and then featured largely in the fourth individual interviews. Havanna noted several of the shows when she was completing her questionnaire. Prior to the final participant interview, a listing of the shows that had been related by the previous mothers were compiled and a follow-up questionnaire was created (see Appendix R). Seven shows were identified by the mothers with the top four being Little Baby Bum, CoComelon, Blippi, and Word Party. Although available in many platforms, Little Baby Bum had 53.2 million subscribers on its YouTube channel (Little Baby Bum, 2011); the oldest show, CoComelon had 105 million subscribers (CoComelon, 2006); and with 11.4 million regular viewers, Blippi (Blippi, 2014) was slightly ahead of Word Party at almost 6 million subscribers (Jim Henson Company, The, 2020).

All the mothers, except one who did not return the follow-up questionnaire (but even she indicated in her questionnaire the use of one of the above listed shows), related their use of at least one of the top four shows listed above as a catalyst for teaching and learning. The primary platforms used when viewing the shows were Netflix, YouTube, and Prime Video. Nora Beth highlighted how the shows became a catalyst for teaching and learning:

About 6 months, 6 to 8 months, he started watching a little show called Little Baby Bum, I’m sure you’ve heard of it. And he watched that show along with me just playing, you know, “Pat-a-Cake” with him, and . . . “If You’re Happy and You Know It,” just doing different things where he can clap and interact. And I noticed, . . . the show did a lot of that, too. So, all of that really just started engaging him from about 6 months on to about
12 months, and then on from there . . . He kept gaining more interest. But I was just kind of mimicking what they were doing on the show, which was your basic nursery rhymes anyway, and he loved it.

**Major Theme 4: Repetition, Reinforcement, and Retention**

The central research question and two of the supporting questions were referenced when examining the repetition, reinforcement, and retention major theme. All the mothers indicated they used some form of repetition, reinforcement, and retention of the NRs to assist in their toddlers’ learning. From 112 sections, which were pared down to 87 applicable sections, the mothers indicated they used NRs through repetition for reinforcement and retention of learning with their toddlers (see Table 5).

**Table 5**

**Major Theme 4: Repetition, Reinforcement, and Retention**

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition</td>
<td>103</td>
<td>43</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>119</td>
<td>34</td>
</tr>
<tr>
<td>Retention</td>
<td>78</td>
<td>32</td>
</tr>
</tbody>
</table>

Nora Beth highlighted the arduousness involved within the repetition factor of using NRs in her individual interview statement concerning their use:

They are very influential and important. They might seem like something small, and it might get tiresome reading the same ones over, and over, and over again, as I have done for the past year and a half. But they are soaking up more from those things than what you could possibly imagine. And all of a sudden, it’s just like a light bulb is gonna come on, and you’re gonna see how much they’ve actually learned from them when they start
reciting these things back to you. I did not know how much those little nursery rhymes were influencing him until when he just recently started finally, you know, really [being] engaged in language.

Havanna used a hand washing NR to reinforce the importance of a life skill and shared, when “we’re washing our hands, we would sing our washing your hands song.” Similarly, Amy stated, I keep doing the rhymes and the singing and the reading, it helps her brain figure out, “Well, Momma has done read it to me, you know 12 times or 1,000 times. Well, I already know.” So, she can go ahead and say the word, and she knows it. It sticks with her.

Amy’s statement highlights the repetition, reinforcement, and retention her daughter receives from the use of NRs in developing language, which is another theme that emerged in the data.

**Major Theme 5: Early Language Development**

The central research question and the second sub-question were the basis for developing the major theme of early language development. From 104 references in the NVivo language development node, a total of 75 statements taken from the mothers’ individual interviews, group interview, and journal reflections were identified (see Table 6). The majority of the mothers indicated a strong effect on their toddlers’ language development from the use of NRs.

**Table 6**

**Major Theme 5: Early Language Development**

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficial</td>
<td>66</td>
<td>53</td>
</tr>
<tr>
<td>Undecided</td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>
Mila expressed some doubts related to her 25-month-old son’s delay in language development:

It’s still really kind of hard to tell because he really still doesn’t talk that much, even at 2 [-years-old]. He . . . says a few words and like I understand him; I know what he’s talking about. But he still doesn’t really talk in sentences. And he’ll bring me books and stuff, but he doesn’t want me to read them. He just wants to look at the pictures. So, he really still doesn’t respond too much to it.

On the opposite end of the language spectrum, Lauren shared the following about her son’s language success: “His language development has definitely, like that has progressed so much. Just from I mean, song, you know, the nursery rhymes, learning his body parts, . . . he could to that a young age.”

**Major Theme 6: Unique Appeal**

One theme that frequently appeared in the data was the unique appeal that NRs possess, which was viewed in relation to the central research question and the second and third supporting questions. From 60 identified sections, the node was pared down to 49 sections that reflected the unique appeal found in the NRs by the mothers (see Table 7). These statements were located mainly within the individual interviews, with a couple in the group and journal responses. Three areas developed within the unique appeal node. The unique appeal of NRs was drawn from being catchy and sticking, incorporating actions and fun, and building vocabulary and strengthening mental abilities.
Table 7

Major Theme 6: Unique Appeal

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catchy and sticking</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Incorporating actions and fun</td>
<td>64</td>
<td>16</td>
</tr>
<tr>
<td>Building vocabulary and strengthening mental abilities</td>
<td>159</td>
<td>32</td>
</tr>
</tbody>
</table>

Emmie felt NRs were “more memorable, and it just makes the information stick a little more.” When her daughter began walking and moving more, Faith Ann found the NR songs were catchier as,

they just kind of put little beats to them. But it had more of a I guess, a beat in a song and little tune to it. That way she could be like, “Ooh,” and she likes dancing and moving around. So, it kind of caught her attention more.

Nora Beth summed up several of the areas within the unique appeal theme.

The nursery rhymes, just the catchiness and the rhythm and the music and all the stuff that goes with that, and the interaction that you do with those nursery rhymes that’s . . . what’s really engaged him and allowed him to grasp the concepts and retain that information and actually learn what was going on.

Major Theme 7: Soothe, Calm, and Sleep

With a modest 31 initial references within the NVivo node, the use of NRs to soothe, calm, and promote sleep in their toddlers was an important point noted by all the mothers concerning one of the supporting research questions (see Table 8). In their journal statements to the sixth question, each of the mothers related that NRs in some form aided in calming, soothing,
or distracting their toddlers. The mothers also responded in the individual interviews to NRs assisting in soothing, calming, and aiding in sleep. Some mothers in the group interview discussed connecting during sleep and music. Lauren highlighted the importance of her bedtime routine in the following statement:

You have to have a bedtime routine in order for your kids to sleep well or, you know, wake up more energetic and so, when my daughter was about 6 months old, we started reading her books. And we, most of the time, we were singing songs up until then. I would just rock her to sleep singing, while she drank a bottle.

Table 8

Major Theme 7: Soothe, Calm, and Sleep

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soothe</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>Calm</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Sleep</td>
<td>21</td>
<td>16</td>
</tr>
</tbody>
</table>

Major Theme 8: Tradition and Nostalgia

The final theme to materialize was tradition and nostalgia, which was relative to two of the supporting research questions. From 41 references in NVivo from the individual interviews and journal entries, every mother related some aspect of a tradition or nostalgia effect associated with NRs (see Table 9). When reflecting on their memories and what the future may hold for NRs, the mothers related enduring connections to memories of NR use in childhood and, in many cases, concern for the future of NRs and their use. Mila related,
my Nana read us a Mother Goose book my whole life, . . . and I still have the book that she used to read us. She had this book about the old nursery rhymes, like “Little Bo Peep” and all [those] that she read us while we were young and throughout, until we were old enough that she decided we probably didn’t want to hear it anymore.

Isabella shared her thoughts as to the future of NRs:

With as much technology as there is now, I feel like nursery rhymes, it’s going to get put on the back burner. Unless they were taught for instance like I was . . . My grandma doing them with me made me want to do it with them [my kids]. Maybe, they’ll want to do it [with their own].

Table 9

Major Theme 8: Tradition and Nostalgia

<table>
<thead>
<tr>
<th>Subtheme</th>
<th>Reference frequency</th>
<th>Paired reference and associated nursery rhyme frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tradition and nostalgia</td>
<td>41</td>
<td>35</td>
</tr>
</tbody>
</table>

Research Question Responses

There were three sub-questions used in the research to assist in addressing the central research question. The central research question was designed to determine the mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers.

Central Research Question

The central research question guiding the study was: What are mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers? The question related to how mothers viewed their experiences using NRs with their toddlers to develop language skills. Data for the central research questions were gathered from the mothers’
individual interviews, journal responses, and the group interview. Five major themes developed within the data as mothers shared their views and experiences using NRs to facilitate language growth within their toddlers: (a) engagement and interaction; (b) teaching and learning catalyst; (c) repetition, reinforcement, and retention; (d) early language development; and (e) unique appeal.

**Engagement and Interaction.** The first major theme for the central research question was engagement and interaction. This major theme was threaded throughout the study, resulting in a concomitant theme that was associated not only with the central research question but each of the sub-questions. The mothers in the study experienced differing levels of engagement and interaction while nurturing language development in their toddlers. In examining the data, four subthemes arose: singing, movement, stimulation, and social exchanges. The subthemes are explored in the following sections and further examined in the discussions of the sub-questions of the study.

**Singing.** Periods of engagement and interactions were experienced by the mothers and toddlers when NR singing was taking place. In her journal response, Isabella shared her belief on NR use involving engagement: “I feel as it, nursery rhymes are songs that repeat words . . . I believe having family engaged in language play is nursery rhyme use because it is teaching them language.” Lauren voiced her support for the aspect associated with her own beliefs, stating, “I believe it to be the best way for a child to learn and be engaged.” She also shared the following in her interview about using NRs with her toddler:

I think we interact a lot more, I guess, because we’re singing and dancing together . . .

Compared to anything else, it’d be more interaction between us. Like yeah, I’d build with
him or something, but I guess, more excitement and stuff comes with him loving music [that] comes out of nursery rhymes.

**Movement.** The mothers found movement to be involved in moments of engaging and interacting with their toddlers during NR use and language development. Nora Beth described how she combined movement, NRs, and NR shows in the language learning experiences with her toddler:

> He watched that show along with me just playing . . . “Pat-a-Cake,” “If You’re Happy and You Know It,” you know just doing different things where he can clap and interact. And I noticed . . . the show did a lot of that too. So, all of that really just started engaging him for about 6 months on to about 12 months.

Faith Ann and Emmie noted changes in their toddlers when using NRs as they developed. Faith Ann shared:

> It changed probably around the time that she turned a year [old] because that’s when she really started getting up and walking and moving around . . . There’s the nursery rhymes, and they just kind of put little beats to them. But it had more of, I guess, a beat in a song and little tune to it . . . she likes dancing and moving around. So, it kind of caught her attention more.

During the same developmental period, Emmie noted her son “would start to sway his body and start to move to the rhythm of it [NR]. He has always like to dance and sing.” She later related “he will do like the ‘Bingo.’ He’ll clap along with ‘Bingo.’”

**Stimulation.** Several mothers shared how they used NRs to stimulate their toddlers’ language development during interactions and engagements. Bianca highlighted the stimulation point in her comparison:
It tends to help your child perhaps think a little better. Instead of just normally pointing at something and saying, this is this, or this is your arm, this is your leg. It’s a way, if you’re able to relate it in a nursery rhyme, [to] make it fun and comical, and the children hold on to it a little better and memorize it better.

Nora Beth provided an example of the stimulating effect of the NRs she used with her son’s learning:

I did not know how much those little nursery rhymes were influencing him until when he just recently started finally, you know, [to] really [become] engaged in language. And just, I mean, heck here’s the alphabet, here’s my numbers, here’s, you know, starting to say words all of a sudden, and he’s really starting to pick up pace with that very quickly.

It’s like, it just exploded overnight. So, it’s very influential and important, I think.

Contrary to the other mothers, Mila found NR reading was not a stimulating experience for her son, stating, “He seems to interact, like enjoy it and interact more with me and his dad is when outside playing or playing inside with toys. He will really only sit and listen to us read if he’s in bed.”

**Social Exchanges.** Several mothers pointed to the importance of social exchanges while using NRs to instill language within their toddlers. Three mothers shared how NRs facilitated their toddlers’ social interactions with others. Nora Beth related her son’s potential reaction to a scenario, stating,

if a song or a nursery rhyme or something comes on in the presence of another child, like they’re watching a tablet or something, or they start singing a song, or their parents start doing it, he will stop what he’s doing and engage in that activity with them till the nursery rhyme is over.
Bianca found that her daughter engaged in social experiences through NRs when she, had learned to talk and speak at a very early age and pretty clearly that people understood it. So, I believe that it has helped her verbally and socially. It is a good interaction [sic] with others that tends to get her brothers and sisters and even us as parents involved with her with singing. And so, socially I think she’s very in tune with others when it comes to singing and interacting with the nursery rhymes.

With her son, Lauren detailed how keeping other children as an in-home daycare provider has offered her son additional opportunities to engage in social interactions where NRs are incorporated. As an example, she mentioned how her son and his friend love music and will “sit there and do nursery rhyme after nursery rhyme or song after song, and they love it. So, I think it has helped him to be able to interact with others a lot better, and you know, socialize.”

**Teaching and Learning Catalyst.** The second major theme for the central research question was teaching and learning catalyst. Nine mothers detailed specific areas in which they perceived the NRs aided in teaching and learning language. The nine specific areas were developed into the subthemes for the teaching and learning catalyst major theme. The final mother did make contributions within one of the subtheme areas; however, there was a noticeable lack of input within the other themes, which was attributed to her son’s delay in language acquisition. The nine subthemes that became apparent were (a) alphabet, (b) animals, (c) body parts, (d) life skills, (e) literacy, (f) manners, (g) numbers and counting, (h) rhyming, and (i) NR shows. In many cases, the mothers employed specific NRs for a specific skill. The NR table (see Appendix S) lists the NRs mentioned by the mothers and the targeted skills they may have potentially been employed for in addressing the teaching and learning processes. An overall consideration of the major theme is related in the following section. A further look into
each of the specific subthemes is provided within the discussion of the Sub-Question 2 for the study.

When discussing their experiences with facilitating language development, many of the mothers specified the teaching and learning areas in which they used NRs to teach their toddlers in an all-encompassing grouping. Kimley wished to impart to new mothers that NRs will, help them [by being] . . . more excited about learning and reading . . . when you read to them often. But it also helps them learn certain aspects in life, fundamentals. [For example,] to help them learn their anatomy, and how to count, and their ABCs, and how to socialize with other children, how to socialize with adults, how it teaches them manners. There’s, so many positives to teaching your children nursery rhymes.

Isabella wanted to share that, nursery rhymes are like, a way to for them to learn not just you singing a song. It’s a way for you to be able to communicate, teach them, [and] learn the language. I think it teaches them how, like some of them how you rhyme, rhyming word, . . . they make it catchy.

Lauren detailed how she sang, nursery rhymes and read him books since he was an itty-bitty baby. He has learned so much from them . . . animals and their sounds, his body parts, his manners, different emotions, and counting. He tries to sing some of his alphabet.

In her journal response, Bianca shared that, we sing them to her or tell them in a story. This helps her to remember and lets her engage in song and play, all while in the process of learning. Nursery rhymes helped her learn . . . animals, body parts, letters, numbers, situations, comedy/being funny, manners, [and] emotions.
Repetition, Reinforcement, and Retention. The third major theme for the central research question, repetition, reinforcement, and retention, was voiced by all the mothers in their use of NRs to facilitate language acquisition. Repetition, reinforcement, and retention was also a major supporting theme for Sub-Question 2 and 3. When incorporating NRs, the mothers expressed within all the data collection methods to varying levels that the use of NRs was a repetitive action on their part and was conducted with the intention to instill language acquisition. To support their toddler’s retention of language, the mothers reinforced the language learning through their use of NRs. Each of the repetition, reinforcement, and retention components are individually examined within Sub-Question 2 of the study. In taking a holistic view, the mothers expressed several examples of the relationship within the repetition, reinforcement, and retention of language learning with NRs.

Kimley related a pivotal moment in her daughter’s language learning that involved NRs and jumpstarted her language acquisition:

When we taught her the “Head, Shoulders, Knees, and Toes” song, it was like an epiphany. She was very excited. I can remember the first time we were playing that song. We were in the car. It came on the little toddler station we play, and she was in the backseat in her car seat. And I was doing the hand movements with like one of my hands, and I was trying to show her my toes. And so, instead, I was reaching back there and grabbing her toes. And so, then she starts trying to grab my toes and I’m like, “Oh, you can’t reach my toes,” and that’s when that really kicked off the learning the “Eyes and Ears and Mouth and Nose.” And she would come up to me and she would say, “Got your nose,” and she stole my nose, and we’d go back and forth with that for a while. And then
we started the stealing the ears and that, that definitely kickstarted our whole-body part learning lessons that was fun. She got interested really quick.

Nora Beth shared her surprise at a recent experience concerning her son’s learning with NRs:

I recently discovered . . . that he actually knows the entire alphabet in order now. As far as, he doesn’t say every single letter perfectly, but you can clearly hear him say that. I didn’t know that. We were sitting in the truck one night, and he saw a letter on a board. And I just said the first letter of the alphabet, and then he said the next one. I’m like, “Okay.” So, I said that one, and then he said the next one. And I’m like, “Are you serious, you know, all of these in order?” And so, I just, I was really surprised that I didn’t know that he would know it this early.

When Bianca’s daughter demonstrated the retention of an NR through her repetition and reinforcement, Bianca highlighted the celebratory moment they shared:

We were doing the alphabet the other day, and like, /a/, /a/, /a/ is for apple. We’re singing along. And so, the next day she came in, and she actually got an apple from the fruit basket. She came in there, and she was like, “Mom, /a/, /a/, /a/. It’s for apple.” And we were both like, yeah. And so, knowing that, that ah-ha moment, she picked it up, and she learned it and held it.

**Early Language Development.** The fourth major theme of early language development was shared by all the mothers. Every mother incorporated NRs at varying levels in their interactions with their toddlers. Nine of the mothers felt the use of NRs in their exchanges with their toddlers was beneficial to the child’s language development, which led to one of the two subthemes for early language development. The one remaining mother was undecided as to whether her use of NRs produced any language benefits for her son. The major theme of early
language development was also associated with Sub-Question 2 of the study. The two subthemes of beneficial and undecided are examined here and within Sub-Question 2 of the study.

**Beneficial.** Nine mothers found using NRs to be beneficial in promoting language development in their toddlers. In many cases, NRs aided in overcoming worries about language development in their toddlers (see Table 10).

**Table 10**

*Language Development Concerns*

<table>
<thead>
<tr>
<th>Mother</th>
<th>Language development</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Previously</td>
<td>Currently</td>
</tr>
<tr>
<td>Amy</td>
<td>Worried</td>
<td>Concerned</td>
</tr>
<tr>
<td>Bianca</td>
<td>Not worried</td>
<td>Not worried</td>
</tr>
<tr>
<td>Faith Ann</td>
<td>Worried</td>
<td>Not worried</td>
</tr>
<tr>
<td>Havanna</td>
<td>Worried</td>
<td>Not worried</td>
</tr>
<tr>
<td>Isabella</td>
<td>Not worried</td>
<td>Concerned</td>
</tr>
<tr>
<td>Kimley</td>
<td>Worried</td>
<td>Not worried</td>
</tr>
</tbody>
</table>
Lauren attributed the progression of her son’s language development to NR use despite early worries associated with drug exposure in utero. She shared,

His language development has definitely, like that has progressed so much. Just from ... song, you know, the nursery rhymes, learning his body parts. I mean, he could do that at a young age. He could, you know, point to them and say what it was at a very young age, just from, I guess, you know, repeating it over and over again, he learned it.

When considering her son’s language and social development after experiencing a delay, Nora Beth found,

with his language development ... it’s a lot repetition. And so, we tend to focus on these and because it catches his attention, and it’s a lot of repetition, it helps him to associate the word with the action or the word with the item. And so, he is finally, because I think he honestly was just a little lazy, sometimes. But he’s finally starting to understand, you
know, this is this word. And if I want this to happen, then I have to say this word, and a lot of that’s come just from the interactive play and repetition of the nursery rhymes and the educational time we have set aside.

With her daughter, Havanna evaluated her language development and related her feelings and reflections associated with NR use and outcomes after her early worries of autism:

I would say that I feel like it’s helped her language. But I feel like it’s helped her speech [because she] . . . talks so much better than most children her age . . . It is like the length of conversation that she can hold to. I mean, you can sit down with my 3-year-old and have an entire conversation for as long as you want to talk to her.

Undecided. In reflecting upon the effect of NRs on her son’s language development, Mila related how her son’s language delay seemed to stall:

It’s still really kind of hard to tell because he really still doesn’t talk that much, even at 2 [years old]. He’ll, he says a few words and like I understand him. I know what he’s talking about, but he still doesn’t really talk in sentences. And he’ll bring me books and stuff, but he doesn’t want me to read them. He just wants to look at the pictures. So, . . . [he] still doesn’t respond too much to it.

I don’t really know that it’s had much of an impact because he hasn’t really seemed too interested about it. I really didn’t see him start to develop more in that way until he started going to daycare and interacting with other kids.

When considering his language and social development, Mila reiterated, “He hardly talks at all. Even now. He really didn’t start talking until he went to daycare either.”

Unique Appeal. The fifth and final major theme associated with the central research question was the unique appeal of NRs. This major theme was also connected to Sub-Question 2
and 3 of the study. When reflecting upon NRs, the mothers often related their unique features
that make them appealing in their use in language building in their toddlers. All the mothers were
found to have contributed to the major theme within at least one of the subthemes, although
many provided details within all three. When reviewing the data, three subthemes developed:
catchy and sticking, incorporating actions and fun, and building vocabulary and strengthening
mental abilities. A holistic view of the major theme follows here, with a more detailed subtheme
examination completed in Sub-Question 2 and 3 of the study.

Nora Beth shared in her interview her hypothesis about the feelings she attached to NRs,
their unique appeal, and her son’s language development:

I feel like if I hadn’t have done the nursery rhymes . . . if I would have just been talking
to him, like you and me are talking right now and that’s the only vocal education that he
got, as far as you know learning words and stuff like that, . . . it wouldn’t have caught his
attention. The nursery rhymes, just the catchiness and the rhythm and the music and all
the stuff that goes with that, and the interaction that you do with those nursery rhymes . . .
that’s what’s really engaged him and allowed him to grasp the concepts and retain that
information and actually learn what was going on.

As her daughter aged, Faith Ann noted a change in her daughter’s preferences for the NRs she
used with her. She related that her daughter,

liked the song because it had a little bit more of a, it was the same song of course. There’s
the nursery rhymes, and they just kind of put little beats to them. But it had more of a, I
guess a beat in a song and little tune to it, that way she could kind of be like, “Ooh!” . . .
She likes dancing and moving around. So, it kind of caught her attention more.
Isabella theorized that “if you repeat something over and over . . . your brain will, like click and will remember and help his memory.” She later shared, “I think it [NR knowledge] teaches them how . . . you rhyme, rhyming words . . . They make it catchy. . . . It just teaches them the repetition and teaches them language words.”

Sub-Question 1

What are mothers’ perceptions of the ways nursery rhyme usage affects their relationships with their toddlers? This question was designed to identify the ways in which NR use influenced the mother–toddler relationship. The data for this research question were obtained through individual interviews, journal responses, and a few responses within the group interview. Three major themes emerged within the data when mothers related the ways in which NRs affected their relationships with their toddlers: bonding and connecting, engagement and interaction, and tradition and nostalgia.

**Bonding and Connecting.** The first major theme for Sub-Question 1, bonding and connecting, was shared by all the mothers. The mothers indicated some level of bonding or connecting experiences with their toddlers when using NRs. Three subthemes emerged from the data and were taken from the related experiences obtained from the mothers regarding their bonding and connecting with their toddlers. These experiences occurred during pregnancy, while reading, and when singing.

**During Pregnancy.** When pregnant with their now toddlers, the mothers began connecting early on. Many of the mothers understood the importance of connecting with their unborn child. Several voiced knowledge of fetal development and an understanding that the fetus develops the ability to hear early on. Even though Bianca expressed the initial emotion of being scared because of having previously miscarried, she indicated, “My emotions were high. But
with this being my third pregnancy and learning over the years that fetuses begin hearing in the womb, I started out singing in songs and rhymes with her and bonded more in the pregnancy.” Amy shared the following about her interactions with her daughter while pregnant: “I talked to her all the time. I sang to her. I read her books.” When asked when she started and what prompted her to, Amy related that she started at around 26 weeks when she began to really feel her daughter moving all the time. Nora Beth went further in her assessment, relating that “your baby can recognize your voice in the womb at a certain point, you know once their eardrums develop... so that [lets you know that] you should talk to them.” With this thought in mind, Nora Beth “would just kind of sing to him, and I would . . . read my Bible at night, and I’d read to him.” Emmie went even further by playing songs to her unborn child. She explained that “you can just sing to him, and I’d just kind of sing to him, and I would . . . read my Bible at night, and I’d read to him.” Emmie went even further by playing songs to her unborn child. She explained that “you could just sing to him, and I’d just sing to him, and I would . . . read my Bible at night, and I’d read to him.”

While Reading. When reading NRs to their toddlers, the mothers related bonding and connecting experiences. Many of the mothers read to their toddlers at night in an established nightly routine. The need for a routine and structure was brought up by several mothers during the interviews. Bianca identified in the group interview the need for parents to have a “healthy balance of structure and time with them,” which she felt was hard to do when “life gets busy.” Because routine and structure were lacking in one of her parent’s home and provided in her other parent’s household, bringing security and stability, Kimley sought to bring that into her toddler’s life: “I felt at home, I felt safe. And I felt stable while I was with my dad because of that. And it’s just something I want my children to grow up having.” Through her questionnaire and
individual interview, Mila shared how an NR book from her childhood translated into a bonding and connecting experience:

I still have that book that my Nana read to us. So, I read that book to him now. So, I don’t think without her reading it to us that I would even have had anybody read to me really. I think the only reason that I feel like it’s so important for me to read to him is because she read to us. I think it created a bonding thing for us.

Havanna further stressed the importance of bonding: “I feel like it creates more bonding time for the mother and child because you’re spending like sole time, especially if you’re reading or singing to them the nursery rhyme.” Kimley explained the subtle differences in the bonding shared when reading versus when in other activities:

Whenever we are reading typically, it’s very intimate, we have the big light turned off. We just have on her lamp, and we’re cuddling. We’re getting ready for bed just kind of calming down for the end of the day. . . . There’s much more intimate, quiet, calm, whereas when we’re outside, outside playing, it’s very rough, very fast. . . . It’s just different. It’s definitely different in terms of how we’re connecting.

**When Singing.** For the mothers, singing NRs started either before birth or shortly thereafter. Lullabies were frequently mentioned in combination with rocking. Bianca communicated the connection between singing NRs during pregnancy and in the newborn stage:

Even though Faith Ann did the same behaviors, she said she still had a difficult time after her daughter was born:

A lot of the time, at nighttime, I talked to her like I did with my son. I talked to her while she was in my belly. And I’d still, you know, rub my belly, I guess, and talk to her and I’d sing to my son. I know that they can hear at certain point. So, I just made sure that I sung the same songs, you know, more often than usual, that way . . . she would know them. You know, maybe when she came out, I could sing it to her and soothe her.

She didn’t really take to the nursery rhymes that well when she first was born. It took her until she was about 4 or 5 months to really know when I was rocking her to sleep for the singing of the lullabies to actually help her to fall asleep. . . . Now I can lay her in her bed and sing to her and her brother and she falls asleep to them. So, it eventually got to the point where it helped her more to sleep.

Lauren shared her connection with a song from her childhood that she now shares with her son. “You Are My Sunshine” is a song that is her favorite that she has sung to him every night since she has had him. When identifying what she would share with other mothers about NRs, Lauren related,

repeating it over, and over again, . . . just do that and keep doing it, and it’ll end up, you’ll have a special bond, say with a certain nursery rhyme. You will always remember that one, one nursery rhyme or moment with that nursery rhyme and you’re gonna teach your child.

**Engagement and Interaction.** The second major theme for Sub-Question 1 was engagement and interaction, which was also the only major theme to be threaded through all three sub-questions and the central research question in the study. The mothers experienced
various levels of engagement and interaction that affected their relationships with their toddlers. Four subthemes of singing, movement, stimulation, and social exchanges were noted within the data for engagement and interaction experiences, which occurred through the actions of either the mother or the toddler.

**Singing.** When singing with their toddlers, the mothers experienced periods of engagement and interaction. Singing was also present within the other three subthemes for engagement and interaction. Nora Beth explained that “when we’re singing his songs, . . . he’s understanding what I’m saying, and I’m getting my point across, and he’s learning a lot. And we’re just actively focused on each other and engaged and having a good time.” Lauren related a surprising moment when her son “start[ed] to actually . . . interact and sing with it, you know, sing it. Those were moments special to me.” She later noted that if asked, she would share with other mothers to “definitely sing them with your child or you know read them. Interact nursery rhymes because I feel, myself that they learn better that way.” Havanna pointed out “when you’re paying attention to them, you know, a lot of times they’re paying attention to you [through] the singing of nursery rhymes.”

