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An Action Research Investigation into an Early Childhood Digital, Storytelling-Based Solution

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Abstract

The development of literacy skills prior to the classroom has been established as essential for future school and life successes. However, the present achievement gap between lower-socioeconomic neighborhoods and their higher-income counterparts illustrate vast dissimilarities in early childhood provisions for quality reading materials and instructional aides. In an effort to bridge the educational breach, a collaborative, storytelling-based program entitled Kid Forward was introduced to five nationwide families as a means of assistance for early childhood literacy development. Through the use of demographic surveys, interviews completed before and after the program implementation, and exit surveys, the action research study examined early childhood home-based literacy activities performed and the effects of Kid Forward on literacy learning in the home. The results of the investigation found that the primary element of Kid Forward, story creation, built confidence and skills in creativity, language development, and conversation; traits necessary for fruitful progression from kindergarten to adulthood.

Keywords: education, early childhood, parents, literacy learning, action research, story creation, confidence, narrative, creativity, collaboration, play

Dedication

I first dedicate this project and associated dissertation to my mother, father, and brothers. I was blessed and fortunate enough to have been given a family that built a love of learning and reading in me from a young age, even if I didn't show it in my youth. To my mother and father, mom especially, thank you for pushing me to finish this every time I wanted to give up and, at the same time, being there to let me vent when my head was overloaded with research articles and worry. Thank you for being patient with me as I grew up and figured myself out, improving in my studies and as a person along the way. I am who I am and have gotten this far because of you. During the course of my doctoral program alone, you talked me through the block, cooked for me, provided insights, laughed and cried with me, and celebrated with me in my "Eureka" moments. I could not have done this without you. Mom, to you in particular, thank you for encouraging me to go the extra mile and add substance to everything to which I set my mind and priorities. To my two younger brothers, I love you so much. It was your differing personalities and means of learning that helped to bring about the creation of Kid Forward and let me see up close the diversity and merit of every single learner, young and old. Last but certainly not least, I'd like to give a special thanks to two of my past teachers, Mrs. Kathleen Fitzpatrick and Mr. James Kerr. To my fifth grade teacher, Mrs. Fitzpatrick, you were one of the first to recognize that writing was a gift and love of mine and encouraged its development. To my high school history teacher, Mr. Kerr, thank you for reinforcing the importance of study, asking questions, and comprehensive analysis regardless of subject matter.

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Chapter 1: Introduction

Introduction to the Problem

Many factors affect literacy learning for children who come from challenged backgrounds. Findings have established that the home is key in the creation of a collaborative and positive early literacy-learning environment for future success (Chaney, 2014; Okado, Bierman, & Welsh, 2014; Santos, Fettig, & Shaffer, 2012). However, crime, limited resources, a lack of supportive programs, and poverty are only a few of the aspects that contribute to literacy-development achievement gaps between low-income and higher income neighborhood learners (Chaney, 2014; Piazza & Duncan, 2012; Sukhram & Hsu, 2012). With respect to socio-economic backgrounds identified as simultaneously low-income and high-risk for illiteracy, the art of storytelling has been surveyed as a play-based teaching and conflict resolution method in the classroom and within the home (Agosto, 2013; Huisman, 2014; Nguyen, Stanley, Stanley, Rank, & Wang, 2015; Nicolopoulou, Cortina, IIgaz, Cates, & de Sá, 2015; Yarosh, 2015). Despite the conducted research studies into storytelling as an interactive instructional approach and connection method, few examinations have introduced the implementation of a digital, storytelling-centered tool as a means of early childhood collaborative literacy learning between parents and children in these lower-income, high-risk homes (Chaney, 2014).

The following chapter will review and detail the problem concerning the challenging backgrounds and lack of literacy-learning resources available for early childhood learners from lower-socioeconomic regions. Additionally, the statement of the problem will be explained. The purpose and its significance in relationship to the action

research study will then be conveyed in the sections to come. Furthermore, the research question surrounding the study will be identified and explored.

Background of the Problem

Educators and researchers have deemed the home to be the first place in which the youngest of children begin the learning process (Sukhram & Hsu, 2012; Yeo, Ong, & Ng, 2014). The parents of the home serve in the role of instructor, while the child is the student, asking questions and gaining information about local settings and the world around them as they continue to grow (Broström, Johansson, Sandberg, & Frøkjær, 2014; Okado et al., 2014; Yeo et al., 2014). Not only is the home the first place in which children develop and begin to acquire new information, but scholars have determined that pupil with positive experiences in the home tend to do well in the classroom and beyond (Chaney, 2014; Huisman, 2012; Sukhram & Hsu, 2012). In many low-income neighborhoods, positive experiences are often few in number as corruption, violence, poverty, and school funding cuts are damaging and constant dynamics present within day-to-day living (Chaney, 2014; Di Santo, Timmons, & Pelletier, 2016; Piazza & Duncan, 2012; Rose, Vaughn, & Taylor, 2015). The presented frequent negative occurrences have the potential to stress and disillusion the strongest and most resilient of residents particularly in the area of literacy learning and development (Chaney, 2014; Okado et al., 2014; Rose et al., 2015).

To encourage early literacy learning, educators have suggested that literacy-learning activities begin in the home on a persistent basis (Huisman, 2012; Nguyen et al., 2015). The collaborative, play-based literacy-learning method of shared storytelling is included in the vast catalogue of developmental activities (Agosto, 2013; Nguyen et al.,

2015; van Oers, 2015). The educational, social, and neurological benefits of storytelling are infinite for the literacy learner. Defined, storytelling is the act of sharing a story between two parties from one's own memory or without the assistance of a ready-made book (Agosto, 2013). Based on the posed description, collaboration is a requirement in the method of storytelling. Collaboration is also essential in the literacy-learning process as scholars encourage parents and caregivers to undertake two-way literacy-learning pursuits in the home as early as possible (Rose et al., 2015; Sukhram & Hsu, 2012; Yeo et al., 2014).

In connection with partnership and teamwork, social relationships are a required component for overall early childhood educational development. Neuroscientists have agreed that connections with kinship are necessary for the effective function of the human brain; researchers further substantiate the indispensability of communal relations for success through development of confidence, self-identity, and peer-based problem solving (Germer, Siegel, & Fulton, 2013; Petty, 2009).

Storytelling combines the aspects of education, collaboration, and cost-effectiveness, which allows for the sharing of information and the framing of one's own words between family members (Alvarez & Mearns, 2014; Langellier & Peterson, 2006; Morgan, 2014). Storytelling projects in written and digital forms have been utilized to encourage literacy development, creativity, and relationship with the community (Alvarez & Mearns, 2014; Morgan, 2014). Furthermore, neurological experts have found that one's brain is wired to best retain information through stories (Nguyen et al., 2015). In partnership with the technique of sharing narratives, a digital storytelling mobile application was introduced for the investigative action research study.

Statement of the Problem

Illiteracy is a high-risk issue among areas identified as low-income neighborhoods (Chaney, 2014; Rose et al., 2015; Sukhram & Hsu, 2012). One of the most burdening literacy-learning problems in disadvantaged areas is a lack of early, collaboration-based solutions designed to aid in the process of literacy growth between parent and child (Chaney, 2014). Reasoning for the deficiency in team-based programs for the youngest of learners includes a shortage of resources for both children and their parents (Chaney, 2014; Piazza & Duncan, 2012; Rosee et al., 2015). Moreover, literacy-learning programs currently available in many disadvantaged regions are few (Chaney, 2014). Learning services are often offered to parents and children as two separate entities .while other literacy-learning programs are subjected to limited funding for the procurement of quality teaching aides (Chaney, 2014; Piazza & Duncan, 2012; Rose et al., 2015). Due to systems deficient in reserves and partnership at the earliest learning level, literacy-learning solutions that encourage cooperation between the parent and child and are not subject to government funding were further explored. Based on the educational, social, and medical benefits of storytelling, the narrative-based solution was also further investigated.

Purpose of the Study

The ultimate purpose of the study was to evaluate the usefulness of the newly-designed storytelling mobile application between preschool-aged children and their parents or caregivers. The storytelling mobile application was fashioned to take in hand the risk of illiteracy in disadvantaged neighborhoods at the early childhood level by

fostering the positive, collaborative, and literacy-learning teaching method of story creation.

Significance of the Study

Few studies have addressed the illiteracy problem found in disadvantaged neighborhoods at the early childhood level and with the help of a storytelling application. The significance of the action research study concerned addressing the research gap through the examination of the digital storytelling mobile application as a means of literacy learning during early childhood development. Added importance lay within finding the needs of literacy learners in low-income, high-risk neighborhoods for the purpose of introducing and evaluating the development of the presented literacy-learning solution. Current statistics reveal an increase in dropout rates among impoverished school districts as well as a halt in literacy-development levels to that of high school and lower grade levels (Literacy Now, n.d.). Despite state-funded efforts intended to help fix the problem of stunted literacy development in many urban school districts and associated neighborhoods, there is still an established and substantially-documented achievement gap between classrooms in low-income and high-income neighborhoods (Ansari & Winsler, 2016; Chaney, 2014; Literacy Now, n.d.; Sukhram & Hsu, 2012).