**Movement.** During periods of engagement and interaction using NRs with their toddlers, the mothers expressed the importance of movement being incorporated. Faith Ann described the reasoning behind including movement within the interaction and engagement:

I guess, nursery rhymes were more when she was littler, and she couldn’t really move around . . . I would have her on my lap playing with her, moving her arms, moving her hands, touching her feet [to] try and get her little senses up and everything, while she was watching it and singing to her.
Amy listed the NRs she used that included movement in her journal response. She also shared that “when playing with my daughter, we make are [sic] own songs up and sing ‘Patty Cake [sic]’ and ‘Old McDonald,’ plus ‘Peek-a-Boo,’ ‘Ring Around the Rosie,’ ‘Itsy Bitsy Spider,’ ‘Rock-a-Bye Baby [sic],’ ‘Hey Diddle Diddle,’ [and] ‘This Little Piggy.’” Nora Beth explained how songs include movement: “You know ‘Pat-a-Cake,’ ‘If You’re Happy and You Know It,’ you know just doing different things where he can clap and interact.” Bianca supported this by sharing that “initially it was just interactment [sic] between parent and child.” Bianca further described how engagement with movement occurred with her daughter within the family as she got older: “She sits on her Papal’s legs and they sing, ♬Ride the bucking horsey all the way to town, take care [Name], don’t let her fall down!?”

Havanna described how her daughter responded to the early use of NRs in the first 12 months:

She probably didn’t have much in the first 12 months . . . as far as like interaction to it, I mean. She’d kind of like clap her hands to music, you know, like bob her head. But she really hasn’t gotten into . . . singing them until now.

When other children would visit Faith Ann’s home, she related how her daughter would engage and interact with them using music and NRs: “She’ll actually go over there, and she’ll just start grabbing their hands trying to dance with them to the little songs while they’re playing.” Nora Beth related the changes that occurred in her son’s engagement:

It started changing where, as he started actually, actively, not that he wasn’t engaging before, but he was actively engaging appropriately as he got older . . . Whereas before, you know, if they were clapping on a song, he would just or you know, if I was telling him a rhyme or something, you know, yeah, he would clap along, or whatever. But now
he does it with purpose. Like he understands the material that’s being presented before him. And so, he will do it at appropriate times, if that makes any sense. So, that’s the biggest change that I’ve seen is that he’s gained this understanding of that material. It’s not, . . . “Okay, well, this sounds fun” or whatever. “I’m just going to clap,” but now it’s timely, and it’s on purpose, and it’s informed.

**Stimulation.** Incorporating movement, the subtheme of stimulation highlights the use of stimulating methods used with NRs to engage and interact. Bianca incorporated the element to also check on development:

“This Little Piggy” went to market, learning little toes [and] fingers, like when you’re doing interactments [*sic*], and you’re watching movement with their head and eyes. You know, you can do like the “Where is Thumbkin, where is Thumbkin, here I am,” and you could make sure like her head and eye movement are on track for that time frame between about 4 to 8 months. You’re trying to make sure your baby is definitely meeting milestones, and I think nursery rhymes can help meet those milestones a lot when it comes to infants.

Faith Ann’s earlier statement emphasized the stimulation of the NRs early on: “playing with her moving her arms, moving her hands, touching her feet [to] try and get her little senses up.” Concerning language development, Nora Beth shared how NRs were what they “tend to focus on, . . . because it catches his attention, and it’s a lot of repetition. It helps him to associate the word with the action, or the word with the item.” She also stressed how the NRs caught her son’s attention through “the rhythm and the music, and all the stuff that goes with that and the interaction that you do with those nursery rhymes, . . . that’s what really engaged him.” Counter to this, when Mila shared her son’s lack of speaking abilities, she indicated how she “could tell
when it was bedtime, . . . he enjoyed us reading him a story instead of just, you know, putting him to bed, but other than that, he really didn’t interact with it too much.”

**Social Exchanges.** Incorporating social elements into the engagements and interactions was expressed by the mothers when using NRs with their toddlers. Nora Beth reported how her son would “stop what he’s doing and engage in the activity with them till the nursery rhyme is over” when another child and parent would incorporate NRs in their activities. Bianca related how her daughter pulls others into engagements:

> It is a good interactment [*sic*] with others that tends to get her brothers and sisters and even us as parents involved with her with singing and socially, I think she’s very in tune with others when it comes to singing and interacting with the nursery rhymes.

 Havanna supported this when explaining how her daughter is given “the opportunity to interact with all sorts of people from different backgrounds throughout the day, day to day” because she comes to work with her each day. Also, because of her work situation, Lauren’s son is able to engage with other children “and they will sit there and do nursery rhyme after nursery rhyme or song after song . . . It has helped him to be able to interact with others a lot better.” As shared earlier by Faith Ann, when NRs are playing in the company of other children, her daughter will “go over there, and she’ll just start grabbing their hands, trying to dance with them to the little songs while they’re playing.”

 Two mothers professed how the NRs themselves aid in social skills. Emmie shared how her son connected with “Five Little Ducks,” stating, “He would even get emotional . . . when the mother lost all her ducks. He would be making a frowny face. He would have his little sad voice when he sang it.” Using books, Kimley communicated how her daughter “learned how to interact
with her friends and what’s nice and what’s not nice . . . I feel it’s had an impact on her for social abilities.”

**Tradition and Nostalgia.** The third major theme, tradition and nostalgia, supported two supporting questions in the research. Regarding Sub-Question 1, responses in the mothers’ individual interviews and journal entries were found to contribute to the theme. All the mothers except two mentioned family as influences on their NR use. Mila validated the theme of tradition and nostalgia when she shared, “My Nanna read us a Mother Goose book . . . and I still have the book that she used to read us.” She later stated, “I read that book to him now . . . I feel like it’s so important for me to read to him because she read to us . . . I’ve carried it over to my son.”

Regarding special memories and emotions attached to NRs, Bianca shared, “I think just with all [of] them as a whole, just doing them with family and being out [where] I grew up on a farm, they were all pretty influential and fun. [I] enjoyed them” as a child. Later in her individual interview, Bianca related the role of tradition and nostalgia:

> The relationship with the adults that I had teaching me and everything, I had that fun connection with the nursery rhymes and singing them and relating to them. Now with my children, I feel like I’m having that same connection and watching them learn has been an enjoyment to me and seeing them happen like I did as a kid.

Faith Ann supported the tradition theme, stating, “I think most of them do come from my childhood because I remember them. There was some that I didn’t remember that my mom reminded me of.”

Many of the mothers had grandparents who taught them NRs, as Mila did with her Nanna and the Mother Goose book she read. Besides grandparents, Havanna had great-grandparents in her childhood: “My parents weren’t big on nursery rhymes, but my grandparents were. And
those were sweet memories with my grandparents.” She has tried to recreate the relationships and atmosphere for her own children:

Since my children don’t have that same relationship, like with their grandparents, like I . . . try to do the same thing my grandparents did for me. So, like we have . . . story time, and we have a few nursery rhyme books.

Isabella also highlighted the skip in traditions with her parents, but she did pick them up from her grandparents in childhood. She said her grandmother “used to sing them all the time to us as we were growing up . . . She would sing like ‘Twinkle, Twinkle, Little Star’ and you know, and read us books and all that kind of stuff.” Isabella later stressed, “My grandma doing them with me made me want to do with them, maybe they’ll want to do it [too].” Nora Beth conveyed the generational aspect of the NRs in her life and said she,

feel[s] like the classics will always be around. . . . They have been my whole life. And my parents grew up with the same ones; and I remember my great-grandparents, you know, singing or saying some of the same ones to me that have carried on for generations.

Lauren associated a particular nostalgia for a song from her childhood that is now a tradition. Coming mostly from her grandmother, Lauren shared some of the NRs she recalled learning first in childhood, one of which was “You Are My Sunshine.” This particular song “has been my song to him since I have had him, and it means even more now.” She stated she would share with mothers to use NRs and through constant repetition, Lauren suggested they “keep doing it, and it’ll end up, you’ll have a special bond, say with a certain nursery rhyme. You will always remember that . . . one nursery rhyme or moment with that nursery rhyme.” Amy also exhibited a break in tradition when she noted in her journal entry that “I use nursery rhymes
more [be]cause I didn’t really hear them when I was a little kid. So, I sing and play her nursery rhymes [be]cause it makes me happy seeing her smile and play along.”

Tradition and nostalgia were shared by Nora Beth when she related that there were one or two songs her mother would sing to her: “They weren’t typical nursery rhymes, but they were just like lullabies . . . that’s what she always sang to me, and I sing it to my kids now; and that’s the one I used to calm them.” This supports Mila’s thoughts on tradition: “It really just seems like people are like, ‘Okay, well that’s just what you do with kids.’ They did it for me. So, I’m gonna do it for my kids.” Kimley felt the continuance,

because it’s what we know as children, and a lot of people have a lot of nostalgia . . . They’ll continue the traditional nursery rhymes, especially if they continue to encourage shows . . . where they learn and TV.

Her remarks conveyed the need for parents to have support with NRs and traditions, which was echoed by Nora Beth: “I was just kind of mimicking what they were doing on the show, which was your basic nursery rhymes.” Besides her mother reminding her, Faith Ann related that she and her son were watching a show, “and they started singing the nursery rhymes and stuff. I was like, ‘Oh, yeah! I remember that song.’” Emmie related the break in tradition, which she filled through YouTube videos of NRs: “Most of them, I don’t know. I go right to YouTube.” Lauren supported the use of technology and accessing unknown rhymes when her son received a tablet, which assisted him in “learning more nursery rhymes, even more than we think. Just because it goes to different ones even some that I haven’t known.”

**Sub-Question 2**

What are mothers’ perceptions of the ways nursery rhyme usage affects their toddlers’ language development? This question was designed to identify the ways in which the use of
NRs influences language development in toddlers. The data for Sub-Question 2 were obtained through individual interviews, journal responses, and responses within the group interview. Each of the mothers shared some aspect of NRs influencing their toddlers. Nine mothers indicated impacts on their toddlers’ language development in many of the themes. Five major themes emerged within the data when mothers related the ways in which NRs influenced their toddlers’ language development: (a) early language development; (b) teaching and learning catalyst; (c) repetition, reinforcement, and retention; (d) unique appeal; and (e) engagement and interaction.

**Early Language Development.** The first major theme for Sub-Question 2, early language development, was shared by all the mothers and all but one mother expressed concerns about language development at some point during their toddlers’ lives. Two mothers expressed current concerns about their child’s language development, one of which resulted from a head injury that led to a regression in speech (see Table 10). One was concerned about her son’s articulation for which he is receiving speech services. For the early language development major theme, two subthemes emerged concerning the impact of NR use. The subthemes drawn from the individual interviews, group interview, and journal entries were beneficial and undecided.

**Beneficial.** All but one mother expressed that their NR use was beneficial to their toddlers’ language development. Indicators of the NRs being used beneficially in developing language early in their toddlers’ lives were extracted from journal responses, group interview, and individual interviews. The early use of NRs with her toddler was related by Faith Ann:

I would say that it’s actually helped her to say more words . . . When I’m singing her songs to go to sleep, she likes to look at my mouth and see how I’m saying it or singing it
or wording it . . . I guess, it’s helped her to kind of talk more and get more of a on speaking terms or actually saying words.

Havanna shared how early on she felt “like the nursery rhymes helped maybe hearing words here and there.” She continued by stating,

I feel like it’s helped her language . . . [my daughter] talks so much better than most children her age . . . You can sit down with my 3-year-old and have an entire conversation for as long as you want to talk to her.

According to Isabella, the repetition of NRs, “I think teaches them words [because] . . . they’re more likely to repeat them if they hear them all the time.” Because her son mimicked the NRs she used, she believes “it helped teach him, taught him some words.” Bianca supported the belief that NRs “definitely helped [my daughter] learn to talk at a very early age . . . I could really understand her. I think nursery rhymes really helped [her to] learn her vocabulary.” Nora Beth related how her son has picked up words through NRs:

He’s finally starting to understand, you know, this is this word. And if I want this to happen, then I have to say this word. And a lot of that’s come just from the interactive play and repetition of the nursery rhymes.

She expanded on her beliefs, stating,

I feel like if I hadn’t have done the nursery rhymes, if . . . I would have just been talking to him, like you and me are talking right now and that’s the only vocal education that he got, . . . it wouldn’t have caught his attention.

Lauren addressed the point that her son’s “language development had definitely . . . progressed so much just from song, you know the nursery rhymes.”
Havanna attributed her daughter’s language success potentially to the use of NRs: “She started talking fairly soon, and that could be because of nursery rhymes” because she watched NR shows that “sing the different nursery rhymes. And it could be that her language is as good as it is now because of that, of course and interaction.” Kimley also attributed her daughter’s success to,

the fact that we read her so many books during that time. It helped her to . . . learn [and] get a better concept, [leading to her being] able to use words that other children her age might not . . . Reading had a lot to do with that.

Undecided. Only one mother, Mila, was undecided as to NRs being beneficial in her toddler’s early language development. Using her journal responses and individual interview, indicators of her feelings were reviewed. Her son at the time had recently turned 2 years old and “really doesn’t talk that much . . . He repeats stuff that I say, but not anything I’m reading to him.” Regarding early literacy development, Mila related:

It’s still really kind of hard to tell because he really, still doesn’t talk that much, even at 2 [years old] . . . He says a few words and like I understand him. I know what he’s talking about, but he still doesn’t really talk in sentences. And he’ll bring me books and stuff, but he doesn’t want me to read them. He just wants to look at the pictures. So, he really, still doesn’t respond too much to it.

In the group, Mila specified further concerns and indicated she felt the need to check and see if her son should “see somebody to develop more of his language skills.”

Teaching and Learning Catalyst. The second major theme for Sub-Question 2, teaching and learning catalyst, was mainly supported by nine mothers. Mila, who was previously referenced as having a son with weak language development, contributed in one of the themes.
Within the major theme there were nine subthemes determined from the mothers’ responses within the individual interviews, group interview, journal responses, and follow-up questions. The nine subthemes were alphabet, animals, body parts, life skills, literacy, manners, numbers and counting, rhyming, and NR shows. The NR table (see Appendix S) provides further information on specific rhymes mentioned and the potential theme areas in which the mothers could use them as a teaching and learning catalyst.

**Alphabet.** All but three mothers indicated the use of NRs aided in their toddlers’ alphabet knowledge in some form. Journals, individual interviews, and the group interview were examined to identify how NRs were being used to teach the alphabet. Six mothers mentioned NRs containing alphabet elements within them in their data responses. Kimley, Bianca, Faith Ann, and Amy listed NRs as useful in learning the alphabet, partly in preparation for preschool. For example, when asked what she would share with other mothers about NRs, Kimley responded,

> It also helps them learn certain aspects in life, fundamentals, to help them learn their anatomy, and how to count, and their ABCs . . . There’s so many positives to teaching your children nursery rhymes and the meanings behind those nursery rhymes.

In one of her journal responses, Lauren shared how she and her son interacted with “nursery rhymes and [how she] read him books since he was an itty-bitty baby. He has learned so much from them . . . He tries to sing some of his alphabet because we sing it over, and over again.” Nora Beth found “the educational shows my son watches has encouraged me to upkeep the nursery rhymes taught, as I have noticed he has learned so many basic concepts from these, such as the alphabet and counting.”

When asked how NRs affected her son’s development, Emmie said she felt it,
made him a little bit more eager to learn different things. Like even, when we were
learning the letter of the week, he’s singing his ABCs just to figure out what comes next.
I think he learned a lot through music.

She also shared encouragement to other mothers in offering,
examples of how music has really helped my kids learn. They [her kids] go back to their
nursery rhymes. Even the girls will still go back to some of them. ABCs is a huge one. If
they are kind of stumped on something, I’ll hear them even with their homework, ♬A, B,
C, D♬ just to figure out what comes next.

Bianca provided an additional example of NRs aiding in alphabet learning:

We were doing the alphabet the other day, . . . /a/, /a/, /a/ is for apple. We’re singing
along. And so, the next day she came in, and she actually got an apple from the fruit
basket. She came in and . . . she was like “Mom, /a/, /a/, /a/. It’s for apple,” and we were
both like, yay!

Similarly, Lauren explained how her son was learning the alphabet by singing an NR:

He does it by pictures . . . He’s still in the process of even just learning his alphabet, you
know to sing it . . . He can point at a picture, and we’ll do like for apple, we’ll do /a/, /a/,
apple.

In contrast, Nora Beth declared that she had “a lot of books that we tend to [use] . . . showing
him pictures, or we do alphabet letters or whatever it is that we are doing. Usually, it’ll be
nursery rhyme stuff.” She later shared in her individual interview that “we sing the songs, and we
do the alphabet. We do our letters and numbers and stuff like that.” When asked about surprises
when using NRs, Nora Beth shared,
The biggest one is when I recently discovered, I guess, that he actually knows the entire alphabet in order now. As far as, he doesn’t say every single letter perfectly, but you can clearly hear him say that. I didn’t know that. We were sitting in the truck one night, and he saw a letter on a board. And I just said the first letter of the alphabet. And then he said the next one. I’m like, okay. So, I said that one . . . I didn’t realize that he knew the whole thing in order at this point.

*Animals.* Several mothers related examples of using NRs with their toddlers to help them learn the names of animals and other pertinent information about the animals. These instances were shared in the journal responses, individual interviews, and questionnaires. All but two of the mothers mentioned NRs that contained animals within their data. Besides growing up in rural and farms areas, several mothers continued to reside on or near farms. One mother who continues to reside on a farm, Amy, related how her daughter at 8 to 9 months old was, already, you know, saying like little words. And it was like duck or dog and . . . that’s just like the whole “Old McDonald.” Well, she was learning what a cow was because she seen the cows and she heard it being sang [*sic*] to her. And it helped her progress on what it is and how to talk.

In addition to “Old McDonald,” Amy explained how she incorporated puppets with NRs to teach animals. Using the NR “This Little Piggy” while playing with her daughter’s toes, she would also “put these little animal things on your fingers, like a little pig or a little wolf or whatever, and you can play with them.” Once when she was using the “Old McDonald” NR, Emmie shared that her son “had lots of questions. Why does he have so many animals and things like that.” Kimley also shared how her young daughter began learning about animals:
She was about 6 months old . . . [when] we started our bedtime routine. She would sit up, and we could tell she was paying attention to all the colors and the shapes in the books. We had these little felt books and the little pop-up books that . . . she could touch. And she used to reach out and pet this one . . . It was one of the ones where every page you flipped it was a different animal, but it was sustained material. It was like this fleece type material, [it] was real[ly] soft. And she always wanted to reach out and touch that one, the ladybug page . . . The bright red with the ladybug, she loved that.

Lauren attested to how NRs led to her son’s knowledge of animals: “I have sang [sic] him nursery rhymes and read him books since he was an itty-bitty baby. He has learned so much from them. He has learned animals and their sounds.” Bianca also expressed how NRs supported her daughter’s language development of animals in both the journal responses and in her individual interview. She communicated how she has “utilized them more when it comes to teaching the children. It is very easy to relate when it comes to learning,” leading to her increased NR use with her toddler, her third child, in comparison to her first and second children. In her journal response, Bianca shared that NRs were a valuable learning tool: “Songs such as nursery rhymes helped her learn animals.” Although they were not mentioned specifically with learning animals, Havanna, Mila, and Nora Beth all mentioned NRs containing animals (see Appendix S).

**Body Parts.** The mothers also indicated their NR use was beneficial in identifying parts of the body. Half of the mothers related information about NRs being used in some connection with their toddlers learning anatomy. Six mothers mentioned NRs that are typically used for teaching parts of the human body (see Appendix S). Using the individual interviews, journal responses, group interview, and the questionnaire, information was gleaned on this theme.
Two of the frequently mentioned NRs used in teaching body parts were “Head, Shoulders, Knees, and Toes” and following the same tune and format was “Eyes, Ears, Mouth, and Nose.” Bianca, Kimley, Lauren, and Nora Beth indicated they used the former. Amy and Nora Beth mentioned the latter. Amy related how she used the NR during bath time with her daughter. Kimley shared her experience with her daughter using “Head, Shoulders, Knees, and Toes:”

When we taught her the “Head, Shoulders, Knees, and Toes” song, it was like an epiphany. I can remember the first time we were playing that song. We were in the car. It came on the little toddler station we play. And she was in the backseat in her car seat, and I was doing the hand movements with like one of my hands, and I was trying to show her my toes. And so instead, I was reaching back there and grabbing her toes. And so, then she starts trying to grab my toes . . . That’s when that really kicked off the learning the “Eyes and Ears and Mouth and Nose.”

This transitioned into a game of “stealing” body parts. Nora Beth continued, “She would come up to me and she would say, ‘Got your nose!’ And she stole my nose . . . Then we started the stealing the ears and that definitely kickstarted our whole-body part learning lessons that was fun.” Bianca spoke of fingers and toes using NRs with,

“This Little Piggy” went to market, learning little toes [and] fingers. Like when you’re doing interactments [sic], and you’re watching movement with their head and eyes. You know, you can do like the “Where is Thumbkin, where is Thumbkin, here I am” And you could make sure like her head and eye movement are on track.

She continued and shared a list of the NRs she and the family used to teach her daughter body parts: “‘Where is Thumbkin,’ ‘This Little Piggy,’ [and] ‘Head, Shoulders, Knees, and Toes,’ we
all incorporated these in learning [and] helping my daughter learn her body parts and correctly identifying them.”

A few mothers presented some NRs they and their toddlers picked up from shows that contain body parts. Amy shared how her daughter uses the “Brush Your Teeth” NR, which she sang a part of: “Brush your teeth high, brush your teeth low.” My daughter loves that one.” Havanna also stated the “Brush Your Teeth” NR was one they used. She also spoke of how they use a couple more NR songs, stating, if “we’re washing our hands, we would sing [the] washing your hands song. If we were taking a bath, we would sing the taking a bath song.”

Life Skills. As a teaching and learning catalyst, the mothers declared NRs played an important role in instilling important life skills within their toddlers. More than half of the mothers related some life skill area influenced by NRs. Using the individual interviews, group interview, questionnaires, and the mothers’ journal response data, several life skills were determined. Kimley explained,

I’m going to compare here. When we listen to the Frozen soundtrack, my daughter learns nothing other than how to sing a beautiful song. When we teach her a nursery rhyme, and we sing it, or we read it, . . . she’s learning a life skill . . . That is so much more important in the early stages than just singing a song to sing and have fun. And yes, while those are good, nursery rhymes are so much more. They provide so much more sustenance than any other song or that some other books would provide.

She continued in what she would share with other mothers: “Nursery rhymes are important because . . . they’re more excited about learning and reading . . . when you read to them often. But it also helps them [to] learn certain aspects in life, [the] fundamentals.”
Havanna disclosed how the NRs from shows aided in her toddler’s life skills through “the singing of nursery rhymes, because it did teach the kids to wash your hands, brush your teeth, pick up after yourself, be kind to others, you know, important life lessons and skills.” Bianca termed these as “situations” in her toddler’s life and listed emotions and manners as additional skills conveyed through NRs to her daughter.

For several of the mothers, potty training was a life skill with which NRs were most useful. Amy developed her own NR to assist in reinforcing potty training skills: “I kinda made up my own nursery rhymes. So, [it goes] like, “Oooh! You pooped in the potty. Go girl, girl! Get it, girl.” Faith Ann used books to help her daughter during potty training time. Bianca described the connective moment during her daughter’s potty training, stating when, we actually did a thing in the potty, . . . and we clicked in that moment. It was a[n] excitement [with a] rush of adrenaline. We’re dancing, celebrating in that moment . . . that connection has been like, a major learning [and] educational factor in their life.

Faith Ann conveyed how NRs assisted with her daughter learning the life skill of how to go to sleep. After having previous difficulty, Faith Ann said her daughter now “falls asleep in a heartbeat” with the NRs. Emmie shared how she used NRs while pregnant and with her infant son as a learning tool to assist her son in falling asleep. She shared further as he aged into toddlerhood, “He knows them [NR]. Sometimes when he is falling asleep, I can hear him doing them.”

Learning to clean-up was another area shared by the mothers. In her questionnaire, Amy listed the “Clean-Up Song” as one of several simple songs she used with her daughter. In the group interview, Bianca shared how she connected with her daughter in milestone moments. One
of these moments was learning to clean-up her bedroom. Along with the “Brush Your Teeth” and “Hand Washing Song,” Havanna related that her daughter also learned the “Clean-Up Song.”

**Literacy.** All but one of the mothers shared how NRs were involved in literacy development. These times were conveyed through the data within the individual interviews and journals. The majority of these occurrences involved books and reading aloud to their toddlers. All the mothers in the follow-up questionnaire listed that they owned NR books for their children. Over half of the mothers owned more than 10 NR books. Although literacy is made up of numerous components, many were covered by the mothers and shared in other themes, such as language development, alphabet, and PA. Therefore, the focus of the literacy theme centers on literacy behaviors and the teaching and learning involving NR books.

Many of the mothers began reading to their toddlers while pregnant. Besides talking and singing to her daughter when she was pregnant, Amy began reading to her about halfway through her pregnancy: “I started probably around when I was around 26 weeks throughout.” Mila followed the same process with her son, but her husband was also involved: “[We] talk[ed] to him and [would] sing to him and read all kinds of stuff. Whatever we could think of. We just wanted him to hear us.” Mila later added that the books they read to their son were ones they had received at his baby shower, which were requested instead of cards. Nora Beth read aloud each night from her Bible when she was pregnant with her son.

Once Lauren received her son, she immediately began reading to him: “I have sang [sic] my son nursery rhymes and read him books since he was an itty-bitty baby.” Kimley opted to only use NR songs after the birth of her daughter, but she started reading to her daughter at 6 months old. In her journal she noted, “We mostly sang to our daughter, but when she hit about 6
months, we started to read to her almost every night and then sing her to sleep.” Kimley explained in the individual interview how this occurred:

We didn’t really start reading her a bunch of books until she was about 6 months old . . . 

[when] we started our bedtime routine, she would sit up, and we could tell she was paying attention to all the colors and . . . books.

Kimley later added that “we read a lot of the Golden Books.” A few months later than Kimley, but following the same pattern, Isabella began reading to her 9-month-old daughter:

I always sing nursery rhymes, even if I rock them to sleep at night, or whenever we were just home, you know. But as far as like reading stories, I would say closer to maybe 9 months when he could be more interactive and interested.

Isabella elaborated on the process and how it took place: “If you’re reading the picture, and you point to it every time, they’re more likely to repeat it and be able to recognize that this word goes with this picture or this item.”

By the time the toddlers reached the age of 2 years old, the mothers began noting behavioral changes when reading. Amy related how her daughter exhibited these reading behaviors: “When she sees the book, like when I read her [the] book, she tries to put her finger on the words, and she’ll mumble things.” Lauren noted the use of illustrations by her toddler at about 24 months old: “He does it by picture. He can definitely tell you just about, you know, most pictures what it is.”

Kimley provided details on the complexity of the books as her toddler aged: “Aside from just the short little cardboard books that you know, had like two or three sentences on each page, . . . We started reading her a lot more complex books.” She elaborated and provided an example of the books used with her daughter at 36 months of age: “We have started reading her the Dr.
Seuss books, which I feel are definitely another level up from what we had been reading.”

Kimley related how they have aided her daughter’s literacy skills: “She definitely knows what’s going to happen next . . . Once we’ve read our book once or twice, she’s got it . . . she knows the story.” Nora Beth clarified why she used NR books as the chosen reading material with her son:

“A lot of the books that we tend to, when I do sit down or [are] showing him pictures . . . Usually, it’ll be nursery rhyme stuff because those are the things that stick with him.” This point was supported by Kimley, who stated, “they provide so much more sustenance than any other song or that some other books would provide.”

Another advancement seen by Havanna was who initiates the reading:

We’ve always read to them. But . . . at first when they’re younger, it’s your idea to read.

And then as they get older, then it becomes their idea to read. She’s just now into the stage where now she wants you to read like, it’s her idea.

Kimley’s daughter exhibited the behaviors described by Havanna: “Sometimes, she’ll bring me a book whenever we’re around. You know, if I’m cooking dinner or after we’ve sat down to eat, and we’re done eating. She’ll bring me a book and want me to read it to her.” In sharing about her son’s behaviors and her concerns, Mila related, “He’ll bring me books and stuff, but he doesn’t want me to read them. He just wants to look at the pictures. So, he really still doesn’t respond too much to it.” When asked about the formats of NRs, Lauren spoke of the NRs being books and how “we don’t have no specific time. He just loves to read books. Just whenever, he’ll bring me a book and ask me to read it to him.”

**Manners.** Half of the mothers indicated they used NRs in teaching their toddlers manners. Using the journal responses and individual interviews, instances in which NRs were indicated as involving manners were located. Kimley related she would share with other mothers
how NRs teach her toddler “how to socialize with other children, how to socialize with adults, [and] how it teaches them manners.” In her journal response, Kimley expanded on how the NR songs and books were used to teach and learn “how to be a good friend and show compassion to others.” Havanna added to this with how the NRs not only “teach you life skills, but also sweet little things like being good to your brother and sister and listening to your parents and stuff like that.” She later added that the NR shows with the singing of NRs “did teach the kids to wash your hands, brush your teeth, pick up after yourself, [and] be kind to others.” Bianca and Lauren both specified in their journal responses how NRs helped their toddlers learn manners.

Bianca listed eight areas where NRs aided her daughter’s learning, some of which were situations, emotions, and manners. She discussed how NRs are diverse: “It can be a broad spectrum. It can be down from just rhyming silly, comical songs, all the way down to manners, situation, you know, in general learning aspects.” Bianca stressed that “there’s a lot of nursery rhymes about manners.” Faith Ann expanded upon the impact of NRs teaching manners: “It helps them to, I guess, build a personality off those nursery rhymes, because every child is different.”

**Numbers and Counting.** Six mothers revealed numbers and counting were part of their NR use with their toddlers. Individual interviews, the group interview, journal responses, and the questionnaires were used in identifying the use of NRs to teach and learn numbers and counting. Four of the mothers listed NR songs that include numbers or counting (see Appendix S). An example of a counting NR was expressed by Emmie. As her son aged, “he was able to memorize a little bit more. Instead of you know, like simple ‘Twinkle, Twinkle, [Little Star],’ he started doing ‘Five Little Ducks,’” which requires counting backwards from five.
Six mothers listed in their journals that they used NRs in teaching and learning time with their toddlers concerning numbers and counting. Bianca shared how “songs, such as nursery rhymes helped her learn animals, body parts, situations, and manners” as a toddler. Amy conveyed in her questionnaire the use of the “Number Song” NR and the use of technology, where she specifically listed learning numbers. In her individual interview, Amy expressed how her daughter applied the teaching and learning that occurred:

As she got older, there was new things that she needed to know . . . Putting her socks on, her shoes on the left or the right. Her fingers, how many fingers does she have, instead of them just being fingers.

As a further example, Amy disclosed how her daughter gathered acorns, and “she’ll count them . . . one, two, three, four, five. When she gets to five, she goes to mumbling.” Nora Beth elaborated on her son’s application. Along with NR shows, her son “loves his blocks, and he loves his little foam number that I have [for] him. And he will just say those over and over and over again.”

Bianca imparted how she “utilized them [NRs] a lot more when it comes to teaching the children. It’s very easy to relate when it comes to . . . letters [and] numbers.” This was supported by Kimley when she was asked what she would share with other mothers about NRs: “It also helps them learn certain aspects in life, fundamentals, . . . and how to count and their ABCs.” Nora Beth communicated a recent development of her son: “He’s recently started counting to 10 all his own. He just started to do that. He just threw his fingers up, 1, 2, 3.” Earlier in her interview, Nora Beth disclosed that her son “at 2 years old, he can say his whole alphabet in order and count to 10,” which she attributed to sitting down and singing songs, doing letters and numbers, and NR shows. Bianca recognized how her daughter was “able to pick up on things
faster because she wanted to be involved. . . Nursery rhymes helped her [to] learn words, letters, and numbers according to certain songs.”

**Rhyming.** Only two mothers directly identified the concept of rhyming in connection with the teaching and learning involved with NRs. Both mothers spoke about rhyming within their individual interviews. Bianca related the aspect of rhyming in teaching and learning with NRs while listing concepts she taught her children. She said “it’s very easy to relate then to what [you are teaching], like learning body parts, animals, learning how to rhyme” when using NRs. Isabella identified her beliefs on teaching and learning with NRs when asked to share about NRs with new mothers: “I think it teaches them how, like some of them how you rhyme, rhyming words . . . It just teaches them the repetition and teaches them language, words.”

**Nursery Rhyme Shows.** All the mothers conveyed their experiences with their toddlers using NR shows as a teaching and learning catalyst. These data were brought forth through individual interviews, the group interview, journals, questionnaires, and follow-up questions (see Appendices O, P, Q, & R). Each of the mothers indicated some use of NR shows. The shows were introduced in several formats and delivered through several platforms, as seen in the number of hours the toddlers were using screen media (see Figure 16). Most of the toddlers’ viewing time was with television, which made up 2.5 hours per day on average, plus an additional 30 minutes of tablet time.
Amy first indicated the use of NR shows when asked about the delivery format of the NRs she opted to use with her daughter. She related that her daughter liked CoComelon. Amy described the show as “2 hours of nothing but nursery rhymes. . . They’ll sing like ‘brush your teeth high, brush your teeth low’.” Lauren described the show as “basically nursery rhyme after nursery rhyme after nursery rhyme.” Kimley explained that in CoComelon, “They sing a lot of the traditional songs like the Mother Goose and ‘The Itsy, Bitsy Spider,’ ‘Twinkle, Twinkle Little Star,’ all of those.” Both Lauren and Kimley related how their toddlers loved the show. Lauren shared how she believes it is “what taught her [daughter] most of the traditional nursery rhymes.” Using the follow-up questions, eight mothers indicated their toddlers watched the show CoComelon using mainly Netflix, with a few listing YouTube as the means of viewing the show.
Havanna, the fifth mother interviewed, brought attention to the show *Little Baby Bum.* She related that,

when she was little and I was at work, she did watch a lot of Baby Bum . . . All they do is sing the different . . . nursery rhymes. And it could be that her language . . . [and] her speech is as good as it is now because of that . . . and interaction.

In her journal, Havanna explained, “Baby Bum & the ability to come to work with me every day gives her the opportunity to interact with all sorts of people from different backgrounds throughout the day, day to day.” In the group interview, she explained how she incorporated *Little Baby Bum* into her daughter’s teaching and learning at certain times:

It would depend on what time of the day it was, where our location was, how busy I was with the task at hand. If I’m cooking supper or taking a shower, you know she would be watching Baby Bum, or if I got real[ly] busy at work . . . then she would watch Baby Bum . . . If she was intent with it, you know I would leave it on in between clients.

Besides spending one-on-one time with their children, Havanna explained that she would relate to other mothers that she “swear[s] by the Baby Bum, the singing of nursery rhymes, because it did teach the kids to wash your hands, brush your teeth, pick up after yourself, be kind to others, [and] important life lessons and skills.” When Faith Ann was concerned about her daughter not talking after she turned a year old, she began using *Little Baby Bum*:

I started playing more of the Baby Bum, and I started taking more time out for her to actually see it and be able to watch it. And I started playing with her and singing with her . . . do[ing] little dances to it and try[ing] to get her to mouth the words . . . Finally, . . . it’s actually helping her to, you know, talk, and I guess enjoy music more.
Faith Ann explained how *Little Baby Bum* complemented what she was already doing with her child: “The ones that are like at nighttime, there’s the ones on the Baby Bum that play those four main songs that I usually used to sing to her, and she falls asleep in a heartbeat.” Nora Beth’s statements supported the connection between what she as a mother was doing and the NR show. She expressed how at 6 to 8 months she began watching *Little Baby Bum* with her son:

He watched that show along with me, just playing . . . “Pat-a-Cake” [and] “If You’re Happy and You Know It” . . . doing different things where he can clap and interact. And I noticed the show did a lot of that too.

Nora Beth stated her son’s most valuable teaching and learning tool was “educational videos, such as *Little Baby Bum* and *Brain Candy TV* have taught him more than I can imagine. Through bright colors, fun songs, consistent repetition, and educational concepts, including nursery rhyme stories, he is consistently learning new things.” In the follow-up questions, eight of the 10 mothers indicated their toddlers watched *Little Baby Bum* as a teaching and learning element, which was delivered mainly through Netflix followed by YouTube and Prime Video.

Lauren was the first and only mother to report the use of the show *Blippi* in the individual interview, journal responses, or the group interview. In her only mention of *Blippi*, she related in her journal that,

his most valuable learning tool, I am sad to say is his tablet. He watches learning videos on it. He watches *Blippi*, who teaches him stuff in the real world. He watches *CoComelon*, which teaches all kinds of nursery rhymes.

Though it was the only response, the follow-up questions elicited that four mothers incorporated *Blippi* into their teaching and learning with their toddlers using NRs. The means of viewing the show was through YouTube. Two mothers used Netflix as well to see the show.
Two mothers mentioned *Word Party* in the questionnaire as a frequently viewed NR show. Mila stated her son “watched nothing specific, mostly shows like *Word Party.*” Lauren remarked that her son frequently watched *Word Party* along with *CoComelon* and *Little Baby Bum.* Follow-up questions elicited a total of four mothers who used *Word Party* in their teaching and learning experiences with NRs. The primary vehicle for doing so was YouTube, with one mother using Netflix.

**Repetition, Reinforcement, and Retention.** The third major theme for the second sub-question regarding language development, the use of repetition, reinforcement, and retention, was articulated by all the mothers in their individual interviews, group interview, and journal responses. NRs were revealed to be used over and over again in various formats to increase their toddlers’ learning. This was reinforced through the extended usage of NRs, the incorporation of other formats of NRs, or extending the teaching and learning opportunities. The retention of NR learning was related by the mothers and often viewed as celebratory moments.

**Repetition.** All the mothers voiced some type of repetitive behaviors in their toddlers’ early language development while using NRs. The data for repetition were found within the mothers’ individual interviews, group interview, and journals. The repetitive behaviors of the mothers began before birth and carried through to the data collection date for language learning with NRs. The toddlers also demonstrated repetitive language behaviors with age.

Amy first discussed repetitive behaviors when she related how she “talked to her all the time. I sang to her. I read her books” while she was pregnant. Nora Beth strengthened the perception, stating, “I would just kind of sing to him, and I would read . . . my Bible at night and I’d read . . . out loud so he could kind of hear my voice.” Faith Ann offered additional support to the repetitive behaviors of the mothers: “I talked to her while she was in my belly, . . . rub my
belly, . . . talk to her, and I’d sing.” In her journal, Faith Ann specified that she “sung her
[daughter] nursery rhymes before she was born and after. It’s usually at home and it is every
night.” Mila shared her reasoning behind her actions while pregnant. She said she would “talk to
him and sing to him and read all kinds of stuff. Whatever we could think of. We just wanted him
to hear us.”

After their children were born, many of the mothers continued the repetitive behaviors.
Emmie used NRs while pregnant and continued to use the same ones after her son was born:
“It’s just lullabies, a nap time thing. That’s what I later played for him while he was trying to
calm down as a baby.” Bianca described her behaviors after bringing her daughter home, which
picked up on her earlier singing behavior while in utero:

Utilizing nursery rhymes began . . . in those first . . . [post]natal weeks because . . . you’re
singing it to your baby, “Rock-A-Bye Baby.” You’re holding, . . . cuddling, [and] you’re
singing “Twinkle, Twinkle, Little Star.” They’re finding that comfort in your voice.

Isabella related how her repetitive behaviors transpired when she brought her son home, stating,
“I always sing nursery rhymes, even if I rock them to sleep at night, or whenever we were just
home.” Nora Beth described in her individual interview how the repetitive behaviors changed
into a routine for language teaching and learning: “Every night I would go in there up until about
6 months, and he had a little nightly Bible thing that I would read to him, which he was not a
good sleeper. So, I was up a lot.” She also shared a special NR from her own childhood: “That’s
what she [her mother] always sang to me, and I sing it to my kids now . . . to calm them.” Even
though Faith Ann continued the same behaviors from pregnancy, her daughter,
didn’t really take to the nursery rhymes that well when she first was born. It took her until she was about 4 or 5 months to really know when I was rocking her to sleep for the singing of the lullabies to actually help her to fall asleep.

In her journal, Amy revealed there were around six NRs she would sing to her daughter at bedtime.

Some of the mothers’ repetitive behaviors regarding teaching and learning began when their child was brought home. Lauren was an adoptive mother, which naturally imposed the initiation of repetitive behaviors directly to this time frame, rather than in utero period. She shared that her son was 2 months old when she became his mother. Lauren related that at that time, “We set and sang nursery rhymes constantly throughout the day.” She also shared the nighttime routine she imposed: “We’ve sang ‘You Are My Sunshine’ almost every night since I’ve had him.” Kimley supported the development of a nighttime routine for the first few months, which later evolved: “Most of the time, we were singing songs up until then. I would just rock her to sleep singing, while she drank a bottle.”

By the time their children reached the age of 6 months, some mothers adapted their repetitive behaviors and routines in teaching and learning language. Instead of just singing, Kimley revealed,

we didn’t really start reading her a bunch of books until she was about 6 months old . . . We started our bedtime routine [where] she would sit up, and we could tell she was paying attention to all the colors and the shapes . . . We had these little felt books through the little pop-up books . . . They had things that . . . she could touch, and she used to reach out and pet this one.
Bianca noted adaptations with age to the repetition. As Bianca’s daughter “got older when . . . it came to learning you know, you’re singing to them in the bath, the ‘Rub-a-Dub-Dub’ song, ‘Splish, Splash I was Taking a Bath.’” In her journal, Mila wrote, “We read to our son at bedtime. I will read three or four stories from one or two books until he is falling asleep.” Lauren reinforced the repetitive nature in relaying how she sang NRs to her son and “read him books since he was an itty-bitty baby.” Isabella clarified the age change in repetitive behaviors for early language development, noting, “as far as like reading stories, I would say closer to maybe 9 months when he could be more interactive and interested.”

Another difference was expressed by Nora Beth in how the repetitive behaviors were adapted in teaching and learning language:

At 6 to 8 months, he started . . . watching a little show called *Little Baby Bum* . . . He watched that show along with me just playing . . . “Pat-a-Cake” with him and . . . “If You’re Happy and You Know It,” . . . doing different things where he can clap and interact. And I noticed . . . the show did a lot of that too. So, all of that really, just started engaging him for about 6 months on to about 12 months.

When her daughter was around the same age, Faith Ann identified how she incorporated the adaptations with the repetitive behaviors using NR shows in teaching and learning language: “I would have her on my lap, playing with her, moving her arms, moving her hands, touching her feet, [to] try and get her little senses up . . . while she was watching it and singing to her.” Nora Beth and Faith Ann’s statements were supported and extended by Bianca’s revelation that she “would say initially, first it was just interactment [*sic*] between parent and child; and I think as she got older, from one [year] to where she is at 3 years now, we’ve incorporated more video learning with the songs.” Faith Ann substantiated adapting with her daughter. She shared her
thought processes at that time: “She’s over a year [old], and she’s not talking, maybe she’s just being lazy.” In response to those thoughts, Faith Ann said she,

started playing more of the Baby Bum. And I started taking more time out for her to actually see it and be able to watch it . . . I started playing with her and singing with her . . . doing little dances to it and try[ing] to get her to mouth the words . . . Finally, . . . it’s actually helping her to, you know, talk and I guess enjoy music more.

In contrast, as her son grew, Mila found she “could tell when it was bedtime that like he enjoyed us reading him a story instead of just you know, putting him to bed. But other than that, he really didn’t interact with it too much.” In a similar form, Havanna conveyed, “I would say she probably didn’t have much in the first 12 months, as far as like interaction to it . . . [She’d] clap her hands to music [and] . . . bob her head,” relating her lack of interaction to music. Once her daughter reached the age of 3 years old, Havanna identified her daughter as “into . . . singing them now [NRs] . . . She sings all the time.”

The mothers indicated their toddlers performed repetitive behaviors in their NR use and language learning. Lauren described how her son and his friend love music: “They will sit there and do nursery rhyme after nursery rhyme or song after song, and they love it.” Nora Beth reported how her son “loves his little foam numbers that I have for him, and he will just say those over, and over, and over again to himself.”

The mothers also chronicled the repetition of the NRs in general, regardless of the age of their toddlers, as important in language development. Lauren stated her son “started out language development pretty young, I guess from all . . . [the] reading . . . We would do your nose and stuff. We would sit there and do it over, and over again.” She further hypothesized that his
language development “has progressed so much just from . . . the nursery rhymes, . . . repeating it over, and over again.” Amy touched on the reasoning behind her repetition.

As I keep doing the rhymes . . . singing and the reading, it helps her brain figure out,

“Well, Momma has done read it to me . . . 12 times or 1,000 times. Well, I already know.” So, she can go ahead and say the word, . . . she knows it. It sticks with her.

Kimley expanded the point further when relating about her daughter’s language development:

Once she grasped hold of a word, she could say it so well and so clear. She understood the meaning of it. I feel like the fact that we read her so many books during that time, it helped her to . . . learn [and] get a better concept.

Nora Beth recounted the tediousness of repetition in teaching and learning language:

They might seem . . . small, and it might get tiresome reading the same ones over and over, and over again, as I have done for the past year and a half. But they are soaking up more from those things than you could possibly imagine.

Reinforcement. Eight of the 10 mothers indicated the use of reinforcement in their teaching and learning of language. The individual interviews and journals were the data sources that contained the reinforcement data on the mothers’ involvement in language development.

The reinforcement of learning in language development occurred throughout the day and became part of the toddlers’ nightly routines.

Lauren communicated how her son’s language increased through the reinforcement of movement to where,

he can definitely sing them with me now, and he’ll like sing them on his own or just even say them. Some of them . . . have motions you do with them, and . . . he’ll do that.
As an example, she shared, “His favorite is probably ‘The Wheels on the Bus’ . . . to sing and you know do motions.” Kimley also disclosed an example of how movement reinforced a learning experience with NRs:

When we taught her the “Head, Shoulders, Knees, and Toes” song, it was like an epiphany . . . The first time we were playing that song, we were in the car. It came on the little toddler station we play. She was in the backseat in her car seat. I was doing the hand movements with like one of my hands, and I was trying to show her my toes . . . Instead, I was reaching back there and grabbing her toes . . . She starts trying to grab my toes, and I’m like, “Oh, you can’t reach my toes!”

Kimley revealed further language learning that followed this incident, which was reinforced with movement in a game format:

That’s when that really kicked off the learning the “Eyes and Ears and Mouth and Nose” . . . She would come up to me and she would say, “Got your nose!” And she stole my nose. We’d go back and forth with that for a while. Then we started the stealing the ears . . . That definitely kickstarted our whole-body part learning lessons that was fun. She got interested really quick.

Nora Beth described how she discovered her son knew how to count:

He’s recently started counting to 10 all [on] his own. He just started to do that. He just threw his fingers up, “One, two, three.” . . . All of a sudden, he comes out of nowhere with this stuff.

Technology also was involved in reinforcing language teaching and learning with NRs.

Nora Beth combined movement and technology in reinforcing her teaching and language learning experiences with her son:
He watched that show along with me just playing . . . “Pat-a-Cake” [and] “If You’re Happy and You Know It” . . . doing different things where he can clap and interact, and . . . the show did a lot of that too.

When her son received a tablet for his second birthday, Lauren found the use of technology reinforced and brought new learning in the form of NRs: “Technology has even helped him improve learning . . . [through] learning more nursery rhymes, even more than we think . . . because it goes to different ones, even some that I haven’t known.” Nora Beth listed in her journal the factors within the NR shows that fostered the reinforcement of language learning:

“Through bright colors, fun songs, consistent repetition, and educational concepts, including nursery rhyme stories, he is consistently learning new things.”

In contrast, Faith Ann related how her singing NRs to help her daughter fall asleep assisted in reinforcing NR learning with technology:

She’s gotten more to where she wants to sit down and listen to the songs and actually pay attention to them . . . The ones that are like at nighttime, there’s the ones on the Baby Bum that play those four main songs that I . . . sing to her, and she falls asleep in a heartbeat.

Faith Ann clarified how using the NRs has translated into language learning for her daughter.

It’s actually helped her to say more words . . . When I’m singing her songs to go to sleep, she likes to look at my mouth and see how I’m saying it, or singing it, or wording it . . . I guess it’s helped her to kind of talk more and get more . . . speaking terms or actually saying words.
Reinforcing the nightly use of NRs, Faith Ann carried the nightly language learning experience with the NRs to the daytime where she reinforced NR use and language experiences with her daughter:

I was holding her, letting her watch little nursery rhymes, and singing them to her while the TV was playing them. I was trying to get her to . . . come to the realization: “Oh, I can feel this,” or “Oh, that’s cool, I have these things,” . . . “Maybe I can do that,” or “Maybe I can say that.”

Several of the mothers described how having conversations reinforced language learning with their toddlers. Nora Beth revealed how “we converse with him normally throughout the day . . . We often use nursery rhyme stories and songs to engage him.” In her journal, Nora Beth shared her reasoning for using the shows, focused learning studies, and conversations to reinforce her son’s language learning: “We chose this as we felt that this consistency and repetition would help him to grasp and retain the concepts.” Isabella noted the reinforcing behaviors of language learning. She shared her beliefs concerning NRs, stating, “I feel as if nursery rhymes are songs that repeat words. This teaches your child beginning language . . . just talking to them and getting them to repeat stuff helps them learn words.”

Emmie imparted how her son’s language learning was reinforced through his older siblings. In her journal, Emmie noted “my son has always watched and followed them.” She also conveyed that her toddler’s most valuable learning tool was “mimicking. He has two older sisters and has always watched them. He repeats everything they do.” In her individual interview, Emmie expressed,
music has really helped my kids learn. They go back to their nursery rhymes. Even the girls will still go back to some of them. ABC is a huge one . . . I’ll hear them even with their homework ♪A, B, C, D♪ just to figure out what comes next.

She later shared how her toddler had picked up on his siblings’ behavior with the ABC NRs: “When we were learning the letter of the week, he’s singing his ABCs just to figure out what comes next.” Isabella also related that older siblings were a valuable language learning tool: “His older siblings have been a big help in him learning. He will try and do and copy what they are saying.” In a journal entry, Havanna noted her toddler has “two older siblings that have always played with and incorporated her into whatever they were doing. I think constant interaction with my daughter’s siblings and [the] public has influenced greatly her communication (language) skills.” As a distinction, Mila shared in her journal, “We are hardly ever around other children. I believe it made a huge difference in him when he started interacting with other children” by placing him in daycare. In another journal response Mila noted, “My son recently started going to daycare, and I believe it has had a huge impact on his development with speech. He wasn’t talking at all before he started.”

Retention. The retention of language by the toddlers was voiced by all but one of the mothers. The individual interviews and journals produced the data for the toddlers’ retention of learning. NRs were involved in much of what the mothers shared about their toddlers’ retention of language.

Amy conveyed how her daughter retained NR language learning at approximately 9 months old. She said her daughter was saying “little words . . . like duck or dog . . . that’s just like the whole ‘Old McDonald’” NR. She later described her retentive behaviors through singing and reading:
It helps her brain figure out, “Well, Momma has done read it to me . . . 1,000 times. Well, I already know [it].” So, she can go ahead and say the word, and she knows it. It sticks with her.

Supporting Amy’s thoughts, Kimley imparted how her daughter retained so much language:

Once she grasped hold of a word, she could say it so well and so clear. She understood the meaning of it. I feel like the fact that we read her so many books during that time, it helped her to . . . learn [and] get a better concept.

At a young age, Lauren’s son was able to identify body parts. He could “point to them and say what it was at a very young age, just from, I guess . . . repeating” the NR songs. Nora Beth related how at 2 years old, her son “can say his whole alphabet in order and count to 10,” which she attributed to “all those nursery rhymes and songs that he does.” Bianca also imparted how her daughter retained learning and could “pretty much sing a whole song, and pretty much understand what the song relates to.” In her journal, Bianca listed eight learning categories where her daughter retained learning: “Nursery rhymes helped her learn . . . animals, body parts, letters, numbers, situations, comedy/being funny, manners, [and] emotions.”

Many of the mothers connected retention and memory with NR learning. Nora Beth found the NRs helped in her son’s learning because “it’ll be the nursery rhymes stuff because those are the things that stick with him.” In her language learning system for her son, Nora Beth specified that she “chose this as we felt that this consistency and repetition would help him to grasp and retain the concepts he needed.” Bianca found language learning through NRs, ends to help your child perhaps think a little better . . . If you’re able to relate it in a nursery rhyme, make it fun . . . and comical, . . . children hold on to it a little better and memorize it better.
In a journal entry, Bianca shared that the NRs assisted her daughter’s memory: “It also is a[n] excellent way for them to remember it. Making it fun engages my 3-year-old, plus [it] utilizes that memory so it sticks, and she can revert back to that.” Isabella stated regarding her son’s language learning that “if you repeat something over and over, your brain will, like click and will remember and help his memory.” Emmie shared what she feels is a myth people have about NRs:

I think a lot of people just think they’re just silly nursery rhymes . . . I don’t think they really understand that that is kind of the basis of how children learn. What they learn at that age sticks with them, and they compare it to other things later on.

**Unique Appeal.** The fourth major theme for Sub-Question 2 regarding the development of language in their toddlers was the unique appeal of the NRs. All but one of the mothers indicated some aspect of the unique appeal of NRs with their toddlers. The majority of the data were obtained through the individual interviews. A couple of responses were located within the journals and one response was acquired in the group interview. There were three subthemes for the unique appeal theme: catchy and sticking, incorporating actions and fun, and building vocabulary and strengthening mental abilities.

**Catchy and Sticking.** The mothers identified a uniqueness of the NRs as being “catchy.” Nora Beth described how they would pull her son’s attention:

Those nursery rhymes, just the repetition and the little jingles and stuff like that, that’s what catches his attention . . . Sometimes, it’s hard to catch his attention. But that will catch his attention. So, I feel like that’s . . . made a world of difference, all those nursery rhymes and songs that he does.
Nora Beth expanded on the catchiness of the NRs later on: “The nursery rhymes, just the catchiness and the rhythm and the music and all the stuff that goes with that.” Isabella shared her thoughts on NRs in her individual interview: “I think it teaches . . . some of them how you rhyme, rhyming words . . . they make it catchy.”

Nora Beth described the NRs as, “It’s just the repetition in the songs, especially that go with it [that] really make it stick in your head.” She continued in her explanation of her son’s NR use, stating, “It’ll be nursery rhyme stuff, because those are the things that stick with him.”

Emmie thought “it just makes it more memorable, and it just makes the information stick a little bit more” when she was asked about NRs. Earlier she advised that “what they learn at that age sticks with them, and they compare it to other things later on.”

**Incorporating Actions and Fun.** Many of the mothers reported the use of actions and the element of fun made the NRs unique and appealing to their toddlers. Faith Ann highlighted the unique appeal and the incorporation of actions. She described how her daughter as she aged began to favor the NR music and shows over the singing she did. Faith Ann disclosed,

> It was the same song of course. There’s the nursery rhymes, and they just kind of put little beats to them. But . . . it had more of a, I guess, a beat in a song and [a] little tune to it. That way . . . she could kind of be like, “Ooh!” . . . She likes dancing and moving around. So, it kind of caught her attention more.

Nora Beth also found language learning using NRs that held unique appeal. She expressed how “they’re catchy and they’re repetitive, and they call for action. Those are the things that stick with my son.” In one of her journal responses, Nora Beth related that “nursery rhymes are used at home, during travel, and at [his] grandparents’ homes on a daily basis. These were delivered mostly through song, as that is his preference, but sometimes through ‘active’ story play as
well.” She also articulated the language learning accomplished by her son that she attributed to NRs through “the interactive play and repetition of the nursery rhymes and the educational time we have set aside [for] . . . learning certain things.” Isabella related the details of how she transitioned to using NR shows and how she incorporated actions into that:

I would have her on my lap, playing with her moving her arms, moving her hands, touching her feet, try[ing] . . . to get her little senses up and everything while she was watching it and singing to her.

When asked what she would share with other mothers, Bianca stressed the need to incorporate actions and “to definitely interact using nursery rhymes a lot with your children.” She continued to discuss language learning, stating, “If you are able to relate it in a nursery rhyme [and] make it fun and comical, the children hold on to it a little better and memorize it better.”

Making learning fun was related many times by the mothers. When asked what it was that pulls toddlers into NRs, Faith Ann responded with the importance of bonding and one-on-one time,

but it’s also . . . keeping it kind of fun for them. Because it’s not just sitting there, you know, loving on each other. It’s sitting there and you’re singing. [For example,] . . . the “Pat-a-Cake” song, you’re actually doing stuff with them, and it’s fun for them at any age, honestly.

Amy felt it was “because it’s exciting.” Lauren also related to the excitement aspect. When comparing activities with actions and fun, she felt there would “be more interaction between us . . . More excitement and stuff comes with him loving music, [which] comes out of nursery rhymes [and] reading.” Bianca touched on a potential excitement factor, “because the nursery rhymes, it’s never just the same thing.” She expanded her description and definition of NRs by
relating “it can be a broad spectrum. It can be down from just rhyming silly, comical songs, all the way down to manners, situations—in general learning aspects.”