The district in which a child lives should not be indicative of the academic assistance he or she receives. The same assertion rings true for the parents residing in underserved communities who want their children to develop at a rate in accordance with their respective ages and scholastic grades.

Research Question

The following question drove the action research study and the research design: How will the implementation of a storytelling mobile application solution help to improve literacy-learning for early childhood learners?

Research Design

The methodology used was that of qualitative action research. By definition, action research is a means of study used to solve a problem within a given population through active implementation of a proposed solution (Spaulding, 2014). Action research has also been used to improve resolutions already in place (Creswell, 2013; Spaulding, 2014). A national search was conducted for five families with preschool-aged children between the ages of three and five years. Selected families were from multiple environments, including those from areas identified as disadvantaged. While the number of participants were small, the minute numerical value was useful to collect in-depth and substantial data on the subject of literacy activities in each individual home.

Following the completion of the recruitment questionnaire provided to potential participants, the data collection used in the research design included the following: a) interviews, b) observations, and c) surveys. Initial face-to-face and open-ended interviews with parents along with permitted observations were utilized to provide an understanding of the home literacy-learning environment prior to the addition of the storytelling mobile application. Interviews took place in the homes of the research participants with modifications put in place according to each participant's schedule. The purpose of subsequent observations was to further gain perspectives on the home literacy environment through demonstration-involved examples of the literacy and storytelling

activities in the home. After the first interview segment was completed, the storytelling mobile application was introduced and explained as a means to aid in early childhood literacy learning through the creation of stories between the parents and their children. During the implementation process, continual interviews and observations were performed in order to gain feedback on the progress of the storytelling mobile application. The gathering of the informative responses and criticisms in question helped to facilitate necessary improvements to enhance the digital literacy-learning method. The study concluded with an exit survey and interview with the participating parents of each familial unit.

Assumptions, Limitations, and Delimitations: Scope of Project

In association with the action research study, there were connected assumptions, limitations, and delimitations that surrounded the scope of the research project. One assumption dealt with the interviews and authorized surveillance in the discussion of literacy-learning activities. It was assumed that the adult participants would allow their children to be a part of the observation and demonstration process, which each parent within Camden, New Jersey had done prior to the commence of the study and again during the investigation. Visual observation and demonstration did not apply to those parents and children located respectively in West Jordan, Utah and Henderson, Nevada as travel between multiple states at a long distance would not have been feasible financially or with the research study timetable.

It was further assumed that participants would be truthful in the responses given through the research study instruments. After the five mothers of the respective five families all agreed to partake in the exploration, rearrangements were made to

accommodate the unexpected interruptions in participant schedules and rapport was built in order to increase the likelihood of honest opinions and feedback.

There were limiting aspects of the study that were not able to be fully controlled. The sample size was carefully chosen through the use of convenience sampling via a national search (Creswell, 2013). While the number of participants was not a full representation of families in Camden, New Jersey, West Jordan, Utah, or Henderson, Nevada, the group size of five families was necessary for in-depth exploration of early childhood home literacy activities as it allowed for greater ease in detailed inspection with regard to the multiple data collection methods (Creswell, 2013; Spaulding, 2014).

In association with the research design, there were also set delimitations. The adults within the research study had to be parents or guardians of preschool-aged learners currently living within the United States. The previous education of these parents and guardians were not taken into consideration. Lastly, participating preschool students were required to be in the custody of a parent participating in the study. The initial recruitment survey was used to ensure that the established guidelines were followed.

Summary

Chapter 1 introduced the rationale for the investigation of the research study. .The problem of illiteracy susceptibility found in lower socio-economic neighborhoods has been established in conjunction with the background of the investigation. Furthermore, a statement of the founded problem was explained and the purpose and significance of the study to parents and the literacy development of the early childhood learners in their charge was recognized. The research question regarding the developed storytelling mobile application effect on early childhood learners that drove the methods of data

collection was subsequently introduced and discussed in relation to the subject matter. Also, a reflection of the methodology, particularly concerning the action research design, was discussed.

Chapter 2 covers the literature explored prior to the research examination. The conceptual framework in the coming chapter detailed with the substantiation of established theories in regard to learning and methods for gaining information from the family unit. The theories supporting the investigation are as follows: Social Learning Theory, Situated Learning Theory, and Narrative Performance Theory. Additionally, the literature review includes clarification in the following areas: (a) Literacy Development and The Achievement Gap, (b) The Home Literacy Environment, (c) The Benefits of Storytelling, and (d) Literacy Learning using Digital Manipulatives and Technology. Findings and the chosen methodology were discussed while previous research into the matter of early childhood literacy-learning was critiqued.

Chapter 2: Literature Review

The following review of scholarly literature explores early literacy learning, the home literacy environment, and the vast benefits of storytelling methods as a means of developing literacy ability in the home and beyond. Moreover, this review is comprised of four specific areas in which researchers offer contributions to the field of literacy learning and progress. The four areas identified were as follows: a) Literacy Development and The Achievement Gap, b) The Home Literacy Environment, c) The Benefits of Storytelling, and d) Literacy Learning using Digital Manipulatives and Technology. While educators and various research professionals agree that an effective home literacy environment is paramount in the formative years of learning, there have been few action-based studies and programs, particularly those in underserved urban cities and low-socioeconomic neighborhoods, have focused on the phase early childhood and feature intergenerational literacy learning outside of shared book reading (Chaney, 2014; Sukhram & Hsu, 2012). Additionally, few other reports have examined the element of storytelling between members of the family unit as a literacy-development teaching tool in low-income, urban neighborhood homes.

The definition of literacy is described as one's reading, writing, and oral abilities (American Journal of Play, 2013; Rose et al., 2015; Sukhram & Hsu, 2012). Expansion in literacy skills has been established as one of the foremost concerns in education. A lack of basic proficiencies pertaining to literateness in the earliest of years can limit the ability of a future student to, among other things, perform well in the world of academia and successfully function as a productive member of society (Sukhram & Hsu, 2012; Chaney, 2014; Huisman, 2012). It is a child's environment that often plays a part in their growth;

consequently, children residing in low-income neighborhoods and cities are at a higher risk for illiteracy and its tragic effects as opposed to those in higher-income areas (Chaney, 2014; Rose et al., 2015; Sukhram & Hsu, 2012).

Within the family, storytelling—also known as narrative creation—allows for the sharing of knowledge with the framing of personal experiences, generational history, and culture. The deed of communicating familial chronicles is done through one's own words and builds self-identity, assurance, and a sense of future responsibility and advocacy for others (Huisman, 2014; Kimball, Moore, Vaccaro, Troiano, & Newman, 2016). Understanding the problem of the prevalence of illiteracy in low-income neighborhoods, a storytelling-based, literacy-development mobile application has been invented to provide assistance to early childhood students in low-income neighborhoods. In an environment where city finances and state reserves are severely limited, literacy learning and development have been negatively impacted, causing detriment to the children and parents who live there and are in need of scholastic help (Chaney, 2014). The storytelling mobile application, which is designed to act as a catalyst through the digital action of parent-child story creation, steered the action research study in terms of its use within the family unit as well as the value and usefulness of the tool among participants.

Conceptual Framework

The action research study involved the examination of a collaborative tool which features the aspect of story creation. Three theories guided the conceptual framework surrounding the topic of storytelling as a means of cooperative learning: (a) Social Learning Theory, (b) Situated Learning Theory, and (c) Narrative

Performance Theory. Each theory in question provided a separate but connected basis and reasoning for methods of learning and retaining of information.

The following three sections define each conceptual framework in detail and show the relationship of the action research study to the theoretical structure researched prior to its commence. The chapter components on conceptual framework further establish the prevalent need for sufficient literacy development in urban low-income neighborhood schools and the importance of collaboration in learning. In addition, fervent support is built for the storytelling mobile application tool as a viable means of long-term literacy development for early childhood students. Discussion of the conceptual frameworks begins with that of social learning theory, a philosophy in which children learn through the active acquisition of information (Bandura, 1977; Millard & Dollard, 1941).

Social learning theory. As young children grow, they naturally follow the code of behaviors set forth by Social Learning Theory. Birthed from the work of psychologists John Dollard and Neal E. Miller and expounded upon by Albert Bandura, the theory asserts that young pupils absorb new and vital lessons through asking questions, gaining answers from said inquiries, and picking up cues from others (Bandura, 1977; Miller & Dollar, 1941). According to the originators of the concept of Social Learning, children are following the natural cycle of human behaviors when they pose requests and obtain replies in return (Bandura, 1977; Gong, Zhang, & Li, 2014; Miller & Dollar, 1941; Kumpulainen & Wray, 2002). When they observe new phenomena in the communities around them and call for the knowledge desired, children inadvertently become as students in a classroom; increasing in comprehension that they will later call upon when a given situation warrants.