**Building Vocabulary and Strengthening Mental Abilities.** There were many instances in which the mothers offered support for using NRs in building vocabulary and strengthening their toddlers’ mental abilities. Kimley’s comparison provided insight into aspects of unique appeal of NRs:

When we listen to the Frozen soundtrack, my daughter learns nothing other than how to sing a beautiful song. When we teach her a nursery rhyme, and we sing it, or we read it, she’s learning . . . a life skill . . . That is so much more important in the early stages than just singing a song to sing and have fun. And yes, while those are good, nursery rhymes are so much more. They provide so much more sustenance than any other song or that some other books would provide.

Nora Beth predicted that,

if I hadn’t . . . done the nursery rhymes . . . [and had] just been talking to him, like you and me are talking right now and that’s the only vocal education that he got, as far as you know, learning words and stuff like that, . . . it wouldn’t have caught his attention. The nursery rhymes, just the catchiness and the rhythm and the music and all the stuff that goes with that, and the interaction that you do with those nursery rhymes, . . . that’s what’s really engaged him and allowed him to grasp the concepts and retain that information and actually learn what was going on.

Isabella theorized, “I think nursery rhyme is kind of like a language. It’s just like . . . a repetitive thing. So, it teaches them . . . basic words, is how I see it.” She continued, relating the following about her son’s mimicking behaviors:
So, from [that], I think it helped teach him [and] taught him some words . . . I think it teaches them words . . . [that] they’re more likely to repeat them if they hear them all the time . . . But I think just repeating the stuff teaches them [and] helps them learn new words, their language.

Providing support, Faith Ann shared her perception on language learning using NRs:

It’s actually helped her to say more words . . . When I’m singing her songs to go to sleep, she likes to look at my mouth and see how I’m saying it or singing it or wording it. And . . . I guess, it’s helped her to kind of talk more and get . . . on speaking terms or actually saying words.

If she were to share information on NRs with new mothers, Nora Beth stated she would communicate,

that they are very influential and important. They might seem like something small, and it might get tiresome reading the same ones over, and over, and over again, as I have done for the past year and a half. But they are soaking up more from those things than what you could possibly imagine. And all of a sudden, . . . a light bulbs gonna come on, and you’re gonna see how much they’ve actually learned from [them] when they start reciting these things back to you. I did not know how much those little nursery rhymes were influencing him until when he just recently started finally, you know, [being] really engaged in language.

**Engagement and Interaction.** The fifth and final major theme for Sub-Question 2 was engagement and interaction. As noted earlier in the central research question and in Sub-Question 1, engagement and interaction was also the only theme threaded through all three sub-questions and the central research question for the study. The mothers experienced various levels
of engagement and interaction that affected the development of language in their toddlers. To avoid redundancy in the theme data, efforts were made to relate only the mothers’ statements and quotes not previously covered.

Nora Beth imparted how her son’s language “exploded overnight.” Previously, she expressed how she “did not know how much those little nursery rhymes were influencing him until when he just recently started finally [to] really [become] engaged in language.” Bianca chronicled in her journal how she sang NRs “to her [daughter], or [we] tell them in a story,” which helps her daughter “to remember and lets her engage in song and play, all while in the process of learning” language. When considering different levels of engagement, Lauren revealed, “I think we interact a lot more, I guess because we’re singing and dancing together” when using NRs rather than in some other type of activity.

In her individual interview, Nora Beth articulated the connection between engagement and interaction with NRs:

The nursery rhymes, just the catchiness and the rhythm and the music and all the stuff that goes with that, and the interaction that you do with those nursery rhymes [is] . . . what’s really engaged him and allowed him to grasp the concepts and retain that information.

Havanna related that her daughter having the ability “to come to work with me every day gives her the opportunity to interact with all sorts of people from different backgrounds throughout the day, day to day.” This has led to plenty of engagement and interaction possibilities. Havanna hypothesized during the group interview that “it could be that her language . . . [and] her speech is as good as it is now because of that, of course and interaction.” When her son started watching NR shows, Nora Beth conveyed how she and her son engaged and interacted during them: “He
watched that show along with me just playing . . . ‘Pat-a-Cake’ [and] ‘If You’re Happy and You Know It’ . . . doing different things where he can clap and interact.”

Sub-Question 3

What are mothers’ perceptions of the ways their knowledge of nursery rhymes contributes to their experiences with their toddlers? This question was designed to identify how the mothers’ own knowledge of NRs contributed to their experiences with their toddlers. The data for this research question emerged from mainly the individual interviews and the mothers’ responses in their journals. A couple of responses in the individual interviews also contributed to the third sub-question. From these data sources, seven themes developed. Subsequently, five of the themes were combined into one single major theme, resulting in three major themes for Sub-Question 3. The three major themes include multitool utilization, unique appeal, and tradition and nostalgia. The five combined subthemes for multitool utilization include (a) bonding and connecting; (b) soothe, calm, and sleep; (c) teaching and learning catalyst; (d) engagement and interaction; and (e) repetition, reinforcement, and retention. As noted in the theme development section, engagement and interaction was the only concomitant theme in the study, running through all three sub-questions. Bonding and connecting was a co-theme with Sub-Question 1. Teaching and learning catalyst and repetition, reinforcement, and retention were co-themes with Sub-Question 2. Soothe, calm, and sleep is the only subtheme connected solely with the third sub-question.

Multitool Utilization. The first major theme for Sub-Question 3, multitool utilization, pooled five subthemes together. Each of the mothers articulated how they used NRs as a tool with their toddlers. The data for the theme were obtained from the individual interviews, group interview, and journal responses. There were five themes determined from the data: (a) bonding
and connecting; (b) soothe, calm, and sleep; (c) teaching and learning catalyst; (d) engagement and interaction; and (e) repetition, reinforcement, and retention.

**Bonding and Connecting.** The first subtheme for multitool utilization was bonding and connecting, which was previously shared as a complete theme in Sub-Question 1. The mothers experienced various levels of bonding and connecting, which led to different levels of tool utilization and contributed to their experiences with the toddlers. To eliminate redundancy, previously shared statements and quotes are not related again whenever possible. The mothers all divulged some level of bonding and connecting with their toddlers because of their knowledge of NRs. There were three subthemes indicated in the data, which were taken from what was occurring when the mothers were bonding and connecting with their toddlers. These were during pregnancy, while reading, and when singing.

Eight of the mothers related some form of bonding and connecting when they were pregnant (see Table 11). Mila revealed she would “talk to him and sing to him and read all kinds of stuff. Whatever we could think of, we just wanted him to hear us,” which led to her “feel[ing] like he recognized our voices too from that.” Bianca also found she bonded more with her daughter: “I started out singing in songs and rhymes with her and bonded more in the pregnancy.” Because she had an infant son when she was pregnant, Faith Ann talked to her daughter:

I talked to her while she was in my belly, and I’d . . . rub my belly . . . and talk to her, and I’d sing to my son [at night] I just made sure that I sung the same songs . . . more often. Nora Beth stated “your baby can recognize your voice in the womb at a certain point . . . once their eardrums develop,” which led to her talking and singing experiences in bonding with her
This also led Emmie to use lullabies while she was pregnant with her son: “That’s what I later played for him while he was trying to calm down as a baby.”

Table 11

Pregnancy Behaviors in Bonding and Connecting

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<td>Emmie</td>
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<td>Faith Ann</td>
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<td>Havanna</td>
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<td>Kimley</td>
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<td>Mila</td>
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<td>Nora Beth</td>
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Note. Lauren was excluded from pregnancy behaviors as an adoptive mother.

The mothers also shared instances when reading NRs created bonding and connecting experiences. Isabella shared her bonding experience when reading, stating, “I think it’s a bonding time because . . . you don’t have any distractions . . . [It’s] you two together . . . just sitting there reading together.” Mila discovered “it’s so important for me to read to him . . . because she [her grandmother] read to us. I think it created a bonding thing for us.” Havanna advised,

I feel like it creates more bonding time for the mother and child because you’re spending like sole time, especially if you’re reading or singing to them the nursery rhyme . . . I feel like that’s bonding time, . . . one-on-one time, with no outside, like interaction or influence. It’s just you and your child spending time together, you know, and that’s like
important for their development. Because when you’re paying attention to them, you
know, a lot of times they’re paying attention to you.

Kimley related how her daughter will “bring me a book and want me to read it to her.
And most often those times are very, very close, [and] quiet.”

Every mother offered bonding and connecting experiences through singing that were
based upon their knowledge of NRs. A listing of the NRs the mothers shared while relating their
experiences can be seen in Appendix S. Lauren informed future mothers to,

definitely sing them with your child or . . . read them. Interact nursery rhymes because I
feel myself that they learn better that way. You’re not only teach[ing] them through the
nursery rhyme, but you’re repeating it over and over again, that’s how the little ones learn
. . . Do that and keep doing it. And it’ll end up, you’ll have a special bond, say with a
certain nursery rhyme. You will always remember that one nursery rhyme or moment
with that nursery rhyme, and you’re gonna teach your child [while doing so].

Kimley pointed out her bonding and connecting while singing in the individual interview: “Most
of the time, we were singing songs up until then [6 months]. I would just rock her to sleep
singing, while she drank a bottle.” Greater bonding and connecting were experienced by Emmie
when singing NRs with her son: “I think we tend to get closer when we’re singing and dancing,
as opposed to just playing a game or reading a story.” Faith Ann found bonding through singing
to be impactful:

I think it’s more of the one-on-one time that you actually get to spend with your child,
that makes a big impact with them. Because . . . you’re getting to spend that one-on-one
time with them creating a bond, but it’s also . . . keeping it kind of fun for them. Because
it’s not just sitting there, you know, loving on each other, it’s sitting there and you’re singing.

**Soothe, Calm, and Sleep.** For the second subtheme, each of the mothers demonstrated the use of NRs to soothe, calm, or promote to sleep for their toddlers, mainly through their journals. Several of the mothers spoke in their individual interviews and a couple related in the group interview concerning the use of NRs as a tool to soothe, calm, and promote sleep, which contributed to their experiences with their toddlers. Faith Ann relayed her thoughts while pregnant with her daughter, stating, “I just made sure that I sung the same songs . . . more often than usual, that way she would know them. You know, maybe when she came out, I could sing it to her and soothe her.” In communicating her experiences, Lauren, who stated “music has always soothed him since he was a baby,” relayed how her son will now request that she sing to him at night: “He will say, ‘Momma, sing,’ and he just calms down.” When responding in her journal on how she dealt with a fussy child, Amy replied she would be “holding, . . . rocking, and talking to her so she could hear my voice and sing to her.”

Even though it is something “women have always done . . . since the beginning of time, I mean, forever and ever, like a new mother singing to their children,” Havanna said using NRs is “a calming thing, so as to help calm them, [and] put them to sleep.” Faith Ann compared NR use to other activities her daughter enjoyed: “It’s different because she was more calm when the nursery rhymes were going when she was younger. And as she got older, it still kind of calmed her down.” She ended the comparison by stating, “I guess, the nursery rhymes calm her more to where she can just kind of relax[es].” Isabella supported this thought, stating, “I always sing nursery rhymes, even if I rock them to sleep at night, or whenever we were just home.” Faith
Ann elaborated on the benefits of the NRs to soothe, calm, and promote sleep, while relaying some advice for mothers:

   It helps to actually sing the songs to your babies, because it does help them to sleep. Even if you think you’re [a] horrible singer [or] you have a horrible voice, your babies don’t care . . . They love to hear you sing the nursery rhymes, and it helps them as they get older.

Kimley shared the importance of having a bedtime routine in place:

   You have to have a bedtime routine in order for your kids to sleep well or . . . wake up more energetic . . . When my daughter was about 6 months old, we started reading her books . . . We were singing songs up until then. I would just rock her to sleep singing, while she drank a bottle. But we got to where we were reading stories and pointing things out to her. And she took an interest in it at a very early age.

As a bedtime routine, Emmie carried over behaviors from pregnancy to her son’s sleeping.

   Emmie sang lullabies while pregnant, which is “what I later played for him while he was trying to calm down as a baby.” She shared, “I still do it every once in a while. . . . He knows them. Sometimes when he is falling asleep, I can hear him doing them.”

   In contrast, even though “rocking and singing . . . almost always worked to ease his fussing,” when her son was younger, Mila revealed how her son responded to nightly readings when older: “I could tell when it was bedtime that . . . he enjoyed us reading him a story instead of just you know, putting him to bed, but other than that, he really didn’t interact with it too much.” Faith Ann also divulged difficulty at first with her daughter:

   It didn’t go as quick as what it did with my son. She didn’t really take to the nursery rhymes that well when she first was born. It took her until she was about 4 or 5 months to
really know when I was rocking her to sleep for the singing of the lullabies to actually help her to fall asleep . . . Now I can lay her in her bed and sing to her and her brother, and she falls asleep to them. So, it eventually got to the point where it helped her more to sleep.

**Teaching and Learning Catalyst.** The third subtheme for multitool utilization, teaching and learning catalyst, was previously shared as a major theme in the central research question and in Sub-Question 2. The teaching and learning catalyst subtheme was mainly supported by nine of the mothers. To eliminate redundancy, attempts were made to avoid previously related statements and quotes that were shared in the major theme within the central research question and Sub-Question 2. The one mother who did not contribute was previously referenced as having a son with weak language development. The data for this subtheme were relayed through the individual interviews, group interview, and journal entries. Havanna expressed the transformation of viewing NRs as a tool to soothe, calm and promote sleep to a tool for teaching and learning. In her journal response, she conveyed the greatest influence on her use of NRs as, “the comfort of using [them] when they are younger and for learning as they grow older.” Bianca shared her thoughts in her individual interview concerning NRs and the change that occurred to shift her to where she viewed them as a tool and catalyst to teaching and learning:

Definitely, something I wanted to be was a mom . . . from a very early age. That was one of the main things that I wanted—to be a mother. I think as the older I got before I had kids, I really didn’t think about nursery rhymes very much. But when I did start having my first kid and to third kid, I’ve actually utilized them a lot more when it comes to teaching the children. It’s very easy to relate when it comes to . . . learning body parts, animals, learning how to rhyme, letters, numbers, situations, emotions, [and] manners.
There’s a lot of nursery rhymes about manners. I believe that [they should] use them pretty frequently.

Additionally, Bianca listed in her journal that NRs helped her daughter to learn humor and words. Kimley supported Bianca’s thoughts and advised on the importance of NRs as a tool and catalyst in teaching and learning:

Not only does it help them to [be] . . . excited about learning and reading . . . when you read to them often, but it also helps them learn certain aspects in life, fundamentals, . . . their anatomy, . . . how to count, and their ABCs, how to socialize with other children, how to socialize with adults, [and] . . . manners. There’s so many positives to teaching your children nursery rhymes and the meanings behind those nursery rhymes. You can’t just read them a story and expect them to pick up on it. You’ve got to talk to your kids about it.

Lauren found that her son’s “language development has definitely . . . progressed so much just from . . . song, you know, the nursery rhymes.” She continued and related an example of using NRs as a tool and catalyst in teaching and learning with him,

learning his body parts. I mean, he could do that at a young age. He could, you know, point to them and say what it was at a very young age, just from . . . repeating it over and over again, he learned it.

In her journal response, Lauren outlined what was taught and learned through the NRs:

I have sang [sic] . . . nursery rhymes and read him books since he was an itty-bitty baby. He has learned so much from them. He has learned animals and their sounds, his body parts, his manners, different emotions, and counting. He tries to sing some of his alphabet because we sing it over, and over again.
Nora Beth used NR shows in her teaching and learning experiences with her son: “The educational shows my son watches has encouraged me to upkeep the nursery rhymes taught, as I have noticed he has learned so many basic concepts from these, such as the alphabet and counting.” Kimley explained the teaching and learning components found within NRs through a comparison:

I’m going to compare here. When we listen to the Frozen soundtrack, my daughter learns nothing other than how to sing a beautiful song. When we teach her a nursery rhyme, and we sing it, or we read it, she’s learning a skill in her life, . . . a life skill, and that is so much more important in the early stages than just singing a song to sing and have fun . . . Yes, while those are good, nursery rhymes are so much more. They provide so much more sustenance than any other song or that some other books would provide.

**Engagement and Interaction.** The fourth subtheme for Sub-Question 3, engagement and interaction, was the only concomitant theme that played a prominent role in all three research sub-questions and the central research question. There were various ways in which the mothers used NRs as an engagement and interaction tool that contributed to their experiences with their toddlers. All the mothers related this idea in at least one of the three methods of collection. To eliminate redundancy, attempts were made to avoid previously related statements and quotes that were shared in the theme within Sub-Questions 1 and 2.

The interaction with NRs was a factor in Nora Beth’s use of NRs as a tool, which also promoted engagement with her toddler:

With his language development . . . it’s a lot [of] repetition . . . We tend to focus on these because it catches his attention, and it’s a lot of repetition. It helps him to associate the word with the action or the word with the item . . . He’s finally starting to understand,
you know, this is this word, and if I want this to happen, then I have to say this word. A lot of that’s come just from the interactive play and repetition of the nursery rhymes and the educational time we have set aside.

Bianca declared the NRs brought engagement for the whole family within her household:

Verbally and socially, it is a good interaction [sic] with others that tends to get her brothers and sisters and even us as parents involved with her with singing. And so, socially I think she’s very in tune with others when it comes to singing and interacting with the nursery rhymes.

Nora Beth elaborated on using NRs to engage and interact:

The nursery rhymes, just the catchiness, . . . rhythm, . . . music, and all the stuff that goes with that, and the interaction that you do with those nursery rhymes, . . . that’s what’s really engaged him and allowed him to grasp the concepts and retain that information and actually learn what was going on.

Because of her work situation, Havanna related that using the show as an NR tool created an environment ripe with interaction: “Baby Bum and . . . [having my daughter] come to work with me every day gives her the opportunity to interact with all sorts of people from different backgrounds throughout the day, day to day.”

Lauren explained,

having a child is what has influenced my use of nursery rhymes and also keeping kids from a younger age. I believe it to be the best way for a child to learn and be engaged. They learn from it but also have fun doing so.

Nora Beth and Bianca’s journal entries communicated their family’s engagement with their toddlers. Nora Beth and both of her son’s grandmothers “often use nursery rhyme stories and
songs to engage him” as well as “converse with him normally throughout the day.” Bianca shared, “My toddler gets engaged with nursery rhymes with family often.” She continued with an example:

She sits on her Papal’s legs and they sing, “Ride the bucking horsey all the way to town, take care of [Name], don’t fall down!”. . . We use nursery rhymes all the time, pretty much anywhere for many different situations.

**Repetition, Reinforcement, and Retention.** The fifth and final subtheme for Sub-Question 3 was repetition, reinforcement, and retention, which was previously shared as a major theme in Sub-Question 2 and the central research question. All the mothers used NRs as a tool to contribute to their experiences with their toddlers through repetitive and reinforcing behaviors to increase the toddlers’ retention of them. This was related through their individual interviews, group interview, and journals. To eliminate redundancy, attempts were made to avoid previously related statements and quotes that were shared in the major theme within the central research question and Sub-Question 2.

Nora Beth described the repetition mothers face that leads to reinforcement and retention when using NRs with their children:

They might seem like something small, and it might get tiresome reading the same ones over, and over, and over again, as I have done for the past year and a half. But they are soaking up more from those things than what you could possibly imagine. And all of a sudden, it’s just like a light bulb’s gonna come on, and you’re gonna see how much they’ve actually learned from them when they start reciting these things back to you. Lauren provided an example to support Nora Beth’s statement:
The repetition of “Twinkle, Twinkle Little Star,” you say it . . . over, and over again . . .

The rhyme, the actual rhyming ones, that makes those two [repetition and rhyme] different from just an original song . . . The repetition of those things help children learn.

In her journal, Lauren clarified more: “I would say the most used is singing songs and being repetitive. We sing the same songs multiple times a day every day.” Nora Beth contributed further on the repetition involved in NR use:

With his language development, . . . it’s a lot of repetition . . . We tend to focus on these and because it catches his attention, and it’s a lot of repetition. It helps him to associate the word with the action or the word with the item . . . A lot of that’s come just from the interactive play and repetition of the nursery rhymes and the educational time we have set aside.

Isabella provided further support in detailing that “repeating the stuff teaches them [and] helps them learn new words, their language.”

Kimley shared how reinforcement aided her daughter in language:

It was like she went from one to two words here and there to spit[ting] out sentences overnight. And she never stopped after that. I feel . . . that reading to her had a lot to do with it.

Lauren reflected on how the repetition reinforced the NRs:

He can definitely sing them with me now. And he’ll like sing them on his own or just . . . say them. Some of them . . . have motions you do with them, and he can . . . do that.

Nora Beth detailed how she reinforces NRs and creates experiences with her son:
We actually go . . . and sit down, and we sing the songs, and we do the alphabet. . . . The little nursery rhymes that had been on those shows, . . . at 2 years old, he can say his whole alphabet in order and count to 10.

Bianca shared:

Instead of just normally pointing at something and saying, this is this, or this is your arm . . . It’s a way, if you’re able to relate it in a nursery rhyme, [to] make it fun . . . [so] their children hold on to it a little better.

Faith Ann revealed how changing the music reinforced earlier NRs:

She liked the song . . . it was the same song, of course. There’s the nursery rhymes, and they just kind of put little beats to them, but it had more of a . . . beat in a song and little tune.

Amy provided an example of her daughter retaining earlier experiences with NRs:

“Because [of] me singing to her, and mostly it’s singing, . . . [when she was] 8 to 9 months old, she was already . . . saying like little words, . . . duck or dog, [which was] just like the whole ‘Old McDonald’” NR. Amy continued relating the connection, stating that during that time “she was learning what a cow was because she seen the cows, and she heard it being sang to her, [which] . . . helped her progress on what it is and how to talk.” Nora Beth reported on her son’s recent advancements:

I did not know how much those little nursery rhymes were influencing him until when he just recently started finally [being] . . . engaged in language, . . . here’s the alphabet, here’s my numbers, here’s . . . starting to say words all of a sudden, and he’s really starting to pick up the pace with that very quickly . . . It just exploded overnight. So, it’s very influential and important.
Havanna relayed how ensuring her daughter had NR experiences that were frequently reinforced translated into strong language skills. She said using the NRs,

I would say . . . helped her language. But I feel like it’s helped her speech [because] . . . she talks so much better than most children her age . . . It’s like the length of the conversation that she can hold.

Havanna continued, sharing, “I feel like the nursery rhymes helped maybe hearing words here and there . . . especially like if it’s a song.”

**Unique Appeal.** The second major theme for Sub-Question 3, unique appeal, was previously shared within the central research question and Sub-Question 2. All 10 mothers indicated some aspect of NRs that held unique appeal for them, leading to them creating additional experiences with their toddlers. The data for the theme were obtained from the individual interviews, group interview, and journal responses. When possible, previously related statements and quotes are not shared to limit redundancy.

Nora Beth found NRs hooked her son into them when used. She determined their NRs were “catchy, and they’re repetitive, and they call for action. Those are the things that stick with my son.” Havanna felt the uniqueness of NRs was based on the format of the NRs and the characters found within them:

If it’s in a book or even if it’s a video or like [a] movie type film, I think a lot of it has to do with the characters and the way the characters are described when there are characters involved.

The fun, silly, and comedic factors in many of the NRs were points Bianca brought up as unique to NRs. She conveyed that if they “make it fun . . . and comical, their children [can] hold on to it a little better and memorize it better.” Isabella voiced how repeating the NRs makes them
unique, which converts to experiences with her toddler: “If you repeat something over and over, your brain will . . . click and will remember and helps memory.”

Emmie shared her beliefs about NRs, stating,

I think a lot of people . . . think they’re just silly nursery rhymes. I don’t think they really understand that that is kind of the basis of how children learn. What they learn at that age sticks with them and they compare it to other things later on.

Kimley validated Emmie’s beliefs through her comparison and example she related in her individual interview:

When we listen to the Frozen soundtrack, my daughter learns nothing other than how to sing a beautiful song. When we teach her a nursery rhyme, and we sing it, or we read it, she’s learning a skill in her life. And she’s learning a life skill, I guess is what I should say. And that is so much more important in the early stages than just singing a song to sing and have fun. And yes, while those are good, nursery rhymes are so much more. They provide so much more sustenance than any other song or that some other books would provide.

Nora Beth ascertained that the NRs from her own childhood had unique appeal because she could “still remember the nursery rhymes I sang growing up. . . . So, something stuck!”

**Tradition and Nostalgia.** The third and final major theme for Sub-Question 3 was tradition and nostalgia. Each of the mothers articulated how they used NRs as a tool with their toddlers. The data for the theme were obtained from the individual interviews and journal responses. To eliminate redundancy, previously related statements and quotes are not reshared whenever possible.
Bianca remembered NRs as being fun and was working to continue that tradition through her own children now. She related,

I guess with the nursery rhymes [and] . . . the relationship with the adults that I had teaching me, . . . I had that fun connection with the nursery rhymes and singing them and relating to them. Now with my children, I feel like I’m having that same connection, and watching them learn has been an enjoyment to me and seeing them happen like I did as a kid. I feel like that’s what I enjoy seeing and how I’m using them now.

Bianca’s first memories of NRs were songs. She shared the first song she could recall and sang it aloud as an example:

The very first one I can remember would be "Went to the animal fair, all the birds and the beast were there. By the light of the moon the big baboon was combing his curly hair. The monkey he got drunk. He fell on the elephant’s trunk. The elephant’s sneezed, fell to his knees. And that was the end of the monk, the monk, the monk."

Mila shared how her grandmother read NRs to her and her sibling:

My Nanna read us a Mother Goose book, my whole life . . . I still have the book that she used to read us that. She had this book about the old nursery rhymes like “Little Bo Peep” . . . that she read [to] us while we were young.

Mila later shared how she was continuing on the tradition that was shared with her: “I still have that book that my Nana read to us. So, I read that book to him, [my son] now.” Nora Beth’s first memories of NRs as a child were of reading and being read to by her mother and grandmother:

In preschool, I was reading those little books, . . . five- or six-page books . . . Mom went over those with me a lot . . . I was [the] first child, . . . [and] until my sister came along, the only child, and she loved reading to me. I had a great-grandmother that also did the
same. So, that’s probably the first memory I have. I was probably about 3 or 4. Just reading those little, they were not even hard back. They were little bitty paper books . . . We’d read those a lot. She had me read them to her.

Nora Beth offered further description of the little books as NR stories: “I remember one of them was like ‘Good Night, Bear’ . . . But it was very, very short books.” She also described an NR from childhood that held a special feeling because her mother would sing it to her:

The one that she always sang to me was the song off of “Dumbo,” . . . “Baby Mine” . . . That’s what she always sang to me, and I sing it to my kids now. And that’s the one I used to calm them.

Isabella’s first memories of NRs were of being read to and mainly sung to by her grandmother:

My Mamaw, she used to sing them all the time to us as we were growing up . . . I know she would sing like “Twinkle, Twinkle Little Star” and . . . read us books and all that kind of stuff. She made up one . . . I remember it now. ♬ The Skinny Marinny, dinky dink.

Skinny Marinny rink-a-do. I love you. ♬ She would sing that to us all the time.

With her children today, Isabella “always sing[s] nursery rhymes, even if I rock them to sleep at night, or whenever we were just home.” Other mothers recalled NRs being sung to them as children. Emmie’s first recall of NRs were “the basics ‘Twinkle, Twinkle Little Star,’ [and] ‘ABCs.’ I just remember learning those.” In her journal, Emmie related her current practices: “When my son was a little younger, I used to hold him and hum a tune. The sounds and rocking would always calm him. To this day I use lullabies at naptime.”

An NR that held special memories for Faith Ann was “‘Jesus Loves Me,’ that’s the one that my parents like to sing a lot. And it was on . . . a little video that we had back then.” Her first recollection of an NR was “Rock-A-Bye Baby.” The current NRs she mainly used with her own
children were “Twinkle, Twinkle, Little Star,” “Rock-A-Bye Baby,” and “Hush, Little Baby.”

Faith Ann explained,

I don’t know the exact names but it’s the ♬Hush little baby don’t say a word, Mama’s gonna buy a mockingbird♬ song. And then the “Jesus Loves Me” song. And there’s another one, but I cannot remember what it was. But those are the main four, I guess.