There are four specific circumstances for effective modeling in Social Learning Theory: (a) attention, (b) retention, (c) reproduction, and (d) motivation (Bandura, 1977; Gong et al., 2014; Kumpulainen & Wray, 2002). Attention has been described as a variety of aspects that have the potential to either increase or decrease the amount of notice a matter or subject is given (Bandura, 1977; Gong et al., 2014; Kumpulainen & Wray, 2002). Retention has been designated as remembering that to which one paid attention (Bandura, 1977; Gong et al., 2014; Kumpulainen & Wray, 2002). Furthermore, reproduction has previously been defined as the replicating of observed images and behaviors, whereas motivation provides the reasoning for said imitation (Bandura, 1977). In other words, motivation asserts that there must be an incentive to follow and mimic suggested behaviors. If there is no inspiration to model behaviors, according to the theory, attention, retention and reproduction will not be of any use in the learning process (Bandura, 1977).

Young children have been said to devote attention to matters such as sensory cues, arousal level, and perception. Reinforcement of instruction affects the present given attention and associated future actions when the youths in question become adults (Bandura, 1977). As babies and toddlers, children learn by viewing the world around them with wide eyes and open mouths, regardless of whether a given aspect of their setting or situation is the norm. As per Social Learning Theory, children gauge the standards of their own norms, rewards, motivations, and subsequent consequences by asking questions to supplement the adult instruction given, even during the course of the imitation of actions that may take place over the course of months or years at a time (Bandura, 1977). Along the way, guidance from neighboring parents and teachers have

also been shown to be an invaluable resource (Broström et al., 2014; Kumpulainen & Wray, 2002).

In cities classified as disadvantaged and where poverty, population, and violence are high and finances are low, lessons learned in accordance with Social Learning Theory are described as being attained in much the same manner as human behaviors; predominantly those of the parents (Chaney, 2014). In the formative years, the first human behaviors with which children come in contact are considered to be that of their parents or caregivers. Living within a challenging environment, parents tend to be plagued with financial stress and social isolation (Okado et al., 2014).Foremost goals frequently remain to keep their children safe and physically nourished as much as financially possible despite the surrounding settings. Often, caregiver duties to feed and house are performed at the cost of other imperative matters for societal function, such as early social engagements with peers and timely literacy-development practices in preparation for school (Rose et al., 2015). Yet upon entering the classroom, it has been found that these students repeatedly arrive in school deprived of nutritional essentials and lacking initial literacy, language, and social abilities deemed appropriate for their age group (Rose et al., 2015).

Conditions and parental responses to shortages learned through the course of social learning create risks for future learning complications in the classroom, in contrast to the circumstances for children who grow up and begin their developmental years in higher income homes (Rose et al., 2015; Chaney, 2014). Learning from their parents' priorities in the early years of growth and development, children from undeserved communities are more liable to place less emphasis on future education and more

importance on staving off hunger and staying unharmed by neighboring forces in the present Likely recognizing the contradiction in learned priorities between lower income and higher income students, many classroom teachers have adopted Social Learning Theory's model in the form of problem-solving practice activity techniques known as Guided Participation (Broström et al., 2014; Kumpulainen & Wray, 2002; Petty, 2009).

The Guided Participation technique approach typically involves the engagement of children in the learning experience through activities combined with added social interactions (Kumpulainen & Wray, 2002; Broström et al., 2014; Kumpulainen & Wray, 2002). Containing contributions from Russian developmental psychologist Lev Vygotsky, the communicative procedure illustrates the process of how children gain new and necessary skills for problem solving—namely focus, critical-thinking, and social abilities—needed for successful interaction with others (Broström et al., 2014; Petty, 2009). The actions are completed through interaction with adults such as teachers or parents during the course of solving a suggested, age-appropriate problem (Kumpulainen & Wray, 2002). The implied problem in question can range in topic from mathematics and the social sciences to reading. Instead of the adult scaffolding child participation with strict rules and severe guidelines, adults allow for any questions and solutions to be presented. In turn, the children are provided with guidance only in the instances that they need or ask for it (Broström et al., 2014; Petty, 2009).

The tactic of limited learning regulation establishes the social relationship component which the human brain needs, according to neuroscientists, while simultaneously building the childhood groundwork for other skills required to form strong relationships with their peers (Broström et al., 2014; Germer et al., 2013; Petty,

2009; Tan-Zubiri, 2015). Moreover, in the belief of Vygotsky's philosophy, the presented social and interactive circumstances aid the child in mental growth as well (Broström et al., 2014; Mooney, 2013). The following theory to be discussed, Situated Learning Theory, further lends credence to the claim based on Social Learning Theory that learning works best through a collaborative, natural partnership between the learner and the student.

Situated learning theory. Another vital piece of the conceptual framework, Situated Learning Theory, asserts the spontaneity of the learning process. The originator of the theory, Jean Lave and co-author Etienne Wenger, proclaim that learning takes place through the inadvertent influences of a technique entitled Legitimate Peripheral Participation (Lave & Wenger, 1991; Consalvo, Schallert, & Elias, 2015; Lehmann & Chase, 2015). Here, knowledge is expanded through cooperation with those from whom they are learning. In the act of acquiring information through the confines of Situated Learning Theory, relationships are built as the learning process goes beyond observation and into practice through two-sided contact (Consalvo et al., 2015; Lehmann & Chase, 2015). Both participants absorb information about themselves and the world around them with authenticity and relevance. Thus, students are equipped with the tools needed to decipher learned lessons and other knowledge (Baloian, Casas, Ochoa, & Zurita, 2012; Consalvo et al., 2015).

Subsequently, regarding Situated Learning Theory, realism and personal applicability among learning materials for students from disadvantaged homes are few (Piazza & Duncan, 2012; Chaney, 2014). Additionally, researchers have found students from lower socioeconomic neighborhoods to be regularly underrepresented in gifted

programs, alienated by classroom teachers, and culturally denigrated (Chaney, 2014). Utilizing the principals of Situated Learning Theory and seeking to address the absence in representation, Counseling Psychologist Susan V. Piazza and Educator Lonnie Duncan created and implemented a strength-based, culturally-pertinent afterschool literacy program (Piazza & Duncan, 2012). Following the course of study, the authors found that while searches for culturally-authentic texts and construction of materials with present pertinency were complex in regards to the at-risk African-American urban males in the program, neither tasks was impossible for those willing to become the student for the sake of their learners' academic success (Piazza & Duncan, 2012). Furthermore, it was found that positive relationship and helpful engagements between the pupil and the teacher were essential for building motivation to learn (Piazza & Duncan, 2012). In turn, enthusiasm for learning provided aid in developing long-term skills in reading, student empowerment, and future scholastic success (Piazza & Duncan, 2012).

In the action research analyses, a developed storytelling mobile application tool was evaluated for its use in early childhood literacy development for preschool students living in multiple areas, including those identified as low-income or at-risk. The developed tool involved parent-child story creation where both parties digitally constructed a story together until the completion of a given narrative. Situated Learning Theory was vital to the study's underlying premise, as learners gave and gained both from the implemented tool and each other in the collective procedure. Consistent with the Situated Learning theory as well as Social Learning theory, children constantly inquire and discover new things; supplementing the aspect that the early childhood learner is an active participant in the learning process (Bernheimer & Jones, 2013). The Center on the

Social and Emotional Foundations for Early Learning considered the key skills needed for the future success of children to be the following:

- Improving confidence
- Developing a capacity for successful relationships with others
- Building concentration and persistence in challenges
- Effectively communicating emotions
- Listening and following instructions
- Attentiveness
- Solving problems (Broström et al., 2014; Okado et al., 2014; Santos et al., 2012).

Each listed ability is strengthened through continual development and engagement in literacy-based activities (Santos et al., 2012). Other educators and researchers such as Diana Sukhram and Amy Hsu (2012), following the course of Situated Learning Theory in a conducted action research study that introduced a reading partnership program entitled *Reading Together* found that early literacy lessons given to children in a manner that is continually collaborative and relevant to the social issues in their community were proven to be most effective for lasting success (Sukhram & Hsu, 2012). Consequently, as the details of the theory in question suggest, effective learning is collaborative, continual, engaging, and pertinent; creating relationships between student and learner and, therefore, a love and motivation for learning. The following section presents Narrative Performance Theory, which substantiates the beliefs in long-term learning based on learning environment, culture, and relational rapport.

Narrative performance theory. In connection with both Social Learning Theory and Situated Learning Theory, Narrative Performance Theory represents a crucial piece of the conceptual framework. Developed by two family communication scholars in pursuit of understanding the functions of the family, Narrative Performance Theory involves storytelling practices as a means of communication between family members while also building individual and familial identity through the stories created and shared (Langellier & Peterson, 200; Huisman, 2014; Flottemesch, 2013). According to Langellier and Peterson (2006), these communicative stories between family members assist both parties in understanding themselves, their culture, and the world around them. Furthermore, these accounts are passed throughout generations, often by those considered to be the head of the family, and who play an active role in strengthening the familial unit (Langellier & Peterson 2006; Flottemesch, 2013).