Her grandmother and a nursery school room at church were some of Lauren’s early memories of NRs being sung: “‘You Are My Sunshine’ for sure and ‘Old McDonald.’ There was another one that . . . was [sung] all the time, ‘Twinkle, Twinkle Little Star.’ Those were the main ones. And then of course, at church, ‘Jesus Loves Me.’” With her son today, Lauren recounted in her journal how she was continuing the tradition and the nostalgia she hoped to perpetuate as well: “My favorite one to sing to him is ‘You Are My Sunshine.’ When I sing it, he will sing out the last word of each sentence. It is adorable when they start singing with you.” Besides “Hey, Diddle, Diddle,” Havanna’s early recall was “my grandmother would sing ‘Twinkle, Twinkle Little Star’ to me.” When asked how her early NR experiences affected her motherhood experiences, Havanna reflected,

For me, my parents weren’t big on nursery rhymes. But my grandparents were, and those were sweet memories with my grandparents. And I was blessed, when I was born, I had eight grandparents. So, eight biological grandparents and I still have three of them. So, with my children, they don’t have as many grandparents . . . My grandparents helped raise me because my parents worked. And while me and my husband both work, too, we’re just really blessed in the fact that we do get to spend a lot of time with our children that maybe our parents didn’t get to spend with us because they were working hard to provide for us . . . Since my children don’t have that same relationship . . . with their
grandparents, I . . . try to do the same thing my grandparents did for me. So, we have like story time, and we have a few nursery rhyme books.

For those mothers who did not have the background, a limited background, or a forgotten background with NRs, many were innovative in how they obtained NRs to use with their toddlers. Amy, who identified that she “didn’t really hear them when I was a little kid,” also shared how she overcame the deficit. She shared that when she played with her daughter, “We make our own songs up.” Emmie stated she did not remember a lot of her early memories anymore: “I was in a car accident and lost a lot of it.” She related that “most of them, I don’t know. I go right to YouTube.” Even though Faith Ann remembered many NRs from childhood, she found there were quite a few she had forgotten:

There was some that I didn’t remember that my mom reminded me of, but it’s more of like the kiddy play song that is like, you know, sleepy time song . . . Most of them popped back up once I had [Name] and put it on Baby Bum. When I found Baby Bum and they started singing the nursery rhymes and stuff. I was like, “Oh, yeah, I remember that song.” So, it’s really when I started doing the Baby Bum stuff when it like clicked back.

Lauren discovered there were some NRs she had not known of when her son started using a tablet. She said he was “learning more nursery rhymes, even more than we think . . . because it goes to different ones, even some that I haven’t known.” Nora Beth found the need to stay up to date on NRs from the educational shows my son watches. “[It] has encouraged me to upkeep the nursery rhymes taught.”
Summary

This chapter provided descriptions of the lived experiences and perceptions of 10 mothers of toddlers related to using NRs to facilitate language development. The toddlers’ ages ranged from 15 to 45 months. A full textual description of each participating coresearcher was delivered. Using a questionnaire, individual interviews, the group interview, and journal responses during data analysis, eight major themes emerged: (a) bonding and connecting; (b) engagement and interaction; (c) teaching and learning catalyst; (d) repetition, reinforcement, and retention; (e) early language development; (f) unique appeal; (g) soothe, calm, and sleep; and (h) tradition and nostalgia. Within the themes, subthemes were obtained by reflecting upon the data in relation to the research questions. The central research question and each of the sub-questions with participant statements for the themes and subthemes they supported were related.

In the first major theme of bonding and connecting, all 10 mothers indicated some type of bonding or connecting experience with their toddlers when using NRs. There were three subthemes indicated in the data, which were taken from the experiences shared by the mothers in relating their bonding and connecting moments with their toddlers. These times were during pregnancy, while reading, and when singing, which were the three subthemes that were further examined. The theme of bonding and connecting related to Sub-Questions 1 and 3.

Engagement and interaction, the second major theme, was viewed in relation to the central research question and all three sub-questions. Most of the data were related within the individual interviews and were supported through the journals and the group interview. Four subthemes were determined from the mothers’ shared experiences of engaging and interacting with their toddlers using NRs. All the mothers revealed some level of engagement and
interaction. Singing, movement, stimulation, and social exchanges were the four subthemes that emerged from the engagement and interaction data.

The major theme containing the greatest number of subthemes was the third, teaching and learning catalyst. A total of nine subthemes were determined when examining data from the individual interviews, group interview, journal responses, follow-up responses, and the questionnaires. A thorough review of the data was conducted while holding Sub-Question 1 in mind. All but one mother found NRs to be beneficial as a teaching and learning tool. The subthemes that emerged were alphabet, animals, body parts, life skills, literacy, manners, numbers and counting, rhyming, and NR shows.

The fifth major theme discovered was repetition, reinforcement, and retention. The theme was produced when reflecting upon Sub-Questions 2 and 3. All the mothers shared experiences that involved some form of repetition, reinforcement, and retention of learning or behavior. The three data sources of individual interview, group interview, and journal responses were examined to obtain the data to determine the same three subthemes: repetition, reinforcement, and retention.

Early language development was the sixth major theme obtained from the mothers’ related experiences. The data were retrieved from the three data sources of individual interviews, group interview, and journal responses. All the mothers provided data that were examined while bearing in mind the second sub-question. Two subthemes were produced from the mothers’ descriptions of their toddlers’ early language development: beneficial and undecided.

Soothe, calm, and sleep was the seventh major theme created from the experiences shared by the mothers, mainly in their journal responses. Some additional data were obtained in the individual interviews and the group interview. Sub-Question 3 was at the forefront during the
examination of the three data sources. Each of the mothers offered information for the theme. Following the examination, three subthemes were listed as soothe, calm, and sleep.

The eighth and final major theme concerning language development using NRs was tradition and nostalgia. Each of the mothers provided details for the theme through their individual interviews and journal responses. A careful examination of the data obtained from the mothers’ descriptions of the experiences did not result in definitive subthemes.
CHAPTER FIVE: CONCLUSION

Overview

The purpose of this hermeneutic phenomenological study was to understand mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers. This chapter is used to relate the findings of the study based on the previous chapter’s discussions. Interpretations were made from the results and ideas were formed, leading to the findings for the study, which are briefly outlined in the summary of findings in this chapter. Following the summary, an in-depth discussion is presented of the findings and their implications in relation to the review of literature and the theoretical framework of the study. Also included in the discussion are the answers to the research study questions. Next, the implications of the study are shared, followed by the delimitations and limitations of the study. Future research recommendations conclude the chapter.

Summary of Findings

The participants in this study exhibited high levels of NR use to facilitate language development in their toddlers. The mothers believed strongly in the use of NRs with their toddlers and could articulate them relatively well within each of the four data collection methods. Data analysis identified specific perceptions within the mothers’ experiences using NRs to facilitate language development, which are presented in relation to each of the research questions.

Central Research Question

The central research question related to the mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers. Nine of the 10 mothers were staunch supporters of using NRs to facilitate language development in their
toddler. This was detailed in how the mothers viewed NRs as holding a unique appeal that was related as catchy, sticking, fun, and attention pulling, which led to their being repeatedly used with their toddlers. This combination reinforced learning and enabled the toddlers to retain the skills the mothers targeted in their engagement and interactions with their toddlers, which involved singing, movement, stimulation, and social exchanges. Using NRs as a teaching and learning catalyst in such a manner led to nine mothers sharing the language development successes of their toddlers. In contrast, if the mothers encountered language delays with their toddlers and did not use the engagement and interacting behaviors that brought the unique appeal of the NRs into play through repetition, then the language learning behaviors and the teaching and learning catalysts did not develop or lead to early language development.

Sub-Question 1

The first sub-question was: What are mothers’ perceptions of the ways nursery rhyme usage affects their relationship with their toddlers? The mothers had a strong belief in tradition and possessed nostalgic feelings for memories that brought up emotional connections to several the rhymes, many of which they used with their own toddlers. To some level, these feelings aided in their bonding and connecting with their toddlers. It was further found that NR use affected how the mothers engaged and interacted with their toddlers. Many of the mothers incorporated NRs through singing. The inclusion of movement and stimulating behaviors with the NRs they used added a physical element to the mothers’ engagement and interactions with their toddlers, which brought about stronger levels of bonding and connecting. An additional language element was produced when the mothers related the social aspects associated with their toddlers’ NR exchanges. When the use of NRs incorporated singing, physical, and social elements, the mother–toddler dyad become more influential in the toddler’s language acquisition.
Sub-Question 2

The second sub-question was: What are mothers’ perceptions of the ways nursery rhyme usage affects their toddlers’ language development? The mothers related varying impact levels associated with the use of NRs in their toddlers’ language development. The mothers identified the use of NRs as beneficial in increasing early language development directly, except for one mother who identified her son as “hardly talking at all.” The mothers who did find NRs to be beneficial identified nine areas in which they were a teaching and learning catalyst for the toddlers, some of which were animals, body parts, life skills, and NR shows. The use of repetition, reinforcement, and retention was one avenue accessed in the NR teaching and learning area. The unique appeal of NRs was an additional element that produced larger amounts of language development through the teaching and learning dynamics. These all merged to generate abundant engagement and interactive opportunities for language development. It was further found that if the mother was worried about language development early on and increased her efforts to stimulate verbal communication with her toddler through engaging language, her worries were lessened because the toddler exhibited gains in language acquisition.

Sub-Question 3

The third sub-question was: What are mothers’ perceptions of the ways their knowledge of nursery rhymes contributes to their experiences with their toddlers? This question was used to delve into the mothers’ childhood memories. The mothers tapped into their NR knowledge early in motherhood, often in the first few weeks upon finding out they were pregnant, which began their bonding and connecting with their unborn child. Once their infants were born, the mothers’ NR knowledge was put into service to aid in soothing, calming, and promoting sleep. When their infants reached the age of approximately 9 to 12 months, the mothers used their NR knowledge
in an additional form to foster teaching and learning, which required a strong level of engagement and interaction between the mothers and their toddlers. Beyond engagement and interaction, high levels of repetition, reinforcement, and retention were required to support teaching and learning.

The unique and appealing features of NRs were often touted as the reason for their use by the mothers. The NRs were found to pull their toddlers in and hold them long enough to support the need at the time they were called upon. Additionally, the long traditions and nostalgic effects of the NRs invoked sweet and tender memories for the mothers. Mothers who did not carry NR knowledge into motherhood were able to use resources to gain access to them or created their own NRs to fit different situations.

**Discussion**

The purpose of the study was to understand mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers. The following section presents a discussion of the results of the study and the empirical and theoretical framework. The empirical literature discussion topics include mothers’ behaviors; NR traditions; NR features; knowledge seeking, unawareness, and inability; and technology. Vygotsky’s (1978) sociocultural theory, Pestalozzi’s (1830) TOT, and Piaget’s (1953/1998) TCDS are considered in relation to the theoretical framework of the study.

**Empirical Literature**

Little is currently known about the NR experiences of mothers with their toddlers. What is known about the everyday activities that yield valuable and strong parent and child interactions laden in constructive discourse is deemed insufficient (Sosa, 2016). The empirical literature covers the behaviors of mothers while using NRs with their toddlers to facilitate
language development. This section includes an exploration of the mothers’ behaviors during pregnancy and the newborn, infancy, and toddler stages. The NR traditions of the mothers are covered next, along with the features of NRs, specifically their unique appeal as a teaching and learning catalyst. Next, the knowledge seeking, unawareness, and inability of the mothers are addressed, followed by the final empirical literature area of technology.

**Mothers’ Behaviors**

The identified behaviors of the mothers within the study were examined in relation to the empirical literature. Pregnancy behaviors are shared first, followed by the mothers’ behaviors in the newborn, infancy, and toddler stages of development. Within the pregnancy behaviors, bonding and connecting and fetal response and learning are detailed.

**Pregnancy Behaviors.** All but two of the participants (note the exclusion of one adoptive mother) performed behaviors that led to bonding and connecting with their unborn child (see Table 1).

**Bonding and Connecting.** A pregnant mother singing to her fetus offers thought-provoking facets; why does the mother sing to her unborn child, what is the fetus hearing, and how does the fetus react? The acoustic properties, responses of the mother and fetus, and the implications of the act of vocal singing carry enough interest to warrant research. In the music, neonatal, and psychology field there are some generally accepted and recognized thoughts, including that the act of singing NRs while pregnant is a loving gesture by the mother toward her unborn child (Persico et al., 2017). Additionally, there is an inherent benefit gained by the mother and the fetus in performing the NR singing act. Currently, researchers are examining the types of benefits for the mother and the fetus, the benefits that are carried over to the neonatal period, and the effects on fetal development. Chorna et al. (2019) identified that “studies are
needed to investigate the specific effects of different types of administered music, instrumental versus vocal music and maternal singing versus other voices or music” (p. 6).

Recently, NR singing by pregnant mothers was determined to have immediate and prolonged effects that were significant in promoting bonding and connecting with their unborn child (Wulff et al., 2020). It has also been found that mothers who sing NRs while pregnant experience strong emotions and feelings when singing and improved bonds between the pair in the first 3 months after delivery (Persico et al., 2017). Through the bonding experience of singing NRs, mothers can establish richer relationships with greater interaction and less maternal stress.

The current study adds to the literature on mothers catching critical sensory time periods to stimulate sensing neurons needed for later literacy development. A potential tool for strengthening maternal bonding was also noted. Mila shared how she was able to include the visual element in strengthening her bond with her son, which occurred through frequent ultrasounds due to high amniotic fluid levels leading to a high-risk pregnancy status:

I really enjoyed watching him grow through our ultrasounds, and we had several because they were worried about me having issues . . . [I] watched him start to move and us getting to, like talking to him while . . . I was still pregnant. And I feel like he recognizes our voices too from that.

Mila also shared how she would “talk to him and sing to him and read all kinds of stuff. Whatever we could think of. We just wanted him to hear us.” Amy shared that she was prompted to start engaging with her daughter more when she started “feeling her . . . that’s what cued me. She was there [moving],” which led to more bonding where Amy “talked to her all the time. I sang to her. I read her books.” Nora Beth and Bianca had both experienced miscarriages prior to this pregnancy, leading to greater bonding and connecting. Bianca explained that she was more
cautious and “when I was talking, how I just touch my belly pretty often, you know, rub her and everything, just generally more in tune.”

**Fetal Response and Learning.** At 15 weeks GA, fetuses have a functional auditory system that enables them to detect and respond to sounds that reach them within their environment. The age of viability for a preterm birth is the 24th week and is the time when the majority of the brain structures are fully developed (Boyd & Bee, 2012). Within the brain, synaptic formation rates increase steadily until 25 weeks GA, after which an ensuing and rapid 600% increase occurs (de Graaf-Peters & Hadders-Algra, 2006). The complex neurological pathways undergo myelination beginning during GW 28, making neuronal signal transmissions even more efficient and forming the brain’s white matter, “setting” the brain up for potential learning (Krishnan & Johnson, 2014).

In utero, the prosodic characteristics of the mother are preserved, and the rhythm and pitch of her voice transmit surprisingly well (Voegtline et al., 2013), which adds greater support to the mother’s singing being beneficial to the fetus. Voegtline et al. (2013) found fetal response at 36 weeks GA to the mother’s voice elicited an orienting movement, which was exhibited by the fetus having reduced motor activity and heart rate at the onset of the mother’s read-aloud, indicating focused attention to the mother’s voice when reading and talking and recognition of the text from same book being read aloud.

Beyond exposure, the literature shows fetuses as exhibiting recall of the NRs they were exposed to while in utero, indicating their learning and memory recall of the NRs (Krueger & Garvan, 2014; see also Borsani et al., 2018; Voegtline et al., 2013). With regular exposure to the prosodic variation in the maternal spoken voice through repetition and reinforcement, mothers may have the distinct ability to channel auditory learning to the fetus in utero, leading to the
postnatal recognition of and preference for the mother’s voice (Voegtline et al., 2013). Partanen et al. (2013) used combinations of repeated NR melodies during gestation and neural behavior recordings of the fetus to detect responses to an altered melody of “Twinkle, Twinkle, Little Star.” Upon birth and at 4 months of age, the infants displayed anterior temporal areal activation, indicating fetal exposure to melody patterns can produce neural representations that last for several months and correlate to the number of exposures to the melody (Partanen et al., 2013).

The current study adds to the literature on mothers today employing NRs to bond and connect with their fetuses with seven of the nine mothers (excluding the one adoptive mother) identifying the pregnancy behaviors of singing NRs to their child in utero, along with talking, reading, playing music, and affectionately rubbing their abdomen (see Table 11). One mother was omitted from the assessment of pregnancy behaviors based on her status as being an adoptive mother to her son. With Emmie attesting to her son’s recognition of the lullabies she used while pregnant and Faith Ann relating her hope that her daughter “would know them . . . [and] maybe when she came out, I could sing it to her and sooth her,” contributions were made to the literature on mothers’ beliefs in the use of NRs to stimulate fetal learning. Emmie attested,

I tried playing different songs, I guess, to my belly just so that he could hear them . . . It’s just lullabies, [a] nap time thing. That’s what I later played for him while he was trying to calm down as a baby.

Emmie continued playing the same music after her son was born. She shared, “I still do it every once in a while . . . He knows them. Sometimes when he is falling asleep, I can hear him doing them.”

Newborn Behaviors. Once born, newborns can distinguish their mother’s voice, even when other voices are present, which further indicates recall of memories established while in
utero (Moon et al., 2015; Thompson et al., 2015; Voegtline et al., 2013). When hearing their mother’s voice, a newborn will exhibit orienting movements and indicate preference for a simulated version of their mother’s voice that is comparable to what the fetus would have heard in utero (Fifer & Moon, 1995; Voegtline et al., 2013). Premature newborns have been found to have significantly larger auditory cortexes after 4 weeks if they were exposed to an additional 3 hours each day of maternal sound stimuli, such as the mother’s speech, reading, singing, and heartbeat (Webb et al., 2015). The mother and infant attachment that leads to strong social interactions not only builds cognitive abilities, but it also affects socioemotional development by shaping the neural pathways that control responses to stress and other risk factors associated with emotional regulation (Esposito et al., 2017).

Because of their inability to emotionally regulate at birth and in infancy, infants seek assistance during insecure times for the sensory appeasing effects of their mother. A mother’s soothing, calming, and sleep promoting behaviors that are typically produced with a rhythmic pattern and steady tempo from her touch, melodious IDS, singing, and movement (e.g., rocking, patting, repetitive vocals) aid in alleviating the infant’s discomfort (Corbeil et al., 2016; Diamant-Cohen et al., 2018; Hahn et al., 2018; McLean, 2016). Rocking is thought to simulate the sensations a fetus would receive when the mother would be walking and the ensuing internal movements within the uterus. The inclusion of auditory, tactile, visual, and vestibular (rocking) stimuli has been shown to have moderate physiological and increased and sustained positive behavioral responses in neonatal infants (Nelson et al., 2001).

If fetuses experience NRs in utero, there is a greater likelihood of the newborns being calmer, crying less, and experiencing fewer colicky episodes, leading to the mothers having less difficulty in calming their infants (Persico et al., 2017). NR singing has been found to be the
most frequent form of songs used with babies; however, some mothers report self-consciousness, singing insecurities, and lack confidence in their singing abilities to the point where they fail to sing to their infants (Fancourt & Perkins, 2017; Rocca, 2015).

Because the brain specializes in a specific language(s) beginning when auditory detection is viable in utero and continues into the child’s critical early years, it is important for mothers, who the neonate and infant bond with and know intimately, to maximize the language experiences throughout the child’s fetal and early years (Jones & Rowland, 2017; Richards et al., 2017; Rowe, 2012). Interrupting, altering, or missing the critical language periods can be detrimental. According to Webb et al. (2015):

> Auditory deprivation during critical periods can adversely affect brain maturation and lead to long-lasting neural despecialization [sic] in the auditory cortex (AC), whereas auditory enrichment in the early postnatal period can enhance neural sensitivity in the primary AC, as well as improve auditory recognition and discrimination abilities. (p. 3152; see also Leisman et al., 2015)

For children deprived of language exposure in EC, resulting in missed critical language acquisition periods, who were later supplied language rich environments and interventions, progress was made in their language acquisition, but adult language levels were never attained in life (Leisman et al., 2015). Exploratory research continues in critical periods of language acquisition, modifications of sensitive periods, brain plasticity, and stimulating environments (Leisman et al., 2015), which offers hope for future children who may never hear NRs or have engaging and stimulating environments in their EC.

The mothers in the current study took advantage of critical sensory time periods to stimulate sensing neurons for language development by establishing strong attachments and
responsiveness during pregnancy and neonatal periods through behaviors that assisted in the emotional regulation of their infants. The current study adds to the research through the support of the mothers who sang NRs prior to birth. When asked about behaviors she used to soothe, ease, or distract her infant or toddler when they were fussy, Amy voiced that “holding her, and rocking her, and talking to her so she could hear my voice, and sing[ing] to her” were the behaviors she employed to settle her daughter. Havanna supported the effects of NRs in her statement concerning their benefits: “It’s a calming thing, so as to help calm and put them to sleep.” After using NRs where she played “different songs . . . to my belly just so that he could hear” them while pregnant, Emmie supported their use after her son was born, specifically to help calm him. What she exposed her son to while pregnant is what Emmie “later played for him while he was trying to calm down as a baby.”

The prior research was supported and expanded by the declarations of the mothers in the current study relating their use of NRs to soothe, calm, and promote sleep with their toddlers, particularly early on. Faith Ann supported what is found in the literature about mothers’ beliefs when she directed other mothers to,

sing the songs to your babies because it does help them to sleep. Even if you think you’re [a] horrible singer [or] you have a horrible voice, your babies don’t care . . . They love to hear you sing the nursery rhymes.

Seven of the mothers specifically mentioned rocking and singing were their infants’ preferences when attempting to soothe, calm, and induce sleep, which supports previous research. Kimley shared what worked best to soothe her daughter and put her to sleep, stating,
The best way to calm her and help her to drift off to sleep was to feed her a bottle, while I sang a song and rocked her . . . [when] wrapped tightly in a blanket. Typically, she would be asleep by the end of her bottle or the song.

During the first prenatal weeks, Bianca began using NRs when “you’re singing it to your baby, ‘Rock-A-Bye Baby,’ holding them you’re cuddling. You’re singing ‘Twinkle, Twinkle, Little Star.’ They’re finding that comfort in your voice and feeling.”

**Infancy Behaviors.** The language experiences beginning at birth and through the early years count substantially for a child. “Language is causally implicated in most of what children learn in the first years of life” (Golinkoff et al., 2018, p. 1). Music can promote and enhance language development, auditory neural processing, cognition, emotional expression, and bonding between mothers and their children; therefore, music can be an influencing factor in an infant’s development (Dayton et al., 2017; Rocca, 2015; Virtala & Partanen, 2018). When infants become aware of a language sound using all the sensory input data available, they begin to process the sound. IDS and music are equally responded to by infants from 7 to 9 months of age, but by 9 to 12 months, music is found to be more stimulating (Zentner & Eerola, 2010). Initially, IDS offers perceptual, social, and linguistic significance for language learning in infants, indicating the importance of mothers taking advantage of the window of opportunity in language acquisition that is so strongly involved in the first years of a child’s life (Golinkoff et al., 2015; Golinkoff et al., 2018). The speech parents use with their child is related to later language and cognitive skills for the child—variability in parental input yields variability in a child’s output. Timing is vital in literacy skill development; providing learning experiences at exact stages can exert a pronounced influence on emerging skills during a specific developmental period (Rodriguez & Tamis-LeMonda, 2011).
IDS has been identified as one factor associated with an infant’s (age 4–13 months) brain functioning in the left and right temporal lobes (Naoi et al., 2012). With stimuli from the mother, results of one study showed the infant had greater frontal lobe activation levels associated with IDS (Naoi et al., 2012). By 6 months, infants demonstrate preferences for multimodal social interaction, which demonstrates the point that IDS produces responses that vary according to the infant’s age and degree of familiarity with the individual. Peter et al. (2016) found differential speech processing activation patterns in the brains of 9-month-old infants for IDS and ADS using a single vowel production that demonstrated the exaggerated articulation, greater pitch, and more affective delivery, allowing for mature processing of the IDS, which was not seen in the use of ADS with infants.

When IDS is combined with a direct gaze, further enhancement of brain activation occurs (Lloyd-Fox et al., 2015). Adding a mother’s gaze increases the social aspects that are temporally contingent and plays an important part in an infant’s earliest learning and development (Leong et al., 2017). At different developmental times, the infant will shift focus to different features on their mother’s face, which indicates the infant’s efforts to employ lip-reading to integrate the auditory and visual senses in learning language and comprehension (Jerger et al., 2017; Lewkowicz & Flom, 2014; Lewkowicz & Hansen-Tift, 2012). Faith Ann pointed out this important aspect of development when attesting to NRs aiding her daughter in vocabulary development, while adding to prior research on catching critical sensory time periods to stimulate a child’s sensing neurons for language and literacy development.

When I’m singing her songs to go to sleep, she likes to look at my mouth and see how I’m saying it or singing it or wording it . . . It’s helped her to kind of talk more and get more . . . on speaking terms or actually saying words.
The use of gestures emerges during language development for infants and toddlers, which is a precursor to speech and allows them to “practice” communication and elicit communication from others (Goldin-Meadow et al., 2014). Typically, pointing, showing, and reaching are exhibited without vocalization first and later become integrated with vocalizations before being used with pseudo-words and then with single language words (Goldin-Meadow et al., 2014). Toddlers begin using expressive language at 14 months of age, with a range of zero to 22 words (Masek et al., 2018). Havanna corroborated these behaviors in her daughter’s language progression, stating, “When she was little and wanted something she would point, but that didn’t last long because she started talking fairly soon. And that could be because of nursery rhymes, you know.” The use of gestures is “an integral part of language—it forms a unified system with speech and, as such, plays a role in processing and learning language and other cognitive skills” (Goldin-Meadow & Brentari, 2017, p. 1; see also Behrman, 2018; Clark, 2016). The use of gestures early in an infant’s life is a predictor of subsequent vocabulary development in TD children, as well as for those who demonstrate delays (Goldin-Meadow et al., 2014).

After her daughter progressed beyond 12 months of age and was not making advances in language acquisition, Faith Ann became concerned and began to think “maybe she’s just being lazy.” Mila began having her own concerns about her son’s development, “especially in his first year, I was really worried that he was behind the other kids because he wasn’t talking or really interacted much with us reading.” While sharing her son’s delay in developing language, Nora Beth confirmed her son’s use of gestures without vocalization when he continued to use them well beyond the developmental time period in which they are expected to occur:

He was kind of lazy . . . What I mean is, because he could literally get [across and] tell us what he wanted without saying anything. He would take our hand, and he would show us
. . . [by] take[ing] us to the refrigerator for a drink, take[ing] us to the panty if he was hungry. He pulled his diaper if it was dirty . . . he didn’t feel the need to [talk].

Mila did not note any communicative behaviors by her son other than him occasionally bringing her a book to read.

**Toddler Behaviors.** The typical toddler’s brain is functioning at an activity level that is 150% greater than the mother’s (FACE, 2013). Such a high level of brain activity is indicative of the agile and rapid nature of phonological development within the 18- to 24-month timeframe, making early word learning and rapid vocabulary acquisition possible in such a short period of time (Vihman, 2017). As an infant matures, the brain conducts a neuronal pruning process that leads to “setting” the language or languages to which they are exposed within their environment (Bales, 2014; Hines, 2018). The level of a mother’s responsiveness from birth strongly predicts the receptive, expressive, and overall language levels of the child at the ages of 3 and 4 years (Hudson et al., 2015). Even further, responsiveness produces higher levels of language in children experiencing delays in talking (Hudson et al., 2015). Children who are delayed in talking are known to have higher language scores at the ages of 3 and 4 years if they have mothers who respond more positively (Hudson et al., 2015). To avoid such delays, higher levels of responsiveness should target critical periods in language and literacy development. One such stage occurs around the 6- to 12-month interval (FACE, 2013; Gilani et al., 2018; Jeppson et al., 2013; USDOE, 2015; Virtala & Partanen, 2018; Zauche et al., 2017).

Learning that language is a joint and collaborative communicative form entails social immersion with responsive mothers who are attuned and reactive to their child’s communicative behaviors and who promote engagement in shared activities (Owens, 2012; Tamis-LeMonda et al., 2014; Zauche et al., 2017). Mothers who provide diversity in word choices while interacting
with their child will see an expansion in their child’s vocabulary within a year. Rowe (2012) found mothers of 30-month-old toddlers who have greater input of differing or rare words, such as those found in many NRs, produce larger vocabularies in their children within 12 months (see also Jones & Rowland, 2017). When mothers engage in exchanges with their toddlers that incorporate the use of gesture and actions, they contribute to the toddlers needing fewer exposures to the words for receptive learning and the generalization and application of the words within different contexts (Wakefield et al., 2018). The use of music by mothers will initially elicit the same response as speaking, but with increased exposure and greater musical experiences, the oscillatory (neuronal) entrainment is strengthened (Doelling & Poeppel, 2015; Virtala & Partanen, 2018). Zhao and Kuhl (2016) found specific beats further enhanced neural responses to music and speech in the prefrontal and auditory cortices, indicating improved predictions for auditory patterns that are important for processing music and speech. With such responsive actions by the mothers, a toddler should have, by 15 months of age, an expressive vocabulary that consists of four to six words; within the next 3 months, an additional 14–16 words should be freely expressed; and by the age of 2 years, a toddler should possess between 200–300 words (Owens, 2012).