As previously referenced, low-income-area homes are often plagued with poverty and violence (Chaney, 2014). As a result of dangerous and dire circumstances, children from these homes, upon entering school in early childhood, are at a higher risk for being illiterate and possessing underdeveloped language and social skills (Chaney, 2014; Rose et al., 2015). However, while in the midst of economic struggle, many tight communities are forged as families grow closer and some neighbors often become as close as loved ones. For instance, Latino immigrant families, often residents of urban affordable housing, raise their children with the use of an entire network of trusted family members (Center for Advanced Studies in Child Welfare, 2014). Additionally, African-American families in the same residences tend to share stories of family history, resilience, and perseverance throughout generations (Holloway, 2015). In essence, Narrative Performance Theory makes use of both collaborative relationships and familial storytelling. According to implementers of Reading Together, a six-week reading program open to

children and parents of all cultural and linguistic backgrounds, caregivers and children demonstrated a higher comfort level at the prospect of collaboration, thus providing for a greater willingness to employ the program's techniques (Sukhram & Hsu, 2012).

As previously stated, Situated Learning Theory asserts that one learns best when directly engaged in the learning process on a continual basis while also advancing knowledge through relevant personal materials and sources related to one's culture. Psychotherapist Donald E. Polkinghorne (1998) formerly substantiated this assertion by suggesting that narratives not only add literacy benefits, but also provide the foundation of self-identity. As found through participant-tested storytelling and story-acting (STSA) practices, appropriate and continuous material provided in the form of storytelling has the potential to promote language, literacy, and social skills (Nicolopoulou et al., 2015; Sukhram & Hsu, 2012).

The action research study suggested the creation of storytelling projects within a mobile application entitled Kid Forward. These projects include literacy-development activities, such as creating stories between parent and child. In the process of story construction, the first parent generates one piece of the story, and then notifies the child of the completion. From there, the second party proceeds to contribute to the story; both parties continue this collaborative process until the mutual agreement concerning the ending of the narrative. Designed to combat illiteracy in early childhood, the aforesaid mobile application aimed to make use of these theories by repeatedly connecting the familial, cultural, and social environmental factors with the young learner through the introduction of *play* to the learning experience (van Oers, 2015). As discussed, illiteracy is a prevalent problem in low socioeconomic neighborhoods (Chaney, 2014). The following section further deliberates the achievement gap and its intimate relationship to early childhood literacy development.

Literacy development and the achievement gap. Researchers have found that children who have positive experiences, literacy or otherwise, early within their family homes tend to have

greater confidence and better social and emotional development (Broström et al., 2014; Okado et al., 2014). Confidence and social and emotional growth are believed to give contribution to success in academia and beyond (Broström et al., 2014; Okado et al., 2014; Santos et al., 2012). Conversely, lower income neighborhoods and associated schools are impacted by issues including increasingly-limited resources, poverty, frequent violence, homelessness, and even parental incarceration (Piazza & Duncan, 2012). Due to the vast number of negative factors, positive early childhood experiences tend to be fewer in number and in short supply (Chaney, 2014; Di Santo et al., 2015; Rose et al., 2015).

By the age of three, the vocabulary gap between higher income and lower income neighborhood homes is thirty million (Colker, 2014). In other words, children from economically disadvantaged homes are exposed to 30,000,000 less vocal expressions than those dwelling in higher income environments (Colker, 2014). In addition, over thirty percent of children from economically underprivileged backgrounds enter kindergarten without the basic language skills needed for literacy learning (Council on Early Childhood, 2014). In an attempt to reshape early childhood literacy in a high-poverty area through an implemented strategy, one educator found that students from such neighborhoods often enter school lacking in the beginnings development of literacy, language, and social skills (Rose et al., 2015). These limitations present a greater academic risk of difficulty in future literacy learning (Rose et al., 2015).

The opposite is true in higher income communities, where children are more likely to receive more substantial home literacy exposure at younger ages and more resources to combat learning difficulties that may arise during early learning (Rose et al., 2015). As Colmar (2014) found, among those common learning difficulties is that of language delay. This is an element often situated in socio-economically disadvantaged areas (Colmar, 2014). Language delay causes lasting effects in the development of social and emotional traits (Colmar, 2014). Moreover, rarely

is the delay a factor in higher income homes, where aid for any learning difference is prevalent (Perkins, Finegood, & Swain, 2013).

Researchers at the National Center for Education Statistics (2017) asserts that the closing of academic achievement gaps between the advantaged and the deprived remains a policy goal from the state to the federal level. Yet, despite the initiative for equity in education, urban public-school systems are often left behind as reserves are stretched increasingly thin for an ever-growing population of students and parents (Chaney, 2014). Poverty, hunger, crime, and unemployment run rampant while state budgets are cut continuously, which result in added strain on financially-strapped cities (Rose et al., 2015). In 2015, 93% of the students in Detroit, Michigan, alone lacked proficient reading skills for their respective age groups and grades (National Center for Education Statistics, 2015). Moreover, forty to sixty percent of students in urban school districts across the country drop out of school and do so with reading and literacy levels below that of grade nine (Literacy Now, n.d.). Finally, programs designed to address rampant illiteracy recurrently have limitations to their services in the area of collaboration with most exclusively providing literacy aid to either adults or children (Chaney, 2014).

The literacy-learning gap has continued to widen as more children in underserved communities fall victim to poverty and face threats of violence each day. By the same token, many schools across the country reportedly offer less challenging curriculums to economically-disadvantaged students while concurrently proposing stimulating class material to wealthier learners (Barshay, 2015). Meanwhile, an action research study in pursuit of family literacy practices concerning preschool-aged children asserted the same point as that of Situated Learning Theory and its components related to early and collaborative learning (Chao, Mattocks, Birden, & Manarino-Leggett, 2015). Through an exploration of the effects of an implemented program entitled *Raising A Reader* on 12 pre-kindergarten classrooms, it was found that the program, which

was designed to improve parent support and early childhood vocabulary resulted in improvements to the two dynamics as well as reading routines between parents and children (Chao et al., 2015). Alternatively, if the early environment is negative and lacks the tools necessary for stimulating lessons, it may be difficult for the child to develop at the same rate as or faster than their schoolmates who are on the same developmental journey (Barshay, 2015; Rose et al., 2015; Sukhram & Hsu, 2012).

Educators recommend that parents begin working with their children in the area of reading as early as possible and on a daily basis so that they may enjoy reading, read more, and, as a result, build literacy skills (Colmar, 2014; Nicolopoulou et al., 2015; Okado et al., 2014). It is the development of literacy skills that contributes to greater success in the classroom and beyond (Colmar, 2014; Okado et al., 2014). However, in low-income homes, numerous obstacles may impede a growth in love for reading and literacy. For instance, the possibility of a lack of early literacy-learning activities in the home is greater in these neighborhoods than higher income areas (Chaney, 2014). Due to the adverse likelihood of a delay in the beginnings of building literacy learning skills, complications can arise for the child with regard to the home's early literacy environment (Kavanagh & Hickey, 2013).

The home literacy environment. Scholars agree that the domestic environment affects student learning, academic achievement, and literacy development; thus, it is the home's literacy-learning environment is the key to any young child's future success (Chaney, 2014; Kavanagh & Hickey, 2013; Rose et al., 2015; Sukhram & Hsu, 2012). As other researchers and educators agree, the home is the first place in which a child begins to absorb and break down information learned within their respective society (Bandura, 1977; Yeo et al., 2014). Furthermore, Situated Learning Theory and Narrative Performance Theory lend credence to the held belief in the connection between familial communication, partnership, and learning development (Flottemesch, 2013;

Langellier & Peterson, 2005; Nicolopoulou et al., 2015). Therefore, the parent, as the main component of the home environment in which the child lives, has the strongest influence in the shaping of said child's literacy-development progress. The same fact holds true in an environment where language difficulty, poverty, limited resources, and violence are the norm. No matter where a child may live, they tend to pick up and practice varying habits, information and lessons, literacy and otherwise from those people and place with which they spend the greatest amount of time (Broström et al., 2014; Okado et al., 2014; Yeo et al., 2014). At the early stages of learning, it is generally the parent in the home who determines if the habits and practice in question will be the positive or negative (Chaney, 2014; Sukhram & Hsu, 2012).

Due to the strong influence of caregivers and family in the formative years, educators and researchers alike recommend that literacy-learning activities—which includes reading, writing, and oral communication—begin in the earliest of years as literacy has proven essential to academia and life beyond the classroom (Broström et al., 2014; Huisman, 2012; Rose et al., 2015; Sukhram & Hsu, 2012). By the age of five, ninety percent of critical brain development takes place; thus, children who experience learning early on are more likely to succeed in the classroom (Early Childhood Education Degrees, 2015; Tan-Zubiri, 2015). Regarding literacy-based activities in the home environment, it has also been said that inspiring creativity and inventiveness among children through practices such as shared book reading and writing are vital to the literacy-learning process (Huisman, 2012). While some researchers found there to be negative factors such as low quality books in low-income neighborhoods, others have worked to implement stories for collective action and learning (Gearty, 2015). Storytelling fosters enjoyment for literacy learning and greater ease in future subject learning and critical thinking in the classroom (Huisman, 2012). The section to follow aims to uncover the supplementary benefits of familial storytelling and its contributions to literacy development for children in at-risk environments

The benefits of storytelling. Many parents experience complications in providing a positive early literacy- learning environment for their children. Reasoning for the difficulties in building positivity in the face of negativity are due in part to parental literacy issues (Kavanagh & Hickey, 2013; Yeo et al., 2014). Programs in at-risk areas aim to combat these issues through programs such as parent training or adult literacy (Chaney, 2014). However, research indicates that collaboration is the missing factor from these programs (Anthony, Williams, Zhang, Landry, & Dunkelberger, 2014). For the shaping of the Raising a Reader program—an early childhood education family involvement plan for at-risk populations—was implemented in over 90 preschool classrooms in low socioeconomic status areas (Anthony et al., 2014).

Some classrooms received the Raising a Reader program combined with the Texas Early Education Model—a model encouraging shared resources of public and private systems but lacking the familial connection component. Other classrooms implemented Raising A Reader, TEEM, and Family Nights; the latter of which entailed monthly meetings where parents were given instruction on shared reading strategies (Anthony et al., 2014). The results from the research study revealed that, from the initial oral language and print knowledge assessments completed at the beginning of the year, the most significant level of improvement and influence transpired in classrooms that had implemented a combination of Raising a Reader, TEEM, and Family Nights (Anthony et al., 2014). It is collaborative learning that provided the greatest benefit in literacy learning and development. It is important to understand that the collective method of storytelling between family members has the potential to provide enhanced benefits for literacy learning. Unlike shared storybook reading, storytelling is the action of relaying or constructing a story from one's own memory or without the aid of a ready-made book (Agosto, 2013). The action incorporates the non-traditional concept of *play,* which educators and researchers have validated as a valued means of learning for long-term success through investigative study and tool

implementation (Einarsdottir, 2014; Nicolopoulou et al., 2015; van Oers, 2015). Like *play*, storytelling itself helps to improve imagination, listening, and even cultural understanding of both the individual and his or her peers (Nguyen et al., 2015).

Moreover, other scholars and researchers have deemed storytelling as the oldest and most productive form of teaching. The findings obtained substantiates the claims of neuroscientists who believe that the brain, due to increased illumination, is wired to retain information best through a storytelling experience (Gazzaniga, 2005; Nguyen et al., 2015).

According to Narrative Performance Theory, storytelling—oral, written, or digital—begins in the home with the head of the family communicating tales and accounts of culture, emotions, and more from generation to generation (Huisman, 2014; Kimball et al., 2016; Nguyen et al., 2015). In an interview with the American Journal of Play (2013), Boston-based educational professionals Jason Sachs, Ben Mardell, and Marina Boni discussed the Boston Listens program, an innovative initiative-based on Vivian Paley's approach to storytelling and acting, where children made up a story, the teacher writes it down, and the class acts out the written tale. Specifically, the Boston Listens agenda brings in the component of family by having participants listen to the children's stories as well as provide model narratives to share. Both acts foster social connections and support literacy development (American Journal of Play, 2013). Furthermore, findings have suggested that a healthy life balance is created in the form of community, emotional development, and social supports when storytelling formats such as spoken word are utilized (Alvarez & Mearns, 2014).

In a 2015 study on Head Start Dual Language Learners and their mothers, with 93 Spanish-speaking mothers of Head Start preschool students in central Pennsylvania, it was found that the language spoken in the home coupled with literacy practices (e.g., mother-child reading) influenced the language abilities of the child as well as their future literacy experiences (Lewis,

Sandilos, Scheffner-Hammer, Sawyer, & Mendez, 2015). The combination of language learning with storytelling has also been employed to service the early childhood classroom literacy-development process in the form of small group storytelling (Flynn, 2016). In one classroom, children made use of extended language as well as complexities in relaying sequential and significant events to classmates as they also establish meanings for the stories told to their peers (Flynn, 2016). According to these indications, storytelling represents an engaging method of learning for child and adult, as the dual parties engage and inspire each other while also gaining, sharing, and practicing pertinent academic and life lessons (American Journal of Play, 2013; Huisman, 2012; Kimball et al., 2016; Nguyen et al., 2015).

The storytelling mobile application entitled Kid Forward involved the literacy development aspect of collaborative, multicultural, and relevant storytelling. With it, parents and children collaboratively created stories through electronic means. The cooperative actions aspired to connect the parents to the literacy-learning development experiences of their children. Technology is a large part of the world today and the classroom as a whole (Morgan, 2014). With the goal of building literacy development, electronic devices have been employed productively in the classroom through the use of assignments involving storytelling projects to encourage creativity and improve the components of literacy development (Gearty, 2015; Morgan, 2014). The following section explores the connection of literacy learning within the family unit and storytelling tools with digital components.

Literacy learning: digital manipulatives and technology. Educators believe that early literacy practices in the home, or a lack thereof, have the power to shape the success or failure of a child's overall future development (Baroody & Diamond, 2012; Chaney, 2014; Rose et al., 2015; Yeo et al., 2014). In higher income environments, parents are more likely to have what they need to guide their children toward greater literacy development and academic success, while families

with lower incomes, an environment in which fifty percent of adults are unable read a book written on an eighth-grade level, tend to lack the resources necessary to do the same for their own children (Chaney, 2014; Lehmann & Chase; 2015; Rose et al., 2015). As was stated in previous sections, storytelling is an art not only helpful in familial communication, but also in creativity and literacy learning, regardless of one's initial skill level (Flynn, 2016; Huisman, 2014; Killick & Bowkett, 2015; Langellier & Peterson, 2006). Moreover, storytelling in forms such as writing and digital formats are useful in that they allow for the practice and building of multiple skills at once (Sylla, Coutinho, Branco, & Müller, 2015; Tiba, Chigona, Condy & Tunjera, 2015).

While research has identified the need for interactive products for children, areas stricken with high poverty often have limited resources (Chaney, 2014; Rose et al., 2015). However, software companies have made it possible for classrooms and homes in neighborhoods in need to use technology for a reduced fee or free of charge (Soltan, 2016). Explorations of communication through the method of storytelling has taken digital formats which makes use of various learning styles such as auditory, visual, and kinesthetic (Flottemesch, 2013). In a four-month investigation into the use of digital manipulatives for storytelling in a Portuguese preschool classroom, findings revealed that students became more motivated to collaborate in learning tasks as a result of the introduced tool (Sylla et al., 2015). Within the family, technology has played a large role, specifically with respect to remote communication between parent and child (Yarosh, 2015). Through investigation and the further exploration into the role of technology in divorced families, Yarosh (2015) found that technology was capable of assisting in the communication process between families during times of tension and conflict.

As the founders of Narrative Performance Theory have recognized and established, storytelling itself is a mode of communication that allows for families to share and engage in learning (Flottemesch, 2013; Huisman, 2014; Langellier & Peterson, 2006). Considering the facts,

utilizing technological solutions with the combination of storytelling between family members may likely enhance the literacy learning and development process while also reducing conflict (Yarosh, 2015). Consistent with scholarly findings, storytelling has the potential to aid auditory and visual development (Tiba, Chigona, Condy & Tunjera, 2015). In essence, storytelling among family members creates a middle ground between the home and school, where aspects of both environments (i.e., knowledge and recreation) are experienced (Chaney, 2014). Within this space, early childhood literacy skills and overall academic development are further encouraged and expounded.

Methodology Literature

In regard to the study and the methodology, the research method of action research was utilized. The method of action research has evolved over the course of the last century (McKernan, 1991). Defined, action research is a type of methodology through which researchers aim to make a change to their own practices while solving an immediate problem within a selected research population (Herr & Anderson, 2015; Spaulding, 2014). The ultimate aim of the methodology and the overall research study was to offer and implement an early childhood digital collaborative storytelling solution to help solve the problem of illiteracy in developmentally at-risk and low socioeconomic areas; an issue in which researchers have ascertained (Anthony et al., 2014; Chaney, 2014; Rose et al., 2015; Sukhram & Hsu, 2012). Additionally, the study sought to refine the solution (Spaulding, 2014). As few action research studies have delved into an experiment on a digital storytelling solution to help combat the risk of illiteracy in these areas at the earliest level, the study aimed to fill this gap and explore the usefulness of the solution among families. Action research is regarded as a research method that appeals to the concerns of the people in urgent, challenging circumstances (McKernan, 1991; Spaulding, 2014). It can be argued that action

research can help uncover reasons, trends, and motivations behind thoughts, communications, actions, and even said conditions (Hammersley, 2013).

While few action research studies have been conducted in the way of literacy learning solutions for children who have yet to enter the classroom, scholars and investigators have found the home signifies the first place in which a child learns. It was also revealed that the reasoning behind difficulties in early childhood literacy learning within homes in low socioeconomic areas can range from a volatile environment to language and learning difficulties (Di Santo et al., 2016; Rose et al., 2015; Yeo et al., 2014). Through the course of small but in-depth examinations involving interviews and observations with organizations and classrooms, findings also proved that literacy complications have the potential to be generational (Chaney, 2014). Second, it has also been found through action research projects that the aspect of storytelling is useful in communication and sharing between family members and beyond (American Journal of Play, 2013; Gearty, 2015; Nicolopoulou et al., 2015; Rose et al., 2015).