The current research adds to the existing literature as the mothers detailed how they are catching critical sensory time periods to stimulate sensory neurons for language and literacy development. The current study adds information to the existing research base about how to structure toddlers’ early language development to maximize learning. The study provides additions to the research on the differing levels of mothers’ responsiveness to toddlers with varying levels of NR use. Because her daughter was not talking as quickly as her brother did during his development, Faith Ann continued her language development efforts with her
daughter when she was approximately 12 months of age. She expressed the change of her
daughter’s preference from “sleepy time” NR songs to those that were,
the same song of course, there’s the nursery rhymes, and they just kind of put little beats
to them. But it had more of a . . . beat in a song and little tune to it, that way she could
kind of be . . . dancing and moving around. So, it kind of caught her attention more.
Kimley described a specific instant she experienced with her daughter when her daughter was
almost 2 years old:

When we taught her the “Head, Shoulders, Knees, and Toes” song, it was like an
epiphany. She was . . . very excited. I can remember the first time we were playing that
song; we were in the car. It came on the little toddler station we play, and she was in the
backseat in her car seat. And I was doing the hand movements with like one of my hands,
and I was trying to show her my toes. And so, instead, I was reaching back there and
grabbing her toes. And so, then she starts trying to grab my toes, and I’m like, “Oh, you
can’t reach my toes.” And that’s when that really kicked off the learning the “Eyes and
Ears and Mouth and Nose” . . . She would come up to me, and she would say, “got your
nose,” And she stole my nose. We’d go back and forth with that for a while. And then we
started the stealing the ears and that, that definitely kickstarted our whole-body part
learning lessons that was fun. She got interested really quick.

Nora Beth related a similar experience with her son and catching a critical language period just
as her son turned 2 years old:

I recently discovered . . . that he actually knows the entire alphabet in order now. As far
as, he doesn’t say every single letter perfectly, but you can clearly hear him say that. I
didn’t know that. We were sitting in the truck one night, and he saw a letter on a board.
And I just said the first letter of the alphabet. And then he said the next one . . . So, I said that one, and then he said the next one. And I’m like, “Are you serious? You know all of these in order.” And so, . . . I was really surprised that I didn’t know that he would know it this early . . . I guess, I was surprised . . . He’s recently started counting to 10 all his own. He just started to do that. He just threw his fingers up 1, 2, 3 . . . It’s like, all of a sudden, he comes out of nowhere with this stuff.

Faith Ann’s related experience with her daughter adds to the literature on NR use to aid in language development. Shortly after her daughter turned 12 months of age, Faith Ann made changes to address her daughter’s language issues by playing NR shows and making time to be with her daughter when the shows were on:

I started playing with her and singing with her, . . . do[ing] little dances to it, and try[ing] to get her to mouth the words and stuff and finally, it came to the point where it’s actually helping her to . . . talk.

Nora Beth related her concerns when her pediatrician “asked me does your child have a vocabulary of 50 words or greater?” Her response was “not yet, but he’s working on it. But he didn’t [have it].” Mila explained further concerning her son’s delay, “He really still doesn’t talk that much, even at 2 [years]. He says a few words and like I understand him. I know what he’s talking about, but he still doesn’t really talk in sentences.”

These two mothers, Nora Beth and Mila, were justified in their concerns because “children who do not have sufficient language exposure during this critical period are at risk for delays in cognitive, linguistic, and social skills that can span [throughout their] life” (Gilani et al., 2018, p. 6). Because of the foundational nature of language, poor language development leads to problems later when the child encounters the need for a solid language base to learn to
read and interact with others (Hebbeler & Spiker, 2016, p. 193; see also Cabell et al., 2011; FACE, 2013). Highlighting the critical period of Nora Beth and Mila’s sons, Gilkerson et al. (2018) found through recordings of the interactions between mothers and children while at home that “the early talk and interaction, particularly during the relatively narrow developmental window of 18 to 24 months of age, can be used to predict school-age language and cognitive outcomes” (p. 2). With consideration of her son’s language delay and her deeming it as laziness, Nora Beth began implementing steps so her son would “feel the need to talk” to where he would “want to talk.” She related,

> the biggest change I made was . . . [requiring] him to start asking for the things he wanted, drink, cookie, things like that. At first, he wasn’t that good [at it], but even if he just made a noise that was close to the word, I’d reward him for the effort. [It] didn’t take him long to figure out that if he tells me what he wants, he gets it faster.

Nora Beth followed up with the use of picture books with simple text containing “words like shoes and jacket that helped as well. The more simple the book and the brighter the color of the pictures, the more he liked them.” Mila addressed her worries by opting to place her son in a state accredited daycare at approximately 18 months old because “we felt this would prepare him better instead of being watched at home by family.” After about 5 months in the daycare center, Mila related in her journal that she believed “it has had a huge impact on his development with speech [because] he wasn’t talking at all before he started.” Even with the prior improvement she noted from her son attending daycare, Mila still had concerns with him because “he hardly talks at all, even now.”
Nursery Rhyme Traditions

Through frequent and repetitive requests, the descendants of each generation share and convey which lullabies, chants, games, stories, ditties, rhymes, riddles, poems, and jingles they prefer, producing enduring traditions for these unique language and literary mediums (Evans et al., 2016). The mothers in the current study supported and underscored this point when they reflected upon their own childhood memories of NRs and considered how they affected their later motherhood. Their fond memories have been retained and carried on in an enduring fashion, as the many generations before them have done. Havanna shared how she grew up in her parents’ household, living between her maternal grandparents and her great-grandparents. Havanna was fortunate to have eight biological grandparents and great-grandparents while in childhood. She related, “My parents weren’t big on nursery rhymes, but my grandparents were, and those were sweet memories with my grandparents.”

In Appendix T, a comparison of participants’ childhood and motherhood NRs conveys the traditions that were carried over and the later additions that have been incorporated in their motherhood experiences. All the mothers, except for Mila, have continued the precedent of NRs being shared, transmitted, and perpetuated. Mila has continued to perform the NR reading task with her son that was performed in her own childhood but did not list specific NRs as being learned and handed down to her son at the time. Mila was also the only mother who did not share that she sang NRs to her son. She did, however, state in her journal concerning her infant son, “I always sang to our son to ease his fussing. Between rocking and singing, it almost always worked,” but there were not any specifications as to what was being sung.

A child who has a regular reading routine will have crucial patterns of brain development stimulated, as well as experience bonding during a critical time in their development, all of
which will build language, literacy, and social-emotional skills, preparing the child for a life of success (AAP, 2014). As seen in Appendix T, all but two of the mothers in this study voiced the reading of NRs. Bianca and Faith Ann were the only mothers who did not express that they read NRs to their toddlers. Bianca did not relate any NR reading or book interaction. In the follow-up questioning, Bianca related she had a large book of NRs that contained about 40 NRs. Faith Ann shared that she engaged in reading and book interactions with her 15-month-old daughter, but “it’s not a lot of the nursery rhyme books. It’s . . . little kiddy books, teaching her certain words and then also, the potty-training books on how to . . . start potty training, those books.” She did later share in the follow-up questioning that there were five NR books in her daughter’s library.

**Nursery Rhyme Features**

During the years from birth through PK, children take great pleasure in hearing and participating in NRs, lullabies, jingles, fingerplays, and lap games as a way to socially engage with adults in a playful and developmentally appropriate way (Dayton et al., 2017; Harper, 2011; Lefebvre et al., 2015). NRs provide a means and opportunity for children to hear, identify, manipulate, and experiment with the sounds of the language and culture (Dayton et al., 2017; Harper, 2011). In playing “Pat-a-Cake,” reciprocal engagements will emerge where the infant will take hold of the hands of the adult and begin to chime in during portions of the vocal and motor actions for the NR. Within the NR are listening and responding aspects that are functional communication skills. Such “play within the framework of a child’s culture promotes socialization, learning, bonding, self-identity, and the security of structure and routine that encourages youngsters to thrive” (Wieber & Sumner, 2016, p. 80). Significant expansions can be made in brain development and language acquisition during this period by placing infants into a rich and playful early literacy environment that provides the needed fuel to enliven brain
development and language acquisition through immersion in a fertile environment and enjoyable early literacy games (Diamant-Cohen et al., 2018; Harper, 2011; Jeppson et al., 2013; Terrell & Watson, 2018). These delightful and enjoyable skills also include humor, fun, and fantasy, all of which add to the appeal of NRs for children.

Strong support was given to this area by the mothers in the current study. The mothers described NRs using descriptive terms and features associated with them and their use (see Figure 1). Using NRs assists in language development by supporting the structures (e.g., parts of speech, pronunciation, vocabulary, and sentence structure) and features of language (e.g., rhythm, stress, intonation, and inflection; Reade, 2017; Shwetha & Phil, 2013). Dunst and Gorman (2011) found NR knowledge and experiences to be associated with early communication, language, and literacy development for children with and without disabilities and noted the children were alike in their manifestation in how it came about in their development. In addition to providing a strong language base for reading and educational success, experiences using NRs build positive attitudes concerning language and awareness of sound patterns in language (Golinkoff et al., 2018; Harper, 2011). Mother and child interactions that are woven with NRs and songs (language play) containing simple stories introduce children to word, number, concept, and narrative elements, which assists in their language and cognitive development while building an informed foundation of the world around them (Mullen, 2017).

**Unique Appeal.** The unique appeal the mothers found in NRs was connected to prior research. Using the mothers’ own words to identify subthemes (see Figure 17), their descriptions related the NRs unique appeal through enjoyment and repetition, fanciful characters, catching attention and memory sticks, music and movement, and teaching and learning catalyst, which supported prior literary findings.
**En Joyment and Repetition.** Because NRs are short, appealing, engaging, and attention getting, NR knowledge builds confidence along with language and literacy skills (Dunst et al., 2011; Suryani & Novia, 2017). This was supported by Faith Ann, who stated the, one-on-one time that you actually get to spend with your child, that makes a big impact with them . . . creating a bond. But it’s also keeping it kind of fun for them because it’s not just sitting there, you know, loving on each other, it’s sitting there and you’re singing, . . . the “Pat-a-Cake” song. You’re actually doing stuff with them, and it’s fun for them at any age, honestly.

**Fanciful Characters.** Delightful characters and fanciful places can be found within NRs that fill imaginations, which are also expressed within the images that are placed in NR books and programs to stimulate further creativity (Cardany, 2013; Suryani & Novia, 2017). These
characters within NR books offer a way for children to become familiar with the text, allowing them to “read” the short NR stories by initially supplying and predicting the rhyming words or phrases for a treasured NR character. Such characters, their NRs, and other rhyming texts typically compose 38% of a child’s home library (Read et al., 2014). Supporting the literature on fanciful and memorable characters, Havanna expressed her thoughts on the aspects of NRs that are engaging to children:

If it’s in a book, or even if it’s a video or like, movie type film, I think a lot of it has to do with the characters and the way the characters are described when there are characters involved.

**Catching Attention and Memory Sticks.** The unique structure of NRs contains structural indicators that may enable young infants and toddlers to attend longer to IDS and communication, whether in speech or song format (Hahn et al., 2018). In analyzing songs to determine what makes them catch a listener’s attention, hook them in, and cause them to stick in their head, Hume (2017) found four key elements: vowel elongation, motivic reiteration, vowel repetition, and the incorporation of prosodic devices. Under analysis, “‘Baa, Baa, Black Sheep’ contained vowel elongation, varying rhythmic lyrical patterns, and an interesting lyrical rhythm” (Hume, 2017, p. 3). Attesting to their catchiness and sticking with listeners, the origins of NRs coming from an oral tradition evidence this point. Pourkalhor and Tavakoli (2017) identified how pieces of adult songs, religious pieces, and the catch calls belted out by street peddlers were appropriated and incorporated into the daily lives of children to be transformed and adapted into NRs.

Isabella and Nora Beth verified the prior research on NRs catching the attention of young children. Isabella offered her support and the following description: “I think it teaches them how
you rhyme, rhyming words . . . They make it catchy . . . It just teaches them the repetition and teaches them language, words.” Nora Beth supported NR research and their use, indicating, the nursery rhymes, just the catchiness, . . . rhythm, . . . music, . . . and the interaction that you do with those nursery rhymes [is] . . . what’s really engaged him and allowed him to grasp the concepts and retain that information and actually learn.

Emmie related her thoughts, stating, “I think it just makes it more memorable, and it just makes the information stick a little bit more.” She later continued, “What they learn at that age sticks with them, and they compare it to other things later on.” Nora Beth shared further, “They’re catchy, and they’re repetitive, and they call for action. Those are the things that stick with my son,” which also highlights the following point on NRs and the use of movement.

**Music and Movement.** Music can promote and enhance language development, auditory neural processing, cognition, emotional expression, and bonding between mothers and their children and therefore can be an influencing factor in an infant’s development (Dayton et al., 2017; Rocca, 2015; Virtala & Partanen, 2018). Engaging in music and movement with a child leads to an increase in attachment and connectivity to the child (Diamant-Cohen et al., 2018; McLean, 2016) and if these acts become part of the everyday routine in the home, they will contribute to consistent literacy practices and lead to increases in a child’s pre-literacy skills (Dunst et al., 2013).

The study confirmed previous research on the use of music and movement with children. Faith Ann emphasized the fun, bonding, music, and movement aspects of using NRs with her daughter, which supports the existing research:

For me, I think it’s more of the one-on-one time that you actually get to spend with your child that makes a big impact with them. Because . . . you’re getting to spend that one-on-
one time with them creating a bond. But it’s also . . . keeping it kind of fun for them because it’s not just sitting there, you know, loving on each other. It’s sitting there and you’re singing. . . . it’s like the “Pat-a-Cake” song. You’re actually doing stuff with them.

In describing how she used NRs with her son, Lauren emphasized the use of motions or movement: “I mean dance, doing motions. Basically, . . . he hasn’t got into anything bigger than that, like games . . . He doesn’t have the attention span to get into it.”

The research on music and movement and on catching critical time periods in language development was supported by Emmie and Kimley’s experiences. Emmie described her son’s behavior when he was just under a year old and prior to his talking: “He wasn’t really like singing words, but he was humming them . . . He would start to sway his body and start to move to the rhythm of it. He has always liked to dance and sing.” Kimley also related a specific language learning experience:

When we taught her the “Head, Shoulders, Knees, and Toes” song, it was like an epiphany . . . I can remember the first time we were playing that song; we were in the car. It came on the little toddler station we play, and she was in the backseat in her car seat. And I was doing the hand movements with like one of my hands, and I was trying to show her my toes. And so instead, I was reaching back there and grabbing her toes. And so, then she starts trying to grab my toes, and I’m like, “Oh, you can’t reach my toes.” And that’s when that really kicked off the learning the “Eyes and Ears and Mouth and Nose.”

Isabella also shared how NRs were used in her home environment: “We sang songs. We would . . . act it out . . . with the older ones, you know, they would ask questions, and . . . he would get to listen to them talk, using his imagination.”
**Teaching and Learning Catalyst.** A mother’s level of responsiveness to her infant and toddler’s explorations and efforts to communicate, even before actual word formations occur, is tightly tied to early word learning and initial vocabulary development, so much so that the toddler can meet and advance through language developmental milestones a half a year earlier than normal (Tamis-LeMonda et al., 2014). The incorporation of NRs provides exposure to listening contexts where listening becomes an applicable tool for promoting communication, speaking, and vocabulary development (Pourkalhor & Tavakoli, 2017). Among children who were not taught NRs, Suryani and Novia (2017) discovered significantly lower levels in their listening abilities. Applying the tool of listening aids in the detection of prosodic cues that are generally considered to be critical for language acquisition and perception (Sallat & Jentschke, 2015). The elements within prosodic cues aid infants in detecting word and phrase boundaries, which enables them to collect knowledge concerning the linguistic patterns unique to the language to which they are exposed (Sallat & Jentschke, 2015; Suryani & Novia, 2017). A child’s sensitivity to the prosodic contours of sentences and phrases assists in cueing and processing words (Read & Regan, 2018). Taking prosody a step further, combining singing with NRs can promote and support auditory and language development in children when responsiveness and engagement are provided (Hahn et al., 2018; Harper, 2011; Virtala & Partanen, 2018).

Results of the current study supported the existing research on how to structure early language experiences to maximize toddlers’ language learning. Bianca shared how she supports language learning with her daughter and how her parental behaviors affect the teaching and learning experience:
It tends to help your child perhaps think a little better. Instead of just normally pointing at something and saying, . . . “this is your arm, [or] this is your leg.” It’s a way, if you’re able to relate it in a nursery rhyme, [to] make it fun and comical, and the children hold on to it a little better and memorize it better.

An additional example Bianca shared in structuring early language experiences to maximize learning for her daughter using NRs was related:

We were doing the alphabet the other day and like, /a/, /a/, /a/ is for apple. We’re singing along. And so, the next day she came in, and she actually got an apple from the fruit basket. She came in and . . . she was like, “Mom, /a/, /a/, /a/. It’s for apple.”

Kimley offered information on how to structure early language experiences and learning using NRs:

Nursery rhymes are important because . . . it help[s] them . . . They’re more excited about learning and reading, when . . . you read to them often. But it also helps them learn certain aspects in life, fundamentals, to help them learn their anatomy, and how to count, and their ABCs. And how to socialize with other children. How to socialize with adults. How it teaches them manners. There’s so many positives to teaching your children nursery rhymes and the meanings behind those nursery rhymes. You can’t just read them story and expect them to pick up on it. You’ve got to talk to your kids about it. And that’s what I would hope that these parents would take away is not only is it important for you to read these stories to your children, but also to explain them to your children.

Lauren detailed some of the things she has used NRs to teach her son through repetition: “He has learned so much from them. He has learned animals and their sounds, his body parts, his manners, different emotions, and counting. He tries to sing some of the alphabet because we sing
it over and over again.” Emmie provided an intriguing thought concerning NRs and teaching and learning: “I think music is and nursery rhymes is calming for kids. It just makes it a little less intimidating to introduce new material [to] them.”

**Knowledge Seeking, Unawareness, and Inability**

When tasked with helping their toddlers developing language, the mothers often encountered difficulty. Amid the difficulty, the mothers revealed three ways of functioning in these situations. Several mothers exhibited knowledge seeking, some related and demonstrated times of being unaware, and some shared factors preventing them from using their knowledge or limiting their ability to use their knowledge with their toddlers.

**Knowledge Seeking.** Children whose mothers have knowledge of the importance of daily and repeated exposure to sounds, words, speech, and print and make a point to include them into the daily activities outside of what their cultural and society group contribute can affect a child’s trajectory beyond those relating to which socioeconomic strata they may fall within (FACE, 2013; Masek et al., 2018). The level of a mother’s responsiveness from birth strongly predicts the receptive, expressive, and overall language levels of the child at the ages of 3 and 4 years (Hudson et al., 2015).

During periods involving responsiveness, there is an increase in neural synchronization that signals more robust mutual cortical oscillatory phase alignment between the mother and child, possibly leading to greater language encoding for the child because they are, in plain language, “on the same wavelength” (Golinkoff et al., 2015; Jiang et al., 2012; Leong et al., 2017; see also Yun, 2013). If such an event is interrupted by a phone call or other disturbance, the child’s language learning suffers, irrespective of the word being presented for the same number of times in the same length of time (Masek et al., 2018, p. 19; see also Reed et al., 2017).
The tools of “motionese” and “motherese” assist in the connectivity needed for temporal alignment between the mother and infant’s brains, which creates a joint association to improve the transference of learning to aid in language development (Leong et al., 2017) and assists in greater efficiency in information processing for the child (Kubicek et al., 2014). A “distracted parent” is not able to engage to a level where temporal alignment can take place, just as an otherwise engaged infant would not be temporally aligning with a parent (Masek et al., 2018). Additionally, because they may feel foolish and awkward, some parents may omit these uniquely effective behaviors, such as “motionese” and “motherese,” to which a young child’s brain is attuned (Bales, 2014; Myers et al., 2019; see also Ghosh, 2016). IDS, or communication that is direct to the infant, provides the stimulus to attend to language, a way to build social interactions with others, and information about the many aspects of language through distinctions (Golinkoff et al., 2015).

When mothers’ educational levels play such a substantial role in children’s language and later literacy development, their NR knowledge and usage come into question. A recent article detailed what many EC teachers are encountering and feeling regarding parents, indicating “fewer and fewer children know their nursery rhymes to the point where I fear they are dying out” (Pinnington, 2020, para. 5). Previous research has shown this to be a thought held in the past 5 years as well. Only 22 of 54 EC teachers polled and seven of 52 kindergarten teachers held positive opinions concerning parents’ competencies and behaviors regarding their support of language and literacy in their children (Nyitrai & Podráczky, 2016). This is a past experience that polls and surveys (Bolton & Clark, 2012), educational organizations (Scholastic, 2009), and popular media (Bloxham, 2009) have referred to concerning the variations in levels of parenting knowledge and practices. Collectively, parents have been found to view NRs as “old-fashioned,”
embarrassing to use, unneeded and useless, and holding little educational significance for their child (see also Bornstein et al., 2010; Dunst, 2011; Dunst et al., 2011). Even though NR singing has been found to be the most frequent form of songs used with toddlers, mothers report self-consciousness, singing insecurities, and lack confidence in their singing abilities, which prevents them from using the NR songs and singing them with their toddlers (Fancourt & Perkins, 2017; Rocca, 2015).

For the mothers in the current study, parenting knowledge was sought and developed in several ways. Faith Ann shared how she obtained some knowledge through parenting classes, stating, “It was just prenatal, like on how to take care of the baby. What if this happens? like, during the pregnancy, having her, that stuff.” Because she had already had prior children, Emmie related classes were not needed: “I’d already done this twice before. So, I didn’t take any classes or birthing classes or anything.” However, she did share her very first pregnancy experience where she described,

I really didn’t know any children. So, it was kind of scary for me actually. I asked a lot of questions . . . with my mother, my sister, my aunt. I wasn’t really sure how to do it at the time.

Kimley went even further in her search for knowledge:

I did a ton of research. I went kind of crazy I think, a little bit. I was constantly researching blogs and articles and talking to everyone I knew who had ever been a mother, just to find out . . . how to be a parent, I guess . . . A lot of my friends had kids already. So, I talked to a lot of them. But whenever I had my daughter, it was like all that research went to nothing . . . I knew some things, but not everything. I didn’t think to ask the questions that I needed the answers to when I took her home.
Kimley later shared, “I think the biggest, the hardest thing about parenting is figuring out what works for your child. Because every child is different.”

Regarding personal NR knowledge, Emmie shared how she filled her lack of NR knowledge: “I’m not even gonna lie. Most of them, I don’t know. I go right to YouTube.” Also turning to technology to fill a void, Lauren demonstrated her accumulation on NR knowledge:

I guess just knowing them. Being able to teach him since I already knew some . . . I remember a lot of my from my actual childhood . . . [but] it was more so me being a little bit older and keeping kids all the time. So, we would, you know, read them, or sing them or do like you know, YouTube videos of the nursery rhymes and go from there.

Indicating an increase in NR knowledge, Bianca relayed her experience when asked about NR use in comparison to her first born, second, and third and whether there was an increase, decrease, or about the same through each child. Bianca felt it “probably increased because I learned a lot more over the last 10 years raising the kids.”

Several mothers in the current study indicated they had picked up NR songs from the NR shows. In describing the NR shows her daughter watched, Amy related one of the NR songs she herself had learned, “They’ll sing like, ♬ brush your teeth high, brush your teeth low ♬. Yeah, she loves that one. They do lots of nursery rhymes.” Havanna also shared several of the NR songs she had picked up from the NR show her daughter liked, including the “Bathtub Song,” “Wash Your Hands,” and “Sippy Cup;” ♬ Fill, fill, fill it up, don’t drop your sippy cup. ♬ Faith Ann filled in her missing NR knowledge through her mother and NR shows:

I think most of them do come from my childhood because I remember them. There was some that I didn’t remember that my mom reminded me of . . . Most of them popped back up once I had my son and put it on Baby Bum and they started singing the nursery
rhymes and stuff. I was like, “Oh, yeah. I remember that song.” So, it’s really when I started doing the Baby Bum stuff when it like clicked back.

Many of the mothers indicated feeling other mothers are failing to use NRs. Amy shared how she feels “there’s not a lot of young mothers out there that are really doing nursery rhymes with their kids anymore.” She continued regarding the future, stating, “I don’t think there will be a lot. I know there’s going to be some, but I don’t feel like a lot of people are going to understand them or know them.” Bianca felt “people aren’t utilizing nursery rhymes a lot anymore.” She continued later concerning the future of NRs, stating, “if we keep going the way we’re going, it’s going to be a lost art. Just because, the nursery rhyme that I sang at the very beginning of the interview, very, very little people know [it]. They’re being forgotten.”

**Unawareness.** A second behavior involves the lack of awareness on the part of mothers today that unknowingly contributes to omissions in parenting skills. For a mother to influence a child’s learning, she must have an awareness of the dependency her child has on her and the knowledge she holds concerning the role she plays as a teaching and learning agent in creating a conducive environment and her effective actions that take part within it (Dunst et al., 2018; Edwards, 2014; Terrell & Watson, 2018).

Twenty percent of parents are unaware of the need to aid in their toddlers’ communication and language skills, which leads to their neglect in providing daily support in language literacy development, such as singing, performing, or reading NRs (Bolton & Clark, 2012). Research shared by the NLT (2011) highlighted,

a fifth of parents-to-be (19%) believe it is only beneficial to communicate with their baby from the age of three months and [sic] one in 20 (6%) believe [it] . . . is only necessary when they are six [sic] months or older. (p. 1)
Even further, 1:8 parents (13%) feel someone beyond the family is principally responsible for instilling communication skills within their child (NLT, 2011).

Whitmarsh (2011) found first time low SES mothers were unaware of the importance of engaging their infants in interactions involving language, CDS, or even the reasoning behind reading and sharing books with them. Many mothers do not claim their role in their child’s familiariness with the sounds of words (Qaddos et al., 2020). Richards et al. (2017) found in their research that parents are not fully aware of the level and amount of communication they use with their children. Of further significance concerning parents not being aware of their talk with infants and toddlers, Richards et al. (2017) related, “children with lower language skills tend to elicit less parental speech, children in need of early language intervention may be even more likely to experience an impoverished language environment” (p. 165). Prior to starting school, the early experiences of children are extensively different to the point where “not all children have been given enough experience with listening to stories and rhymes” and are found to lack in the areas of rhythm, rhyme, oral blending, and segmenting (Pinnington, 2020, para. 14).

Even though the mothers were using NRs, there were instances where some of them were unaware of their impact. The two mothers who had concerns about their sons’ language development, Nora Beth and Mila, communicated their unawareness of language development. Mila related her thoughts concerning her son’s delay in talking, stating, “I really, I don’t know how much he’s supposed to be talking. But he really doesn’t talk that much. Like, I’ve never had him like repeat it from me.” Mila’s unawareness may have led to her son not eliciting his mother’s speech and engagement, nor her making overtures to interact and engage in language exchanges with him. This may also be the result of her parenting philosophy when encountering
difficulties, as she stated parenting is “never knowing what you’re gonna have to do next, because you don’t have the answers as a parent. You just have to wing it.”

In contrast, Nora Beth exhibited increased effort to bring about language development after her son’s pediatrician surveyed his level of vocabulary. Her efforts focused on,

[requiring] him to start asking for the things he wanted, drink, cookie, things like that. At first, he wasn’t that good [at it], but even if he just made a noise that was close to the word, I’d reward him for the effort. [It] didn’t take him long to figure out that if he tells me what he wants, he gets it faster.

Nora Beth followed up with the use of picture books with simple text. These were in addition to her prior and continued use of “nursery rhymes . . . at home, during travel, and at grandparents’ homes on a daily basis . . . through song as that is his preference, but sometimes through ‘active’ story play as well.” Her efforts were rewarded when she disclosed that she “did not know how much those little nursery rhymes were influencing him until when he just recently started finally, you know, really [becoming] engaged in language.” She also related several instances of being unaware of developmental points, prior to the above-mentioned occasions:

I was really surprised that I didn’t know that he would know it this early. I mean, maybe that’s normal that he knows it at this age. But I just, I guess I was surprised. Because just like, I didn’t realize that he knew the whole thing in order at this point.

Nora Beth continued later, sharing, “I mean that at 2 years old, he can say his whole alphabet in order and count to 10. And I’m just like, to me, I don’t know how quickly they’re supposed to do that.”

**Inability.** A mother’s support of her toddler’s language and overall development can be constrained by the availability of time, money, and education, leading to learning variances
Hughes et al., 2018). Many parents hold a false belief that they can make up for lost time on literacy skills just prior to their toddler entering PK or K. The research on child learning environments demonstrates a child who experiences low levels in the learning environment and low levels of parental engagement as early as 15 months of age will tend to continue such experiences through K, indicating “catching up” on learning experiences is not likely to occur because of solidified patterns of environment and engagement behaviors that had already been set (Rodriguez & Tamis-LeMonda, 2011). Many mothers are not spending any time each day in such activities as using NRs or playing word games with their child to facilitate language development (Bolton & Clark, 2012). Mothers from high SES may also have children who do not experience enriching engagements and strong parent–child interactions laden with discourse (AAP, 2014). Several reasons for an absence in mothers performing these activities include being unaware of the vital influence they have on their child’s skills as noted in the prior section (Bolton & Clark, 2012), demanding jobs and tiredness (BookTrust, 2017; Sosa, 2016), and spending time absorbed in technology pursuits (Bolton & Clark, 2012).