Through the use of formative interviews in one study involving separated and divorced families, Yarosh (2015) was able to not only identify tension-creating factors within the familial units, but also pointed out specific challenges to ensuring that the children remained engaged with the family. Subsequently, a digital communication tool called ShareTable was deployed for the purpose of solving the problem of a lack of engagement between these parents and children. The end result led to an increase in further discussions on the subject of technology for engagement and collaboration within the familial unit (Yarosh, 2015).

To solve the problem of risk of illiteracy within low socioeconomic areas, Kid Forward, the storytelling mobile application studied, was designed for use between parent and child at the early childhood level. The purpose of the program is to increase literacy development among preschool-aged children and lower the risk of illiteracy and literacy-development difficulties as early as

possible. A national search for participants was conducted in Camden, New Jersey; Henderson, Nevada; and West Jordan, Utah. In an inclusive action research study with greater chances of sustainability and utility, five families of preschool-aged children and their parents were selected from a national database for in-depth study. Open-ended interviews and permitted observations were conducted with parents and children for the purpose of initial analysis concerning literacy-learning development in the home environment, especially with respect to storytelling.

In addition to these factors, ending surveys included on the mobile application were used to gain feedback on the mobile application, including how well it works in relation to the child's literacy development and what would need to be altered to enable greater results and effectiveness for future use. Afterward, post interviews and succeeding observations would be conducted at the end of the study. All stored information would then be collected and analyzed for connections and related information to see how well the program worked for the action research sample. While the information in question was designed to be used specifically for analysis in accordance with the research questions, it is acknowledged that new phenomena may be generated. The subsequent section will further discuss the chosen methodology and its associated issues.

Review of Methodological Issues

The methodology which will be used for data collection and analysis is that of an action research study. The methodology was chosen due to the need to solve an immediate problem, as well as the small but in-depth focus through interview data, open-ended questioning, and emerging information with respect to creating better teaching tools and methods (Creswell, 2013; Spaulding, 2014). The methodology will involve interviews, observations, and surveys, all of which have been utilized for various quantitative and qualitative studies centered on home and early literacy, narratives, digital storytelling, the preschool classroom, and socioeconomic factors relating to literacy and learning (Chaney, 2014; Flottemesch, 2013; Yarosh, 2015; Yeo et al., 2014).

Literature has confirmed the importance of early childhood literacy programs that promote children's school success at an early age (Ansari & Winsler, 2016; Baroody & Diamond, 2012; Nicolopoulou et al., 2015). These programs were not only recognized as essential; the effectiveness of home literacy activities was seen as well through the course of surveys, questionnaires, observations, experiments, and analyses (Ansari & Winsler, 2016; Baroody & Diamond, 2012; Nicolopoulou et al., 2015). Moreover, the implementation of tools and programs designed to solve literacy problems provided a method of finding a solution through the course of communication and collaboration (Colmar, 2014; Piazza & Duncan, 2012; Rose et al., 2015; Sukhram & Hsu, 2012; Yarosh, 2015). While the methodology was inclusive and aimed to offer a solution to the illiteracy problem, there were issues present in using this technique.

As it had been seen through the course of previous research studies with the format of case study or implementation, initial concerns were present with study participants in terms of honesty and openness, as most reported data was obtained from parents (Creswell, 2013; Justice, Logan, Işıtan, & Saçkes, 2016). In an example case study on the nature of relationships concerning home literacy environments, child characteristics, and print knowledge for preschool children, questionnaires on home literacy activities, as well as the demographics of the group were completed by caregivers (Sawyer et al., 2014). While aspects such as demographics are not easily forged, answers to questions on literacy-based activities in the home could be faulty due to a lack of clarity or discomfort. For instance, if parents struggled with or had past literacy-learning problems, sharing personal burdens may have been difficult if the setting for data collection methods, such as interviews, was not conducive to establishing comfort and trust. Moreover, the referenced parental burdens may affect literacy-based activities performed in the home (Yeo et al., 2014).

In a study on the home literacy environment and preschool children's reading skills and interest, parents were asked to complete a reading belief inventory (Yeo et al., 2014). Findings with respect to reading beliefs revealed that parental support in the literacy-development process represented a positive indicator of reading and verbal skill success as well as literacy interest (Yeo et al., 2014). Considering this, parental problems would also have an effect on early childhood literacy learning (Yeo et al., 2014). Having a full understanding of parental literacy burdens and ensuing beliefs of the parents, greater care was taken during the course of data collection and analysis.

Another issue present in the methodology is that of the suspected heightened presence of personal bias of the research (Creswell, 2013; Herr & Anderson, 2015; Spaulding, 2014). While interest and passion are aspects which drive the examination to move in the direction of a specific study and shape the topics that are ultimately chosen, especially in the matter of action research and the social sciences, the researcher must answer specific research questions, ensuring that the path toward true results is untainted (Creswell, 2013). To accomplish this, researchers must maintain a degree of subjectivity in both data collection and analysis (Creswell, 2013). The purpose of the research study is to provide a solution to the problem of illiteracy in low socioeconomic areas at the early childhood level. Therefore, it is helpful if the researcher collects and analyzes data without prejudice or bias and is also open to any changes in initial beliefs along the way (Creswell, 2013; Spaulding, 2014).

Synthesis of Research Findings

The importance of literacy activities and tools in the home has been confirmed through multiple educational research studies on the subject (American Journal of Play, 2013; Chaney, 2014; Chao et al., 2015; Morgan, 2014). Added data has been confirmed concerning that of digital storytelling and literacy learning (Flottemesch, 2013; Morgan, 2014; Nicolopoulou et al., 2015;

Sylla et al., 2015). Moreover, it is recommended that such activities begin as early as possible because it is evident that children with positive home literacy experiences perform better in the classroom and beyond (Agosto, 2013; Nicolopoulou et al., 2015; Santos et al., 2012; van Oers, 2015). While scholars acknowledge the importance of early positivity in literacy learning as a necessity, they also recognize that children from areas rife with poverty, violence, and limited resources are at-risk for future social and academic problems (Chaney, 2014; Piazza & Duncan, 2012; Rose et al., 2015).

In low-income schools and the neighborhoods that house them, a surplus of poverty, crime, scarce funding for educational resources, and a lack of collaborative programs between parent and child in the early years have been a common find, which contributes to a widening achievement gap and leaving little room for positive experiences with literacy or otherwise (Ansari & Winsler, 2016; Chaney, 2014; Piazza & Duncan, 2012; Sukhram & Hsu, 2012). Educational scholars and neuroscientists have explored an alternative method of learning which is team-based in nature: storytelling (Broström et al., 2014; Flottemesch, 2013; Germer et al., 2013; Morgan, 2014; Nguyen et al., 2015; Sylla et al., 2015).

Storytelling, also known as narrative creation, has been established as a collaborative method of creating stories without the assistance of a ready-made book (Agosto, 2013). According to family communication scholars, it also involves the sharing of information, history, lessons, culture, and pride between the members of the familial unit from one generation to the next (Flottemesch, 2013; Flynn, 2016; Huisman, 2014; Killick & Bowkett, 2015; Langellier & Peterson, 2006). Neuroscientists have determined that there is increased activity in the human brain and have deemed this method as arguably the best teaching and learning tool due to enhanced engagement and relationship-building during the course of sharing (Broström et al., 2014; Gazzaniga, 2005; Germer et al., 2013; Nguyen et al., 2015; Petty, 2009). In other words,

storytelling provides a greater system of guidance between the learner and teacher (American Journal of Play, 2013). Other researchers have found that digital formats of storytelling between families not only have initial benefits, but also provide the added advantage of tension relief and child engagement during remote communication. Motivation as well as auditory, visual, and kinesthetic skills are developed through continued action (Flottemesch, 2013; Sylla et al., 2015; Yarosh, 2015).

To connect the aspects of narratives and technology, educators and researchers agree that the use of technology not only aids in literacy development, but also in more effective communication and collaboration between family members—skills necessary for future progression (Flottemesch, 2013; Morgan, 2014; Sylla et al., 2015; Yarosh, 2015). As corporations continue to make technology more readily available in low-income homes and classrooms, investigations into digital manipulatives for the purpose of storytelling, specifically in the classroom, have found an increase in the motivation of children, specifically related to learning from and collaborating with one another (Sylla et al., 2015). Within the family unit, digital tools and manipulatives for storytelling have been known to decrease disengagement and tension (Yarosh, 2015). Based on these aspects, engagement and collaboration are not only needed learning factors in the early stages of the literacy-development process, but their beginnings in early childhood is a necessity for long-term brain and skill development (Agosto, 2013; Tan-Zubiri, 2015). Based on the preceding information, digital tools have been found to enhance the learning process, both at home and in the classroom (Flottemesch, 2013; Morgan, 2014; Sylla et al., 2015; Tiba, Chigona, Condy & Tunjera, 2015; Yarosh, 2015).

With the understanding gleaned from the research, the study surrounded solving the problem concerning the risk of illiteracy in low-socioeconomic neighborhoods through a developed, collaborative mobile method of *play*: storytelling. In reference to the forthcoming

study, as previously mentioned, the methodology of action research was utilized for implementation among those residing in various areas and in the early childhood system, as well as for necessary improvements that may be needed in order to create a better teaching method (Einarsdottir, 2014; Gearty, 2015; Herr & Anderson, 2015; McKernan, 1991; McManners, 2016; Spaulding, 2014). Through means of observations, interviews, surveys, and implementation, action research methodology has provided for extensive innovations to numerous researchers (Einarsdottir, 2014; Rose et al., 2015; Piazza & Duncan, 2012; van Oers, 2015; Yarosh, 2015). Moreover, through this very method in regard to literacy learning, researchers have confirmed and stressed the necessity of early childhood collaborative literacy programs, digital and otherwise, that promote the success of all children, regardless of background (Chaney, 2014; Sukhram & Hsu, 2012).

Critique of Previous Research

Scholars worldwide have found that the home environment is the first place in which a child begins to learn, interact, ask questions, and pick up cues from others and the word around them (Bandura, 1977; Chaney, 2014; Yeo et al., 2014). As such, not only has the importance of the home literacy environment been ascertained, but the risk of illiteracy in low socioeconomic neighborhoods has also been found and established through studies and statistics which show that over that thirty percent of children from economically disadvantaged neighborhoods show a lack adequate preparation for kindergarten (Chaney, 2014; Council on Early Childhood, 2014; Piazza & Duncan, 2012; Rose et al., 2015; Sukhram & Hsu, 2012; Yeo et al., 2014). According to researchers who have recognized the definition of literacy as a combination of reading, writing, and oral skills, a successful home literacy environment consists of such activities as shared book reading, writing together, and storytelling (Agosto, 2013; American Journal, 2013; Anthony et al., 2014; Huisman, 2012; Rose et al., 2015; Sukhram & Hsu, 2012). Digital storytelling has been

included within these activities as being beneficial for not only literacy, but also tension reduction as well as increased capacity in audio, visual, and kinesthetic skills (Flottemesch, 2013; Morgan, 2014; Sylla et al., 2015; Yarosh, 2015). Putting these actions into practice on a daily basis may build up a love of reading and lead to added benefits in the area of critical thinking, focus, confidence, and social and emotional development (Broström et al., 2014; Petty, 2009; Santos et al., 2012). Examiners and educators recognize that not every head of the home environment has found it an easy task to provide a positive home literacy-learning environment, as low-income homes, neighborhoods, and schools are subject to poverty, limited funding for necessary programs and resources, and crime (Piazza & Duncan, 2012; Chaney, 2013; Rose et al., 2015). Most programs designed to aid in literacy development place the focus on either children or adults, with no collaborative methods as solutions (Chaney, 2014).

The method of storytelling—also known as the method of sharing stories and creating narratives without a book—has been explored in greater measure by scholars and neuroscientists (Nguyen et al., 2015; Gazzaniga, 2005). While storytelling is a phenomenal tool for sharing aspects such as culture, pride, and history between families, storytelling has been found to promote greater guidance and engagement between parents and children while providing an ease in tension (Yarosh, 2015; Langellier & Peterson, 2006; American Journal of Play, 2013). While low-income neighborhoods and the achievement gap have been addressed and analyzed concerning literacy development in families and schools as well as previous research, few action research studies have delved into the aspect of digital storytelling as a learning tool in low-socioeconomic neighborhood homes. In these neighborhoods, there is a lack of literacy-development programs, which make use of partnership as they attempt to aid either solely the parent or the child (Chaney, 2014). The lack of collaboration-based programs and subsequent tools provides a gap in the research as well, representing an opening for a new solution to the illiteracy problem in low-income neighborhoods.

Summary

Chapter 2 explored comprehensive literature pertaining to Literacy Development and the Achievement Gap, The Home Literacy Environment, The Benefits of Storytelling, and Literacy Learning: Digital Storytelling and Technology. Associated frameworks linked to the action research study were introduced and explained in detail. While each theory in the conceptual framework represented a separate concept, Social Learning Theory, Situated Learning Theory, and Narrative Performance Theory each had specific interconnected factions that formed the basis for the case on behalf of engaging and collaborative learning, particularly with regard to literacy. First and foremost, Social Learning Theory, a theory utilized in many classrooms as a teaching method, asserts that a child's learning process through the natural act of absorbing information, asking questions, and picking up cues from others to gauge setting norms in a model that involves four steps: attention, retention, reproduction, and motivation (Bandura, 1977; Gong et al., 2014). Through the course of the four aforementioned steps, children pay attention to details in the world around them, retain information about said world, and copy the lessons learned and, often, motivations established.

The next of the three theories, Situated Learning Theory, involves the participation of and collaboration between the learner and the teacher through the immersion of environment for the purpose of guidance and retaining information on a long-term basis for both parties. As such, this point signifies an activity that calls for necessary subsequent inquiries from either party, helping to build essential development skills (Broström et al., 2014; Huisman, 2012; Sukhram & Hsu, 2012; Gearty, 2015). According to researchers, these essential developmental skills not only aid the child in the world of academia, but also provide for future progression, responsibility, and success in adulthood (Huisman, 2014; Kimball et al., 2016; Rose et al., 2015). Finally, Narrative Performance Theory ties the conceptual framework with assertions that storytelling is a primary means of

sharing information, stories, and histories without assistance from a ready-made book (Langellier & Peterson, 2006; Agosto, 2013).

In order to substantiate the conceptual framework, subsequent studies into literacy development and the achievement gap were explored, during which numerous researchers stress the importance of building a positive literacy environment in the home by beginning practices such as shared book reading at early as possible (Rose et al., 2015; Santos et al., 2012; Yeo et al., 2014). Likewise, scholars recognize that, should these activities not take place in the home during the formative years, the risk of illiteracy for early childhood students entering school is greater (Piazza & Duncan, 2012). Due to a lack of collaborative programs, limited quality learning materials, and a volatile environment, the areas with the highest risk of illiteracy are those of low-socioeconomic regions; unlike higher income homes (Anthony et al., 2014; Chaney, 2014; Rose et al., 2015; Sukhram & Hsu, 2012).

Furthermore, linking with the above-referenced matter, neuroscientists, scholars, and researchers, through various studies, recognize the lasting benefits of the illuminating and familial collaborative method of storytelling in the home as a means of literacy learning (Broström et al., 2014; Gazzinga, 2005; Germer et al., 2013; Tan-Zubiri, 2015; Williams, Zhang, & Dunkelberger, 2014). Said benefits include problem solving, critical-thinking, a decrease in tension, as well as an increased illumination of the brain (Agosto, 2013; Nicolopoulou et al., 2015; Santos et al., 2012; van Oers, 2015; Yarosh, 2015). Added *play* advantages are seen with other forms of storytelling, such as technology in which added visual, auditory, and kinesthetic skills are developed as well (Einarsdottir, 2014; Flottemesch, 2013; Sylla et al., 2015; Tiba, Chigona, Condy & Tunjera, 2015).

Overall, in critique of the previous research, it has been found that research into that of low-income neighborhoods and the achievement gap has been widely explored, while search attempts for action research studies concerning the implementation of a collaborative digital

storytelling methods in low-socioeconomic homes at the early childhood level were few in number; some dealt with older children already in school and others focused on literacy in the classroom without the combined factor of the parent. The deficiency of action research studies revealed a gap in the research and an opening for proposing a solution.

In conjunction with the introduction of the study involving data collection, analysis, and implementation of a storytelling mobile application in low-income neighborhood homes to solve the problem of illiteracy in these areas, the chosen methodology of action research was identified (McKernan, 1991; McManners, 2016; Spaulding, 2014). For added clarification, the methodology was subsequently defined as a method designed to create and better proposed solutions (Spaulding, 2014). Supplementary emphasis was placed on the additional in-depth, quality-focused technique, as the purpose of the study was to solve a problem through the teaching method of the mobile application and, if necessary, make subsequent improvements to said tool (Herr & Anderson, 2015; McKernan, 1991; McManners, 2016; Spaulding, 2014). Through survey of the scholarly literature, both benefits and limitations were introduced and presented in detailed accordance with the performed method. The chapter to follow will fully explore the action research methodology in greater detail.

During the course of Chapter 3, further focus will follow for the chosen methodology as well as the means by which data will be collected and analyzed. In the process, the research question will be reviewed. Additionally, as was explained in the previous chapter, collection instrumentation, the operation of the teaching tool, and the intended research population in place for the planned study will be further discussed. Finally, an investigation will follow this process in relation to the action research on the digital storytelling mobile application. The intentional purpose of the research, subsequent limitations, and expected findings in association with the data collection will be reviewed as well.

Chapter 3: Methodology

For the purpose of gaining in-depth information on the mobile application teaching tool, the methodology chosen was that of action research. Supplementing the collaboration-based conceptual framework and subsequent theories in the previous chapter, the chosen methodology and research design allow for the exploration of the solution from the family perspective. The goal of the study was to provide a support tool as a means of assistance for parents of early childhood learners. Considering the implementation of the developed storytelling mobile application, the significance of study was related to an evaluation of the tool's utility and necessary improvements to create a more effective method of teaching early childhood literacy through the instrument.