Some effects of mothers putting in long hours at work and greater levels of tiredness have been found during reading sessions with their children. When reading with their children they often are skipping pages, denying a second story, or ending the story early (BookTrust, 2017). Additionally, a change in levels of parent–child communication has been noted by teachers who are concerned about this alteration and feel the degree of intimacy between parents and children is not as strong as it once was (Nyitrai & Podráczky, 2016). Regrettably, close to one in 10 parents will spend less than 10 minutes a day performing language and literacy building activities (Bolton & Clark, 2012). Reportedly, one-third of parents are not aware they are the
most influential individual regarding their child’s language and literacy development and outcomes (Bolton & Clark, 2012).

The mothers in the current study frequently listed balance regarding parenting today. Nora Beth put it into perspective when relating her thoughts on parenting at the time:

I’m going to say finding balance between the business of life and giving your child the time they need, just one-on-one interaction . . . There’s a lot more women that work outside the home than they ever did before. And so, you know, historically. And so, I’m just gonna say it’s, it’s harder for women these days, I think to find balance between social, work, and home life. That’s probably the biggest effect.

Amy reaffirmed this point, stating, “It’s just structure really having that time that you’ve got you need with your kids, that healthy balance.” Bianca expanded upon the thought of balance, structure, and time:

You need that healthy balance of structure and time with them. Sometimes it’s hard when life gets busy as a parent. You [are] caught up on everyday worries and bills and work, and you got that healthy balance of structure.

Isabella examined the issue of parenting difficulties today from another angle:

Distractions and the pace we live our lives. With having older siblings, we are constantly doing something or going somewhere. It is difficult for us to slow down and have bonding time without it impacting schedules. The many distractions also make it difficult to bond. For instance, if the tv is on it will draw their attention.

An additional area was the worries and pressures for their child to develop on time and meet scheduled milestones and physically that may hold them back. Lauren’s worries were immediate:
At the beginning, I was concerned before he was even kind of able. Just because, he was exposed to drugs. So, I was you know afraid the first few months that he would you know be behind. But he is ahead. So, that’s a miracle.

Isabella experienced a recent occurrence that caused tremendous worry:

In March of this year, my son fell and hit the back of his head. He had a concussion and stayed in the hospital for 2 days. He was lethargic for almost 12 hours. After he finally woke up, his speech and balance was delayed. It took him a little over a week to learn how to walk again without falling. His speech has also been delayed since.

Another mother with a physical restriction that affected the first year of her daughter’s life was Kimley. Her daughter’s ankyloglossia (tongue tie) brought worries: “I thought we might have to have a surgery or go to speech therapy or something, but that issue was resolved.” Havanna also experienced deep worries that her daughter was autistic: “She did not smile for, I’m going to say probably the first year.”

Nora Beth and Mila both had concerns over their sons not talking. Nora Beth related her previous worries:

For a little while, I was concerned about him not really wanting to say a lot. I guess at this point, because I know the last pediatric visit we had is the 2-year checkup. She asked me, “Does your child have a vocabulary of 50 words or greater?”

Mila also expressed further concerns:

So, I am a little worried about it because I do think that he’s a little behind where he’s supposed to be for his age. He just doesn’t really talk a whole lot. Like, I’ve been kinda worried about whether or not I need to go talk to somebody about if he needs to if he needs to talk to somebody or see somebody to develop more of his language skills.
Technology

Technology today is pervasive and prolific in terms of availability, new innovations, and overall usage (Vittrup et al., 2016). Children are now fully immersed into a technological world that has infiltrated an entire generation, leading to the generational name for today’s children as iGens. The recommendation of the AAP (2014) for toddlers below the age of 2 years is 0 minutes of electronic media per day and for those above the age of 2 years is no more than 2 hours per day of screen time. However, toddlers under 2 years are spending close to 90 minutes a day on mobile and screen media (Rideout, 2017). Older children, those aged 2 to 4 years, are involved in 210 minutes per day in mobile and screen media (Rideout, 2017). Counter to recommendations, 33% of parents feel media exposure early in life (0–3 years) is of importance for early brain development, and further, 33% believe restrictions could lead to their child falling behind academically in EC (Vittrup et al., 2016).

Demonstrated significance has been found with mobile media device use and its association with expressive speech delay for toddlers 18 months of age (van den Heuvel et al., 2019). In their review, Anderson and Hanson (2013) concluded background television has a negative impact on high-quality interactions between parents and their children, which can be confounded by other technology leading to additional parental distractions from engaging with their children in what McDaniel (2015) referred to as “technoference.” Until infants reach the age of 18 months, they are not capable of learning from media screens; however, Wartella et al. (2018) placed the age at around 3 years (see also AAP, 2016; Barr et al., 2018). Because of a toddler’s inability to transfer learning (transfer deficit) and apply it in another context, the use of screens in solitary use is not a viable learning tool, making human and physical object interactions critical for learning (Barr et al., 2018). The primary component in toddlers learning
from commercial media is adult facilitation during their engagement, where the adult is reinforcing the content being depicted (AAP, 2016; Terrell & Watson, 2018).

Previous research on parent reported technological and media device use indicated they are spending close to 7 hours each day, not including usage at work, consuming digital technology, which would leave very little time to engage with a child considering a parent is likely working an 8-hour day (Vittrup et al., 2016). When children are viewing their parents completely engaged with technology for extended periods, one would expect the children will emulate what is being modeled to them. Many parents are spending over 90 minutes each day on social media accounts and other social screen time instead of connecting with their children (BookTrust, 2017).

In a great many cases, technology is being used to entertain children, with 90% of parents agreeing they use media technology to keep their children occupied while they are attending to other things, sometimes weekly, but 71% stated they do so daily (Vittrup et al., 2016). Between work, household, relationships, and personal needs, mothers experience time constraints that cause them to place their children in front of or holding screens to entertain them, most with little to no supervision (Del Bono et al., 2016; Sosa, 2016; Vittrup et al., 2016). Where children (0–8 years old) are using the devices the most is in the car (38%), but surprisingly 33% are using them during mealtime (Rideout, 2017). Regardless of whether the parent works in or outside of the home or is unemployed, the entertainment factor is employed in occupying children, with slightly more occurring with those not working (Vittrup et al., 2016). Parental reports of their children’s screen time indicate almost 70% view their children as spending the correct amount of time using technology, although parents often underestimate the amount of time children are
engaging with electronic media, just as they do with the estimation of talking with their children (Rideout, 2017; Vittrup et al., 2016).

Regarding the use of animated NR shows, there is very little research. One recent study was found that compared oral versus animated NRs. The researchers argued that NRs “have not lost their importance yet and this re-invention has actually helped them in surviving in this era when the channel of oral traditions of storytelling is almost replaced by mobile phone apps, social media channels and digital games” (Qaddos et al., 2020, p. 9).

The mothers in the current study supported much of the prior research on technology. All the mothers had internet access at home and had an average of over five and a half tech devices. The average age indicated by the mothers for when their child began using technology devices was 1 year old (see Figure 16). Lauren related the age at which her son received a tablet was later than the average:

He didn’t have technology besides like, a little bit of TV here and there until he was 2 years old. He got his own tablet for his 2-year-old birthday. So, once he hit that, and actually technology has even helped him improve learning and, you know, learning more nursery rhymes. Even more than we think. Just because it goes to different ones, even some that I haven’t known.

Even though her son has a tablet, Nora Beth indicated “it is only used when we like go out to eat or something.” She reiterated the point in her journal concerning where she used NRs: “Nursery rhymes are used at home, during travel, and at [his] grandparents’ homes on a daily basis. These were delivered mostly through song as that is his preference, but sometimes through ‘active’ story play as well.” Travel and in the car were frequently brought up as places to share NRs and
included technology during the process, which supported prior research. In describing the format of the NRs she used, Faith Ann listed a variety:

It’s kind of been a mixture the whole entire time. Some of it’s been programs on TV. Some of it’s just been little videos. Some of it’s been electronical, like my phone, say if we were out somewhere. Those have been the main ones that I’ve used most of the time, because I can hook my phone up through Bluetooth. So, most of the time, I’ll just hook up the songs, and she’ll be back there, you know, just trying to sing them and talk them out and everything. And then also, they have a little learning tablet that her and her brother share, and it’s got the videos and everything on it. So, a lot of times, I may hook up the tablet, and just hook it to the chair, head set on the back of the chair, and she can watch it while I’m driving.

Kimley revealed her daughter’s “favorite place to sing, however is the car. I used to play toddler radio in the car, and she would try to sing along with those.” She also shared a major learning moment that occurred in the car:

When we taught her the “Head, Shoulders, Knees, and Toes” song, it was like an epiphany. She was, she was very excited. I can remember the first time we were playing that song. We were in the car. It came on the little toddler station we play. And she was in the backseat in her car seat, and I was doing the hand movements with like one of my hands and I was trying to show her my toes. And so, instead I was reaching back there and grabbing her toes. And so, then she starts trying to grab my toes, and I’m like, “Oh, you can’t reach my toes.” And that’s when that really kicked off the learning the “Eyes and Ears and Mouth and Nose.”
When asked what she would share with other mothers concerning NRs, Mila indicated
she would share that there are,
many kinds . . . [and] different ways of using them, like a couple of different books or
other videos. Because sometimes it is hard for the kids to focus. Like I said, it’s really
hard for him to sit down and listen to me read a book, but he will watch them on a video
or on a TV or on like, the radio or anything else besides a book.
Nora Beth supported the use of television and a tablet by her toddler. She specified that her son’s
preferences were “television and then books in his room, [with] television first and book second
and electronic devices, such as his little tablet that we have for him.”

The mothers extended the very limited research knowledge on animated NR show use.
When asked about the future of NR use the mothers had varying responses, but most found the
outlook to be limited. The potential for a positive outlook was shared by some. Kimley
hypothesized:

They’ll continue the traditional nursery rhymes, especially if they continue to encourage
shows like CoComelon, where they learn and TV. So many parents are content with
doing the easy thing and taking the easy way out. If they can provide apps for children on
their tablets, and television shows that their parents can set them down, give them screen
time and turn on CoComelon or their nursery rhyme app, I think that they will prosper.
However, if they don’t continue to do that, parents are, they are, they’re trying to take the
easy way out. It’s so much of today’s life [that] is technology focused, and I feel like the
more technology comes out, the more we give to our children. The more technology we
allow our children. And if these apps or TV shows that encouraged nursery rhymes aren’t
continued, then nursery rhymes in general probably will not continue. A lot of people
don’t even have actual books in their house anymore. They use Kindles or their phones.

And so, they’re going to be outdated eventually.

Havanna endorsed the use of animated NR shows:

I used to swear by the Baby Bum, the singing of nursery rhymes, because it did teach the kids to wash your hands, brush your teeth, pick up after yourself, be kind to others, you know, important life lessons and skills.

On the opposite side, Isabella felt that,

with as much technology as there is now, I feel like it, nursery rhymes, it’s going to get put on the backburner. Unless they were taught, for instance, like I was. You know, my grandma doing them with me made me want to do it with them, maybe they’ll want to do it [with their children].

Amy made the point of including social media in her assessment of NR use today when asked about it. She said “there’s not a lot of young mothers out there that are really doing nursery rhymes with their kids anymore” Amy stated “social media and the internet, it takes a lot away from your being with your kids.” Bianca supported the research on electronic babysitting in her view on NR use by mothers. She felt “we’re leaning more towards letting electronics babysit the kids. A lot of kids these days growing up are not [learning NRs]. Nursery rhymes are becoming a lost art maybe.”

Theoretical Literature

In the theoretical contributions, there were three cognitive theories guiding the study:

Vygotsky’s (1978) sociocultural theory, Pestalozzi’s (1830) TOT, and Piaget’s (1953/1998) TCDS. The three theories were supported by the current study as the mothers played a mediating role in language learning, constructed environmental supports for their toddlers’ development,
and filled their toddlers’ environments with sensory experiences to aid in the toddlers’ cognitive sensory schema to learn language.

**Sociocultural Theory**

The experiences of mothers with their young toddlers corroborated the sociocultural theory (SCT) proposed by Vygotsky (1978). The mothers played a mediating role in their toddlers’ learning through social and cultural activities. Vygotsky’s thoughts upon childhood language learning stipulate that children will “learn as they participate in socially valued activities, gaining dexterity with the goals, practices, and tools common to the activities of which they are a part” in their environment (Seaman & Gingo, 2010, p. 160). The societal patterns within the environment in which a child resides affect the building of complex mental processes that produce the tools they will later use during formal learning exercises (van den Heuvel et al., 2019).

Bianca related how her daughter participated and engaged in a family social and cultural activity that also became a tradition:

My toddler gets engage with nursery rhymes with family often. She sits on her Papal’s legs and they sing. ♬Ride the bucking horsey all the way to town, take care of [Name], don’t let her fall down!_unlocked_sona I believe this is a form of nursery rhyme use. We use nursery rhymes all the time, pretty much anywhere for many different situations.

Lauren took a song from her childhood and incorporated it in her nightly ritual with her son:

“The one, ‘You Are My Sunshine’ has been my song to him since I’ve had him, and it means even more now.” Faith Ann shared an example of her daughter’s social NR engagement with her friends:
When my friend’s babies come over here, because there’s a lot friends that we have with kids around the same age as both of ours. And we’ll turn on Baby Bum over here, and she’ll actually go over there, and she’ll just start grabbing their hands trying to dance with them to the little songs while they’re playing. So, it definitely helps.

**Theory of Transmission**

In sharing their experiences, the mothers’ exhibited various levels of child and language development knowledge; however, each offered support in the form of NRs to aid in their toddler’s language development, validating Pestalozzi’s (Green, 1905) theory of transmission (TOT). This builds upon the idea of childhood as a uniquely important and special period of human growth that is built through immediate environmental experiences through the positive bond developed between the mother and child (Gutek, 2011). The mothers in the current study facilitated their toddlers’ language learning through NR use and enriched their toddlers’ environments in such a way that led to the cultivation of a stronger bond being developed in the mother–toddler relationship, supporting Pestalozzi’s TOT.

Even during pregnancy, the mothers were bonding and connecting with their babies. During the prenatal period, the mothers often incorporated lullabies into their interactions.

Bianca related her early positive bond:

I would say utilizing nursery rhymes began, I would say in those first . . . weeks because, you know, you’re singing it to your baby, “Rock-A-Bye Baby.” You’re holding them. You’re cuddling. You’re singing, “Twinkle, Twinkle, Little Star.” They’re finding that comfort in your voice and that feeling.

Faith Ann related how she created a bond with her daughter while using NRs:
For me, I think it’s more of the one-on-one time that you actually get to spend with your child that makes a big impact with them. Because . . . you’re getting to spend that one-on-one time with them creating a bond. But it’s also, it’s keeping it kind of fun for them.

Because it’s not just sitting there, you know, loving on each other. It’s sitting there and you’re singing . . . Say it’s like the “Pat-a-Cake” song. You’re actually doing stuff with them. And it’s fun for them at any age, honestly.

**Theory of Cognitive Developmental Stages**

Piaget’s (1953/1998) theory of cognitive developmental stages (TCDS) was corroborated and found to be significant in most of the mothers’ experiences with their toddlers, for the toddlers incorporated their senses as their cognitive schema to learn from and about their environment during NR use for language development. “Nursery rhyme knowledge should increase our understanding of its development and its relationship to the emergence of early literacy competence” (Dunst, 2011, p. 6) by examining the interactions that occur between the parent and child. In his observations, Piaget concluded cognitive development depends upon the coordination of schemas. In the early phases, the connecting of schemes occurs through looking, listening, and touching (Bransford et al., 2000). Vihman (2017) stated research is beginning to relate Piaget’s TCDS to the brain development of young children during their lexical and phonological construction in language development. When children are actively engaged in interactions with their mothers during everyday experiences, there are a multitude of opportunities for children to construct their own cognitive language connections, which is what the mothers found in structuring the home environment.

Faith Ann related how she aided in her daughter building her senses early on, which helped her to build her cognitive construct of language through schema:
I guess, nursery rhymes were more when she was littler, and she couldn’t really move around, you know. I would have her on my lap, playing with her moving her arms, moving her hands, touching her feet, try[ing] and get[ing] her little senses up and everything while she was watching it and singing to her.

Emmie supported the theory in relating her thoughts on the importance of NRs and using them with toddlers: “I don’t think they really understand that that is kind of the basis of how children learn. What they learn at that age sticks with them and they compare it to other things later on.” Bianca provided an example of her daughter’s cognitive moment that expanded her brain connections:

We were doing the alphabet the other day, and like, /a/, /a/, /a/ is for apple. We’re singing along. And so, the next day she came in, and she actually got an apple from the fruit basket. She came in there, and she was like, “Mom, /a/, /a/, /a/. It’s for apple!”

**Implications**

The current study holds several theoretical, empirical, and practical implications that are each addressed in the following sections. Specific stakeholders are identified concerning the potential use of the findings within the current study and the conceivable implications to their practices.

**Theoretical Implications**

The current study has several theoretical implications, with the first being mothers who incorporate NRs while pregnant can expect to have greater levels of bonding and connecting with their unborn child that could potentially translate into fetal learning that carries over into the prenatal time period. Emmie shared how she played different NR lullabies to her belly just so her son could hear them while she was pregnant. She later used the identical songs to help him
emotionally regulate. Emmie disclosed she “later played [them] for him while he was trying to calm down as a baby.”

Once at home with their newborn child, the inclusion of NRs aids the newborn child in emotional regulation that has lifetime effects, and while doing so, serves as a means of bonding and connecting between the mother and newborn. Newborn infants have an inability to emotionally regulate. They seek adult assistance during insecure times for their mother’s sensory soothing effects found within her touch, melodious IDS, singing, and movement, most of which include a rhythmic pattern and steady tempo to alleviate discomfort (e.g., rocking, patting, repetitive vocals; Corbeil et al., 2016; Hahn et al., 2018). Kimley, who did not relate any pregnancy bonding behaviors, shared about her newborn daughter, “The first night she stayed up screaming the whole night. And I just remember sitting in her room crying and rocking back and forth, and she’s crying. I’m crying. My husband comes in, and he’s like, ‘What’s wrong?’”

In the infancy period, a responsive mother’s use of NRs will incorporate IDS, enhancing her toddler’s brain activations through multimodal language processing and creating greater cognitive abilities that lead to greater language processing abilities and vocabularies later on. “Specifically, for young infants, discrimination between ADS and IDS is essential for the infant to identify the speech that is directed at them . . . [which] contains information that facilitates language development” (Peter et al., 2016, p. 2). With her son’s language learning, Nora Beth relayed her experiences:

With his language development . . . it’s a lot repetition. And so, we tend to focus on these because it catches his attention, and it’s a lot of repetition. It helps him to associate the word with the action or the word with the item. And so, he is finally, because I think he honestly was just a little lazy, sometimes. But um, he’s finally starting to understand, you
know, this is this word. And if I want this to happen, then I have to say this word, and a lot of that’s come just from the interactive play and repetition of the nursery rhymes and the educational time we have set aside, you know, that we focus on, you know, learning certain things.

During critical periods of language development, greater levels of responsiveness will occur for infants whose mothers incorporate NRs with more diverse word choices, which will lead to greater word production and vocabulary. Any “disparities are important, not because of the number of words per se, but because when children know more words, they have more concepts and more ways to categorize their world” (Pace et al., 2017, p. 290). Lauren shared how her son’s language development progressed early on:

His language development has definitely . . . progressed so much just from . . . song, you know, the nursery rhymes, learning his body parts. I mean, he could do that at a young age. He could, you know, point to them and say what it was at a very young age, just from . . . repeating it over and over again. He learned it.

NRs are found by mothers and the toddlers to be enjoyable, repetitious, musical, catchy, and sticky and produce movement and learning to the child through multiple delivery formats to facilitate language learning. In conducting their research, Patscheke et al. (2018) based their music condition on NRs containing “repeated pitch contours, catchy rhymes and melodies that are lengthened, repeated and stressed [. . .] similar to infant-directed speech, which makes children aware of sounds in speech and facilitates their phonological awareness on the word level” (Patscheke et al., 2018, p. 11). When describing the actual features of NRs, Nora Beth identified, “Their catchy, . . . repetitive, and they call for action. Those are the things that stick with my son.”
**Empirical Implications**

The study fills a void in the literature on the ways mothers gain their NR knowledge through their own childhood, apply and add to it in motherhood, and when they lack prior childhood knowledge, the ways in which they are obtaining it to aid their own children in toddlerhood, thereby reestablishing future traditions that may have been lost. Scheiding (2019) identified NRs as “a communal ground where adulthood and childhood are blurred and culture is participated in. When performed, they are the middle ground between orality and literacy, between adult and child” (p. 43). Lauren detailed her childhood connection to a song her mother and grandmother shared with her that she now used with her son and hoped he will continue the tradition:

> The one, “You Are My Sunshine” has been my song to him since I’ve had him, and it means even more now. I guess compared to anything else, it’d be more interaction between us . . . I’d build with him or something, but I guess more excitement and stuff comes with him loving music [that] comes out of nursery rhymes.

The study also provides new information on the newly expanded form of NRs, animation media. Information on how, when, where, and why mothers are accessing, viewing, and utilizing animation media was related. Qaddos et al. (2020) argued that NRs “have not lost their importance yet and this re-invention has actually helped them in surviving” (p. 9) during a technology burdened society. Nora Beth demonstrated her use and involvement with an NR show:

> About 6 months, 6 to 8 months, he started watching a little show called *Little Baby Bum*. . . . He watched that show along with me just playing, you know, “Pat-a-Cake” with him, and “If You’re Happy and You Know It.” You know just doing different things where he
can clap and interact. And I noticed, you know the show did a lot of that, too. So, all of that really just started engaging him for about 6 months on to about 12 months, and then on from there. He just kept progressing on and on. He kept gaining more interest. But I was just kind of mimicking what they were doing on the show, which was your basic nursery rhymes anyway, and he loved it.

Prior research shows the use of NRs by mothers changes as the child ages and transforms from a tool to soothe, comfort, and promote sleep while bonding in the newborn and infancy stages, to a fun and engaging learning tool for toddlers. The information in the current study about the mothers using NRs to bond and connect with their fetus contributes to this area of research. “Early social interaction between caregiver and infant influences infants’ cognitive and socioemotional development, and subsequently the development of social, familial, and romantic relationships later in life. Caregiver-infant attachment shapes neural pathways involved in socio-emotional regulation” (Esposito et al., 2017, p. 2). Kimley related her bonding and NR use when her daughter was a toddler:

Whenever we are reading typically, it’s a very intimate [time]. We have the big light turned off. We just have on her lamp, and we’re cuddling. We’re getting ready for bed just kind of calming down for the end of the day.

Prior research on catching critical sensory time periods in language acquisition and learning was supported by the study. IDS has been identified as one factor associated with an infant’s (age 4–13 months) brain functioning in the left and right temporal lobes (Naoi et al., 2012). With stimuli from an infant’s mother, it was found that the infant had greater frontal lobe activation levels associated with IDS (Naoi et al., 2012). Further, the mother adding a direct gaze
and gestures will result in increased brain activations (Goldin-Meadow et al., 2014). Havanna shared her experience connecting with her daughter and aiding in her development:

I feel like it creates more bonding time for the mother and child because you’re spending like sole time, especially if you’re reading or singing to them, the nursery rhyme. Like, I feel like that’s bonding time . . . one-on-one time, with no outside, like interaction or influence . . . It’s just you and your child spending time together, you know, and that’s like important for their development. Because when you’re paying attention to them, you know, a lot of times they’re paying attention to you.

**Practical Implications**

Valuable knowledge concerning mothers’ use of NRs with their toddlers to develop language skills can guide childcare providers, preschools, PK educators, and policymakers to improve literacy practices for young children. By knowing what young children are experiencing within their homes, professionals can build upon the foundation mothers have constructed with their toddlers. There have also been queries into the exact times and critical periods in development when certain aspects of PA and knowledge are acquired and how the acquisition transpires (Suortti & Lipponen, 2014). As a child’s first teachers, parents play a vital part in structuring and maintaining the interactions that are occurring with their children. The current study supported the research on critical time periods. One instance related by Bianca highlighted the PA:

We were doing the alphabet the other day, . . . /a/, /a/, /a/ is for apple. We’re singing along. And so, the next day she came in, and she actually got an apple from the fruit basket. She came in and . . . she was like “Mom, /a/, /a/, /a/. It’s for apple,” and we were both like, yay!
Because NRs have evolved with technology, leaders in the tech world can find practical benefits in how mothers are incorporating their use inside their homes. The mothers in the current study were finding greater benefits if they were viewing animated NRs with their child, engaging with them, and reinforcing learning aspects. Qaddos et al. (2020) found animated NRs to be “quite problematic in refining communication skills because kids are at the receptive end” (p. 9) and are not contributing or engaging in a social and reciprocal dialogue. Havanna shared how she brought the songs from Little Baby Bum into her everyday life with her daughter:

“Okay, she used to watch a lot of Baby Bum, a lot of Baby Bum and that’s all Baby Bum is, is nursery rhymes and singing. Like there was the one about washing your hands.” She later shared, “It’s like we’re washing our hands, we would sing the washing your hands song. If we were taking a bath, we would sing the taking a bath song.”

Regarding further practical impacts, parents, future parents, students, childcare providers, teachers, educators, and practitioners can use the results of this study in the practical application of NRs as a teaching and learning tool and the incorporation of NRs into parenting and child programs to assist in language development that would later provide benefits in achieving phonological knowledge and stronger reading abilities for young children (Cassano & Steiner, 2016; FACE, 2013). The study could lead parents to increase their use of NRs to stimulate neural pathways in their toddlers’ developing brains during critical time periods, perhaps through a step-by-step approach on when to introduce specific NRs (Jeppson et al., 2013; Wass et al., 2020). Educators and childcare providers who are in positions to influence the curriculum within their areas could enact changes within the educational programs concerning NRs as a teaching and learning tool that incorporate the many formats in music, movement, drama, audio/video,
and technology. They could also relate vital NR information to parents and other facilities through educational and developmental meetings.

Society itself could benefit because a fully literate society aids all who reside within it. “Historically, enhanced early child development in societies has led to the improved health and well-being of populations and prosperous, democratic societies” (Mustard, 2006, p. 36).

Governmental literacy and infant care agencies could conceivably build upon new knowledge to enhance early literacy programs in their facilities, perhaps through guides, curriculums, and public service campaigns. In other nations, agencies have developed successful programs to enhance early literacy in similar cases. Cai (2017) identified a gradual process to popularize children’s NR reading in government libraries and literacy programs. Community-based Mother Goose parent–child programs have produced positive results as well (Ling et al., 2017).

**Delimitations and Limitations**

The study was limited to participants who self-identified as adult mothers of toddlers currently within the age range of 12–48 months. Participants were delimited to 10 mothers, with the toddlers being evenly split at five males and five females. The sample area was delimited geographically to a one-parish area within a region of one state. The study was also limited by the use of self-reported data. Because recall of past experiences was needed for cultural context from distant memories, some of which involved over 30 years for some of the mothers, and more recent for experiences with the toddlers, the richness of some responses may have been lacking. With the inclusion of an adoptive mother, portions of the data on pregnancies were limited. Two mothers voiced their limited recall, one of which was due to sustaining a head injury later in life. An additional factor in the recall of the mothers involved the mothers who had more than one child, many of whom had children close in age. There was potential to cross memories from one
child to the next. One mother did not contribute data in the group discussion and another did not return the follow-up questions on the NR shows, which potentially limited some of the data collection.

The study may have been limited by the effects of the COVID-19 pandemic in that potential participants who were concerned about possible exposure did not accept the risk to their health in participating, even though precautions were noted and steps taken to decrease the potential possibility. An additional limitation posed by COVID-19 occurred in gaining approval from the district and the facilities. It took 8 months to obtain approval through the district. The number of facilities made available was cut in half based on pandemic laws being enacted by the state and parish for safety and to slow the spread of the virus within the state and local area. The facilities were even further limited by the directors’ concerns over the virus and health and safety protocols. Another possible limitation related to the timing was participant recruitment occurring in the final month of the year when schedules are dense and time is limited for any additional activities.

**Recommendations for Future Research**

To ease the recall burden for the mothers on specific children, first time mothers should be considered. There is also a need to place additional parameters on the mothers concerning their demographics to estimate age and cultural contexts associated with them and their use of NRs. A potential qualitative study was noted when Bianca was asked about NR use in comparison to her first-, second-, and third-born children and whether there was an increase, decrease, or about the same through each child, as Bianca felt it “probably increased because I learned a lot more over the last 10 years raising the kids.”
There are also SES points that are worthy of further exploration. Romeo et al. (2018) indicated in her research the,

first evidence directly relating children’s language environments with neural language processing, specifying both an environmental and a neural mechanism underlying SES disparities in children’s language skills. Furthermore, results suggest that conversational experience impacts neural language processing over and above SES or the sheer quantity of words heard. (p. 700)

This would make a worthwhile quantitative study.

Because kids learn language through an intimate connection by feeling intimacy with the person singing the songs (Persico et al., 2017), a trial study using NR shows in combination with mothers, without the mothers, and with a stand-in adult is warranted. Because of the need for synchrony in achieving brain development, attachment must occur with the mother. “It is generally assumed that synchrony plays a critical role in preparing the infant to coordinate complex social acts and in shaping social, cognitive, and emotional development over time” (Biro et al., 2017, p. 243). Additionally, it was found that the NR shows place the child in a passive role where they are not interacting with a physical being or the device they are viewing, leading to these shows having a “negative [role] in enhancing the speaking skills of preschool kids” (Qaddos et al., 2020, p. 1). However, the animated NR shows were found to be positive in the area of PA (Qaddos et al., 2020).

Summary

The purpose of this hermeneutic phenomenological study was to understand mothers’ perceptions of their lived experiences using NRs to facilitate language development in their toddlers. The mothers in the study did use NRs to facilitate language development in their
toddlers to varying levels, with the majority at reportedly high levels. There were high levels of engagement and interaction between the mothers and their toddlers during NR use, which affected their relationships, their toddlers’ language development, and their overall shared experiences. The impacts on language development were seen in the teaching and learning that were brought about through repetition, reinforcement, and retention and the unique appeal of the NRs. The mothers used NRs to help their infants emotionally by soothing, calming, and promoting sleep, which led to bonding and connecting between them. The NRs then transitioned into a teaching and learning catalyst in language development, while also leading to fun engagements and interactions. The mothers’ NR use was thought to lead to their own children one day using the same NRs to engage with their own children, as most of the mothers did from childhood to motherhood.

The study was designed to fill a void in the literature on the ways mothers gain their NR knowledge through their own childhood, apply and add to this knowledge in motherhood, and when they lack prior childhood knowledge, the ways in which they are obtaining it to aid their own children in toddlerhood, thereby reestablishing future traditions that may have been lost. The study also offered new information on a recently expanded form of NRs, animation media. Information on how, when, where, and why mothers are accessing, viewing, and including animation media was related by the participants. Qaddos et al. (2020) argued that NRs “have not lost their importance yet and this re-invention has actually helped them in surviving” (p. 9) during a technology burdened society. As a last thought to share with future mothers, Nora Beth offered the following:

They [NRs] might seem like, something small, and it might get tiresome reading the same ones over, and over, and over again, as I have done for the past year and a half. But they
are soaking up more from those things than what you could possibly imagine. And all of a sudden, it’s just like a light bulb’s gonna come on, and you’re gonna see how much they’ve actually learned from them when they start reciting these things back to you.
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Wenonah Gildon, Doctoral Candidate
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From: Prof. Dr. Angela D. Friederici <friederici@cbs.mpg.de>
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> Good evening! I am working on my dissertation at Liberty University and would like to use some of the figures in your work listed below. I would value having these graphics to enhance my literature review on language development in toddlers and parental use of nursery rhymes. I would anticipate just a reproduction without alterations. I would greatly appreciate your approval to use your figures!
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APPENDIX D: Parent Biographical and Literacy Questionnaire and Supplement

Parent Biographical & Literacy Questionnaire

Your name: ___________________________________________  First  Last

Your address:

____________________________________________________

Street  City  State  Zip Code

Phone number: (____) - ________

Alternate phone number: (____) - ________

Email address: ____________________________

Facebook username: ____________________________

To protect your identity each participant must select a name to be used in the study. During the study, I will be referred to as: ____________________________

Race/Ethnicity:

(circle all that apply)

White/Caucasian  Hispanic/Latino  Black/African American

Native American  Pacific Islander  Other: __________

Home Language: English  French  Spanish  Other: __________

Status: Married  Single  Divorced  Widowed

Your educational level:

Highest Grade Completed: ____________________________

Highest Degree Completed: ____________________________

Number of children in the home: ____________________________

Number of people in the home: ____________________________

Name of child referenced in the study: ____________________________

Age of the child referenced in the study: ____________________________

Gender of the child referenced in the study: Male  Female

The following questionnaire is divided into sections with each section containing questions about a different area of early literacy. We expect that families will have a range of responses to these questions and children will be at different points in their development of literacy. So, do not be concerned if your child is not doing some of the things here.
38) At what age did your child begin using technology devices?

39) How many technology devices does the family have in the home?
   If so, how many have internet access?

40) Do you have internet access in the home?
   Is so, how many are connected to it?
   What devices are connected to it?

Average number of hours you use it per week?

What programs do you use on it?

42) Do you have tablets or ipads in the home?
   If so, how many?
Average number of hours per week s/he uses it? ____________
What programs does s/he use on it? ____________________________

Average number of hours you use it per week? ____________
What programs do you use on it? ____________________________

Thank you very much for completing this questionnaire.
APPENDIX E: Approval for Use of Parent Questionnaire

Parent Questionnaire

Gildon, Wenonah Faye

Thu 6/27, 12:30 PM
Dr. Boudreau,

Thank you so much! I will most definitely honor your request in citing the original work. I hope you have a wonderful and blessed day.

Best regards,

Wenonah Gildon

---

From: D BOUDREAU
Sent: Thursday, June 27, 2019 6:59:51 AM
To: Gildon, Wenonah Faye
Subject: Re: Parent Questionnaire

Hello,

You are welcome to utilize this questionnaire and make modifications that fit your needs. I would just ask that you cite the original document. Best of luck in your efforts!

Best,

Donna Boudreau

---

From: Gildon, Wenonah Faye
Sent: Tuesday, June 25, 2019 9:09 AM
To: [Redacted]
Subject: Parent Questionnaire
March 6, 2020

Wenonah Giklon
IRB Exemption 4178.030620: Language Development in Toddlers: A Hermeneutic Phenomenological Study of Nursery Rhyme Use by Mothers with Their Toddler

Dear Wenonah Giklon,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participant research is exempt from the policy set forth in 45 CFR 46.101(b):

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

(iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by § 46.111(a)(7).

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

[Signature]

Administrative Chair of Institutional Research
Research Ethics Office

Liberty University | Training Champions for Christ since 1971
November 8, 2020

Wenonah Gildon

Dear Mrs. Gildon,

Thank you for thinking of us for your research study. We are happy to extend permission to use our facility to obtain the mothers of toddlers you are seeking. However, with the situation brought about by the COVID 19 pandemic, the state has implemented guidelines following the Center for Disease Control's suggestions for safe operation.

At this time only personnel are allowed within our facilities to ensure the safety of our staff and 73 enrollees. Parents are not currently entering our facility and the children are screened before being allowed indoors. Considering the situation, we will happily accept your information to pass on to the parents and display it at our drop-off and pick-up location as well.

If we can be of further service, please do not hesitate to contact us. We look forward to reading your dissertation study.

Sincerely,

Director
August 25, 2020

Dear Mrs. Gildon:

We received your communication requesting permission to conduct research through our early childhood network facilities serving children one to four years in order to obtain mothers as participants for your study titled *Language Development in Toddlers: A Hermeneutic Phenomenological Study of Nursery Rhyme Use by Mothers with their Toddler*.

At this time, Louisiana has continued to see escalating cases of the coronavirus (+124,000) and their attributed fatalities (4000), which has led to the extension of the second phase of state restrictions. The Louisiana Department of Health has issued guidelines regarding the reopening of schools that specifically stipulates that only essential personnel are allowed access within our public-school facilities in order to minimize contact and protect our students and employees.

Considering the ramifications of the health pandemic, state guidelines, and legal factors, access to our public facilities remain closed. As such, this leaves the [redacted] Childhood Community Network sites available, which includes eight childcare and five Head Start centers open for consideration (see the attached facility contact information). With your permission, I will give notice to these facilities that will acquaint them with your study’s parameters and your future contact with them.

Sincerely,

[Signature]

[Redacted]

Early Childhood Director
Elementary & Pre-K Supervisor
August 25, 2020

Dear Mrs. Gilden:

We received your communication requesting permission to conduct research through our early childhood network facilities serving children one to four years in order to obtain mothers as participants for your study titled *Language Development in Toddlers: A Hermeneutic Phenomenological Study of Nursery Rhyme Use by Mothers with their Toddler.*

At this time, Louisiana has continued to see escalating cases of the coronavirus (+124,000) and their attributed fatalities (4000), which has led to the extension of the second phase of state restrictions. The Louisiana Department of Health has issued guidelines regarding the reopening of schools that specifically stipulates that only essential personnel are allowed access within our public-school facilities in order to minimize contact and protect our students and employees.

Considering the ramifications of the health pandemic, state guidelines, and legal factors, access to our public facilities remain closed. As such, this leaves the Childhood Community Network sites available, which includes eight childcare and five Head Start centers open for consideration (see the attached facility contact information). With network agreement, directorship permission from these facilities, and following the guidelines outlined in your letter, I acknowledge the agreement issued to seek the participants needed for your study.

Sincerely,

Superintendent
APPENDIX J: Recruitment Document

November 06, 2019

Dear Mother:

As a graduate student in the School of Education at Liberty University, I am conducting research to better understand current mothers’ perceptions of their lived experiences using nursery rhymes to facilitate language development in their toddler. The purpose of my research is to understand the nursery rhyme interactions of today’s mothers to facilitate language development in their toddlers, the impact of such interactions, and the ways the mothers’ knowledge aid in the experiences, and I am writing to invite you to participate in my study.

If you are an adult mother of a toddler (aged 12-48 months) enrolled in the ___________ facility and are willing to participate, you will be asked to participate in a one-on-one audio-recorded interview, provide written responses 10 journal questions, and participate in a recorded group interview. It should take approximately 4.5 hours for you to complete the procedures listed. Your participation will be completely anonymous, and no personal, identifying information will be collected.

To participate you may either text, message, or call xxx-xxx-xxxx or email me at xxxxxxxx@liberty.edu. A consent document is attached to this letter, which provides additional information about my research. Please sign the consent document and return it to me as a scanned document or in paper format. Once I have received the consent form, a short questionnaire will be provided for your completion to obtain biographical and background information.

Your participation will be greatly appreciated. If you choose to participate and meet the above criteria, you will receive a nursery rhyme book, a $20.00 gift card, and entered in a raffle for $100.00 gift card upon full completion of the study.

Sincerely,

Wenonah Gildon
Principal Researcher
APPENDIX K: Informed Consent

CONSENT FORM

Language Development in Toddlers: A Hermeneutic Phenomenological Study of Nursery Rhyme Use by Mothers with their Toddler

Wenonah Gildon
Liberty University
School of Education

You are invited to participate in a research study about mothers’ perceptions of their lived experiences using nursery rhymes to facilitate language development. You were selected as a possible participant because you are an adult mother of a toddler (aged 12-48 months) enrolled in one of the selected facilities in the district network. Your participation, if you agree, will give a voice to mothers today and provide valuable information on language building practices for toddlers. Please read this form and ask any questions you may have before agreeing to be in the study.

Wenonah Gildon, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of the study is to understand the nursery rhyme interactions of today’s mothers to facilitate language development in their toddlers, the impact of such interactions, and the ways the mothers’ knowledge aid in the experiences

Procedures: If you agree to be in this study, I would ask you to do the following things:
1. Participate in a 60-minute one-on-one interview to answer some open-ended questions. The interview will be audio-recorded to later be transcribed for analysis.
2. Provide written responses to 10 journal questions about your experiences as a mother. The estimated time for completion of this task is 60-150-minutes.
3. Participate in a video recorded focus group session to discuss experiences, ideas, and perceptions. The anticipated time for the session is 60-minutes. The session will also be audio recorded to later be transcribed for analysis.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include a current perception of the way toddlers’ language acquisition occurs in their homes with their mother’s facilitation. Society will also benefit from additional information to aid in assisting mother’s in facilitating language skills in toddlers.

Compensation: Participants will be compensated for participating in this study. You will receive a nursery rhyme book, a $20.00 gift card, and entered in a raffle for a $100.00 gift card upon full completion of the study.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data.
• As a participant, you will provide a pseudonym. I will conduct the interviews in a private location where others will not easily overhear the conversation.
• Data will be stored on a password locked computer or locked storage system and may be used in future presentations. After three years, all electronic records will be deleted from devices and transcripts and paper records will be shredded.
• Interviews will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.
• I cannot assure participants that other members of the focus group will not share what was discussed with persons outside of the group.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or facilities where your child is enrolled. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is Wenonah Gildon. You may ask any questions you have now. If you have questions later, you are encouraged to contact her. You may also contact the researcher’s faculty chair, Dr. Kenneth R. Tierce, at krtierce@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ The researcher has my permission to audio- and video-record me as part of my participation in this study.

______________________________________________________________________________
Signature of Participant        Date

______________________________________________________________________________
Signature of Investigator        Date

The Liberty University Institutional Review Board has approved this document for use from 3/6/2020 to -- Protocol # 4178.030620
APPENDIX L: Participant Denial Email

Dear Parent:

Thank you for your interest in participating in the study. As part of the research protocol, there is a need for a diversity in participants and a fixed number of participants. Unfortunately, at this point you have not been selected to proceed in the study. If at any point there is a need for an additional individual for which you meet the protocol criteria, I will gladly contact you. Please know that once the study has concluded, any and all data pertaining to you that may have been collected will be properly permanently destroyed. I appreciate your willingness and cooperation up to this point.

Kindest regards,

Wenonah Gildon
Doctoral Candidate
Liberty University
APPENDIX M: Researcher’s Reflective Journal

Researcher’s Reflective Journal

08/05/19 Read some of Music (2016) Nurturing Nature on epigenetics. On page 114, the statement on a child’s temperament and gene type effecting a parent and how they respond struck me. The bidirectional influence is important. The insensitive mothers and their offspring, whose subsequent generations breed insensitivity is also troubling. The turning on and off of gene expressions can alter the markers. The Lamarckian idea where Holocaust survivors faced such stressors, leading to epigenetic effects where receptor genes may evolutionarily adapt to survive stressful environments. Experiences of the prior generation affects the genes of the current one. ADHD may be an adaptive change to be advantageous in some environments, such and migratory and novelty seeking genetic variation, leading to being predisposed to seek new moving lifestyles and aids in surviving these environments. My thoughts for today are concerns about pregnant mothers who are using technology and lack the personal auditory conversations because they are using nonverbal communicative means.

08/06/19 Thoughts for today included some of the same thoughts as yesterday on auditory stimulus for the fetus. Even if the mothers are only periodically doing so, they may still miss the critical gestational time periods for auditory stimulus. Just as key periods for FAS are located and their specific effects are identified; is research narrowing in on specific periods for gestational stimulus periods? I also took into consideration the effects of technology today and how there may be a Lamarckian effect occurring for the new generation, which has not known life without social media. Other thoughts have been on the amount of time mothers are using technology and social media and the subsequent loss of time invested in their child. What are the activities that are they sacrificing to gain the time for their social media pursuits?
APPENDIX N: Participant Journal Guide

Purpose: The purpose of the journal is to gain a better understanding of how you used nursery rhymes with your toddler.

What: I will send message notices concerning what to write about and reminders to help keep you on track during the weeks ahead. In addition to what I send, please send comments on anything you think will help in understanding what your experiences have been.

Where: I send a “join” request to join a Facebook group where I will be the administrator.

How: Security measures will be in place for the group, and you can mark your response for the administrator only. If you choose to write in a paper journal, your messages will be sent in a telephone message or email. Your responses on paper will need to be electronically sent each week in response to the message. CamScanner will transfer the picture of your journal response into a.pdf file to share.

When: I will send weekly notices, beginning the week following our initial interview. Reminders will be sent once per week.

Example:

Message Notice:

Describe the social behaviors that your toddler developed in their first year. How did he/she acquire them?

Message Response:

Jen was a very alert baby. She didn’t cry very much, but she loved being talked to! Her smiling and sparkling eyes! Jen would move her head and eyes to follow my face, watch my mouth, and get excited. She started moving her mouth as if imitating mine
and coo. I would chant “Star Light, Star Bright” because she was so bright eyed and busy tailed after waking.

Jen loves her nieces and nephews. When she was about 6-months-old, she loved having her nieces and nephews play Peek-a-Boo. They would compete to see who could make her laugh. Now she is old enough to run the playground with them.

Everywhere I took Jen, she would have strangers talking to her. She was that much of a people person. She still is today. By the time she was walking, Jen would take the initiative to go to people and give them a toy or something. She would start babbling away to them.
APPENDIX O: Electronic Journal Prompts and Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prompt 01:</strong> 00/00/0000</td>
<td>Knowledge, Usage, Experiences, and Role of NRs</td>
<td>The definition of a nursery rhyme is very loose, with many types of language play being labeled as nursery rhymes. Describe the way you and others (no names; use generic titles; e.g. Nanna, sitter, Ms. K., uncle, PK teacher, neighbor) engaged in language play with your toddler. Do you consider this to be nursery rhyme use?</td>
</tr>
<tr>
<td><strong>Prompt 02:</strong> 00/00/0000</td>
<td>Usage, Experiences, and Medium of NRs (cultural, technology)</td>
<td>When, where, and how often were nursery rhymes used in the presence of your infant and toddler? How were they used with your infant or toddler? Describe the way they were delivered to your infant and toddler.</td>
</tr>
<tr>
<td><strong>Prompt 03:</strong> 00/00/0000</td>
<td>Usage, Role, Experiences, and Knowledge of NRs (parenting)</td>
<td>At any age, when your infant or toddler was fussy describe what soothed, distracted, eased him or her, or how you addressed the moment.</td>
</tr>
<tr>
<td><strong>Prompt 04:</strong> 00/00/0000</td>
<td>Experiences of NRs (cultural)</td>
<td>Describe how and from where your parenting practices were influenced. If you encountered a parenting issue, where and/or who would you consult?</td>
</tr>
<tr>
<td>Prompt 05: 00/00/0000</td>
<td>Experiences, Role, and Usage of NRs (sociocultural)</td>
<td>What has influenced your use of nursery rhymes and practices the most? Why?</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Prompt 06: 00/00/0000</strong></td>
<td>Experiences of NRs (development)</td>
<td>Describe when your toddler began to talk and/or sing. What was occurring? When was it? Where was it? Who was there at the time? How old was your toddler at the time?</td>
</tr>
<tr>
<td><strong>Prompt 07: 00/00/0000</strong></td>
<td>Usage, Role, Experiences, and Knowledge of NRs (sociocultural, technology)</td>
<td>What has been your toddler’s most valuable learning tool or experience? Describe it in detail.</td>
</tr>
<tr>
<td><strong>Prompt 08: 00/00/0000</strong></td>
<td>Knowledge and Role of NRs (sociocultural, home environment)</td>
<td>Describe how you prepared for the pregnancy, birth, and care for your infant.</td>
</tr>
<tr>
<td><strong>Prompt 09: 00/00/0000</strong></td>
<td>Knowledge, Experiences, and Role (sociocultural, home environment, technology)</td>
<td>Describe how your home environment influenced your toddler’s language development.</td>
</tr>
<tr>
<td><strong>Prompt 10: 00/00/0000</strong></td>
<td>Usage, Role, Experiences, and Knowledge of NRs (culture, sociocultural, home environment, technology)</td>
<td>How have you prepared your toddler for preschool? Why did you choose it?</td>
</tr>
</tbody>
</table>
APPENDIX P: Individual Interview Questions

1. In looking over your short questionnaire, I have learned a little bit about you and
   [insert toddler’s name]. Please tell me about your early background as a child, your
   family’s structure (dynamics), your early educational background, the influential
   people in your life, and the important points during it. (SQ3)

2. In thinking about your childhood, what is your first recollection of nursery rhymes
   (if any)? Describe it and the nursery rhyme events during these times in your early
   life. Were there specific rhymes that held special feelings or memories? (SQ3)

3. Moving ahead in time, tell me about becoming a mother and your motherhood
   experiences. (SQ1)

4. Now to place the two together. Describe how the early nursery rhyme involvement
   (if any) from childhood affected your later motherhood. (SQ3)

5. I need you to think back to the moment you first learned that you were pregnant with
   [insert child’s name]. Part of becoming a mother begins before the child is born.
   Describe [insert child’s name] prenatal life and outline your experiences and
   interactions with him/her during this time. (CQ, SQ1)

6. Moving from the prenatal timeframe to after [insert child’s name] was brought
   home. How do you describe the progression of [insert toddler’s name] nursery
   rhyme knowledge development from birth to 12 months and the way it came about?
   Describe as specifically as possible when, how, and at what age you first began
   using nursery rhymes (if any) with [insert child’s name]. (SQ2)
7. While thinking about this time frame, what effect do you feel that [insert toddler’s name] nursery rhyme knowledge has had upon his/her pre-reading (literacy) development? (SQ2)

8. Continuing on from 12 months, describe the age-related changes from 12–36 months of age in [insert toddler’s name] nursery rhyme knowledge. Particularly the length and difficulty (complexity) of the nursery rhymes. (SQ2)

9. In looking back over your toddler’s time, how does [insert toddler’s name] nursery rhyme knowledge development related to his/her brain (cognitive) development? What involvement does it have in his/her language, pre-reading (literacy), and social development? (SQ2)

10. During this same time, describe the format [rhyme, song, fingerplay, poem, or chant] of the nursery rhymes that you used (if any) in [insert toddler’s name] nursery rhyme learning? Did the format change? If so, when, and how? (GQ1)

11. Following this same time period, list and describe the delivery formats [cd’s, video, television programs, books, games, toys, or electronic devices] of the nursery rhymes (if any) that you opted to use with the play (interactions) you shared with [insert toddler’s name] and how they were included in your play (interactions). (GQ1)

12. How would you describe your relationship with [insert toddler’s name], during the period from birth to 48 months, while using nursery rhymes (if any) versus when in other activities (playing outdoors, playing electronic games, making art, construction play)? (SQ1)
13. During [insert toddler’s name] time with you, were there any surprises, questions, aha moments, or puzzling points during times of nursery rhyme usage or during other activities? (GQ1)

14. For the last four questions think of nursery rhymes in general. If you were to relate information to new mothers about nursery rhymes, what would you share and hope to leave them with? (GQ1)

15. Describe the features of nursery rhymes that you feel makes them unique or different? (SQ3)

16. Why do you feel that there has been very little research on young children’s nursery rhyme knowledge? (SQ3)

17. What do you think the future of nursery rhymes will be in the next decade? (SQ3)

18. That covers everything that I have. What else would you like to expand upon or add to the interview that may have been overlooked? (GQ1)
APPENDIX Q: Focus Group Interview Questions

In looking over your responses to the individual interviews and journal entries, I found a couple of areas that need more details.

1. Many children experience frequent ear infections or hearing loss. What have your experiences been during times that your child may have similar ailments, how did you address them, and what were the impacts the ailments may have brought about? (CQ)

2. Most NRs incorporate motion with the text. What have your experiences been in how you or your child use gestures or sign language with or in place of words? Describe these incidences. (CQ, SQ2)

3. Some mothers have mentioned prenatal classes. After taking prenatal classes or just in general, did anyone enroll their toddler in baby classes at any point after being born? What led you to do so? (CQ, SQ2)

4. The next question is a fill-in question concerning parenting. The most difficult part of parenting today is ______ because ______ (CQ, SQ1)

5. Several of mothers spoke of concerns for their toddler’s development. Were there any points in your child’s development that you were concerned about? What was concerning? (CQ, SQ2)

6. The next question concerns when you are in tune or on the same wavelength with your toddler. In the moments when you “click” with your child, describe the circumstances around them. (CQ, SQ1, SQ2)

7. This question follows-up on the earlier question on development. For those that were worried, how worried were you about language development in your toddler? What made you worried? (CQ, SQ2)
8. Because of the restrictions and the loss of normality brought about by the pandemic, has COVID-19 influenced your interactions, choices, or nursery rhyme experiences with your child? In what way? (CQ, SQ1, SQ2)

9. One mother highlighted the importance of music and family talents. Does anyone in your family have musical experiences or talents that are musical in nature that your child may have been exposed to on a regular basis? (CQ, SQ3)

10. Is there anything else that anyone would like to expand upon or add to the interview that may have been overlooked or would like to share further on? (CQ, SQ1, SQ2, SQ3)
APPENDIX R: Follow-Up Questionnaire

Additional Follow-Up Questions

1. Have you introduced any words in a second language to your child through nursery rhymes, songs, fingerplays, etc. (Ex. Frère Jacques, Canción de los Números)?
   - [ ] Yes
   - [ ] No
   If yes, what rhymes, songs, and concepts have you covered?

2. How many nursery rhyme books did your toddler have before participating in this study?

3. How old were you when your toddler (the one discussed in the study) was born?

4. How many months old was your toddler in this study at the time the interview was completed?

5. Check off the programs your toddler engaged with at any point from birth to today and the corresponding format it was used in.

<table>
<thead>
<tr>
<th>Programs</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] 44 MINS Little Baby Bum</td>
<td>[ ] YouTube [ ] Netflix [ ] Hulu [ ] Noga [ ] Apple TV [ ] Prime Video [ ] Pandora [ ] Google Play [ ] Spotify [ ] Pandora [ ] iHeartRadio [ ] iTunes [ ] Other:</td>
</tr>
<tr>
<td>[ ] CoComelon</td>
<td>[ ] YouTube [ ] Netflix [ ] Hulu [ ] Noga [ ] Apple TV [ ] Prime Video [ ] Pandora [ ] Google Play [ ] Spotify [ ] Pandora [ ] iHeartRadio [ ] iTunes [ ] Other:</td>
</tr>
<tr>
<td>[ ] Word Party</td>
<td>[ ] YouTube [ ] Netflix [ ] Hulu [ ] Noga [ ] Apple TV [ ] Prime Video [ ] Pandora [ ] Google Play [ ] Spotify [ ] Pandora [ ] iHeartRadio [ ] iTunes [ ] Other:</td>
</tr>
</tbody>
</table>
### APPENDIX S: Nursery Rhymes Mentioned and Potential Teaching Concepts

<table>
<thead>
<tr>
<th>Nursery Rhyme</th>
<th>Number Mentioned</th>
<th>Mother</th>
<th>Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCs</td>
<td>2</td>
<td>Bianca, Emmie</td>
<td>Alphabet</td>
</tr>
<tr>
<td>Baa, Baa Black Sheep</td>
<td>1</td>
<td>Bianca</td>
<td>Animal, Color, Rhyming</td>
</tr>
<tr>
<td>Baby Mine</td>
<td>1</td>
<td>Nora Beth</td>
<td>Body Parts, Rhyming</td>
</tr>
<tr>
<td>Banana, Fanana, Fo, Fanana</td>
<td>1</td>
<td>Emmie</td>
<td>Alliteration, Rhyme, Food</td>
</tr>
<tr>
<td>Bath Song</td>
<td>1</td>
<td>Havanna</td>
<td>Body Parts, Life Skills, Rhyming</td>
</tr>
<tr>
<td>Bingo</td>
<td>1</td>
<td>Emmie</td>
<td>Alphabet, Animals, Sequencing</td>
</tr>
<tr>
<td>Brush Your Teeth</td>
<td>2</td>
<td>Amy, Havanna</td>
<td>Body Parts, Life Skills, Opposites</td>
</tr>
<tr>
<td>Clean-Up Song</td>
<td>2</td>
<td>Amy, Havanna</td>
<td>Life Skills, Rhyming</td>
</tr>
<tr>
<td>Eyes, Ears, Mouth, and Nose</td>
<td>2</td>
<td>Amy, Nora Beth</td>
<td>Body Parts</td>
</tr>
<tr>
<td>Going on a Bear Hunt</td>
<td>2</td>
<td>Emmie</td>
<td>Animals, Colors, Sequencing</td>
</tr>
<tr>
<td>Goodnight Bear</td>
<td>1</td>
<td>Nora Beth</td>
<td>Animals, Life Skill</td>
</tr>
<tr>
<td>Father Abraham</td>
<td>1</td>
<td>Lauren</td>
<td>Body Parts, Sequencing</td>
</tr>
<tr>
<td>Five Little Ducks</td>
<td>3</td>
<td>Emmie</td>
<td>Animals, Counting, Numbers, Sequencing</td>
</tr>
<tr>
<td>Song Title</td>
<td>Duration</td>
<td>Performers</td>
<td>Focus Areas</td>
</tr>
<tr>
<td>------------------------------------------------</td>
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## APPENDIX T: Mothers Nursery Rhyme Traditions from Child to Motherhood

### Childhood Traditions

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<th>Name</th>
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<td>Old McDonald; This Little Piggy; Went to the Animal Fair; Yankee Doodle</td>
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### Motherhood Traditions

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