In association with the research question that guided the study, the methodology was used to collect data from five families in the form of interviews, observations, and exit surveys on the storytelling mobile application. The purpose and design of the achieved study will be explained in relation to the research population and the associated sampling method used to gain research participants for the study. Data instrumentation, also in relationship to the action research study, will also be introduced and further detailed below. In addition to the specifications, the study attributes will be articulated and clarified in conjunction with the referenced analysis, validation procedures, and limitations and delimitations related to the study tools and investigation. Finally, expected findings and ethical issues will conclude this chapter on the methodology.

Research Question

The storytelling mobile application and its use as a parental tool as a solution to the illiteracy problem in at-risk, low-socioeconomic neighborhoods were central to the investigation. The research question of the study was as follows: How will the implementation of a storytelling mobile application help to improve literacy learning for early childhood learners?

Scholars, researchers, and educators worldwide have determined that the home environment is the first place in which a child begins to learn critical lessons about literacy and life overall (Chaney, 2014; Rose et al., 2015; Sukhram & Hsu, 2012; Yeo et al., 2014). Including this fact, it has been shown that young children with more positive experiences in the home—particularly during the first five years of their lives—tend to do better in the classroom; grow socially and emotionally at a faster or developmentally appropriate rate, and experience greater literacy development (Early Childhood Education Degrees, 2015; Rose et al., 2015; Tan-Zubiri, 2015; Yeo et al., 2014). However, academics and researchers agree that neighborhoods and schools in low-socioeconomic areas often lack the resources needed, tending to affect literacy learning between generations of a family, particularly the youngest of children (Chaney, 2014; Piazza & Duncan, 2012; Rose et al., 2015). The drought of financial means also includes that of literacy-development programs, which often cater to only the child or solely the adult (Chaney, 2014).

Since parents and guardians are a large part of this early literacy-learning environment, scholars have found that storytelling between an adult and child in the family unit is a vital method of literacy development due to the variety of medical, education, cultural, social, emotional, and familial benefits, specifically those concerning interaction with peers and critical thinking (Agosto, 2013; Killick & Bowkett, 2015; Langellier & Peterson, 2006; Sukhram and Hsu, 2012). Storytelling in digital form also has the potential for enhanced advantages, which includes tension reduction and greater engagement within remote families (Yarosh, 2015). As indicated by the research question and following the guidelines of action research, the study sought to help to address the risk of illiteracy by introducing a collaborative, digital tool at the preschool level between parents and children (Spaulding, 2014).

Purpose and Design of the Study

With the specific focus of the investigation on preschool-aged learners and their parents, the purpose of the action research study was to address the established problem of the risk of illiteracy through the use of a storytelling mobile application teaching tool designed for collaboration between preschool-aged children and their caregivers. The examination made use of established findings that children learn best with social engagement and the multifaceted mode of electronics (Morgan, 2014; Sylla et al., 2015; Tiba, et al., 2015). To create a better teaching tool for future preschool learners and their parents, the study also explored its use concerning those it was designed to assist for any necessary improvements.

Regarding definitions, there were two established meanings in association with the purpose and design of the study: digital storytelling and literacy. As mentioned previously, storytelling is defined as narrative creation or relaying a story from one to another with only the use of one's own memory without the assistance of a ready-made book (Agosto, 2013). Digital storytelling entails a similar definition, but with the added component of electronics (Flottemesch, 2013; Morgan, 2014; Sylla et al., 2015; Tiba, Chigona, Condy & Tunjera, 2015). Subsequently, the definition of literacy is described as one's reading, writing, and oral skills (American Journal of Play, 2013; Rose et al., 2015; Sukhram & Hsu, 2012). Based on this definition of literacy, appropriate development would include the skills according to one's respective age and grade level.

In order to fully analyze each of these aspects of the study, the specific research design of this action research study allowed for maximum investigation in solving the problem and improving the offered teaching tool. As with guidelines in accordance with the given research design, investigation included that of implementation, interviews, observations, and surveys (Herr & Anderson, 2015; McKernan, 1991; McManners, 2016; Spaulding, 2014).

In reference to the storytelling mobile application, it was specifically designed to help increase early childhood literacy development among learners through digital storytelling practices and reduce the risk of illiteracy in low socioeconomic neighborhoods. Through similar qualitative courses of study and analysis of in-depth interviews on literacy-based activities in the home and subsequent implementation of solutions, researchers have found that digital manipulatives in narrative construction have the capacity to motivate children to learn while simultaneously lessening tension (Flottemesch, 2013; Sylla et al., 2015; Yarosh, 2015). Consequently, this mobile application was introduced as a means of early literacy learning through digital storytelling practices within a family unit.

The final piece of the research design was that of the research participants. As previously mentioned, participants in the action research study were from multiple areas, including those identified as disadvantaged or of lower socioeconomic status homes. The research contended that positive literacy-learning experiences, which transpire frequently and early, lead to greater success in the classroom and beyond (Broström et al., 2014; Okado et al., 2014). In the building of these positive literacy-learning experiences, suggested practices consist of collaborative actions among parents and children, such as shared book reading, writing, and storytelling (Chaney, 2014; Huisman, 2012; Nguyen et al., 2015). Moreover, it is understood that lower income neighborhoods—environments which are often subject to poverty, crime, and a lack of learning resources and funding— may be deficient in the area of positivity (Chaney, 2014; Piazza & Duncan, 2012; Rose et al., 2015). As it is seen as a direct, engaging method between members of the family unit, the research design centered on solving the stated problem through the implementation of a storytelling tool.

During the course of the investigation, the interviews and observations helped to gage the literacy learning activities done in the home and community prior to, during, and after the

implementation of the storytelling mobile application. Interviews and observations also enabled viewing the progressions of the program itself and its perceived contributions to the literacy learning development of each individual child. The opinions and thoughts on the program gleaned from the study's contributors further lead to the editions and improvements of program functions believed by adult participants to be for the betterment of their children's literacy learning journey. Additional data collected from parents in the form of ending surveys allowed for the consideration of the future use of the program by early childhood students and their parents.

Research Population and Sampling Method

The research population in question surrounded five families with preschool-aged children. All of the families selected for the study resided in the United States. In accordance with the study, the small number of participants in the population allowed for an extensive study of the implemented, problem-solving tool, especially in making necessary improvements to create a better teaching tool for parents and children (Spaulding, 2014). In order to locate and finalize the research population, two specified methods were performed. The sampling method used was convenience sampling.

Convenience sampling describes a process in which data is chosen to be collected from willing participants who are easily accessible and therefore available for study (Aarons, Fettes, Sommerfeld, & Palinkas, 2012). The national search for preschool-aged students and their parents yielded five families from the following cities and states: Camden, New Jersey; Henderson, Nevada; and West Jordan, Utah. Camden is an urban east coast-based city in New Jersey, home to the highest crime and poverty rates in the nation, coupled with a history of excess corruption and inadequate funds for those who are in desperate need of it (Federal Bureau of Investigation, 2012; Guy, 2013). According to Quality Counts (2016), a report on yearly efforts at the state level to improve public education, Nevada received a grade of 'D' for student performance and school

financing. The state of Utah, in accordance with the same report in 2016, received a 'D-' for school finance and a 'C' for kindergarten through 12th grade student achievement (Quality Counts, 2016). While the city of Camden's close proximity to the researcher was considered as a factor for the study, potential participants from the national search and their willingness to contribute was an influence on researcher access as well. Those who wanted to join the study provided their contact information and availability for examination. This allowed for greater ease in data collection.

The readiness of the study participants enabled facilitation for the duration of the research study (Herr & Anderson, 2015; Spaulding, 2014). As qualitative research dictates that one leaves open the possibility for new phenomena and formation of new beliefs to be found, convenience sampling represented the best method to ensure that other new tendencies concerning aspects such as the improvement of the tool could be discovered and analyzed before and after the storytelling mobile application implementation process (Creswell, 2013). Once the aforementioned sampling method yielded interested families via the national search, instrumentation involving demographics, home literacy activities, and experiences were collected from the caregivers of the home.

Instrumentation

In the exploration of early literacy-learning activities and the literacy-development teaching tool, a variety of instrumentation methods were used. These methods were the following: beginning demographic questionnaires, subsequent interviews combined with observations, and post-implementation surveys. After the demographic questionnaires were given to establish place of residence, preschool children in the home, and ownership and familiarity with electronic devices, the study began with guided yet open-ended pre-implementation interviews and observations with each parent and, with parental permission, their children. This aspect of the study surrounded literacy activities already taking place in the home, whether said activities

concern storytelling or otherwise. These first interviews were designed determine what literacy activities, if any, are taking place in the home. Afterward, following an explanation of the study's purpose and the initial interviews and observations, the storytelling mobile application, Kid Forward, was introduced, explained, and distributed to the participants' mobile devices which, as indicated by the demographics questionnaire, they owned.

Participants had the option to log into the mobile application system with a private email or a social media account, neither of which were shared. Subsequently, the parent or child could begin recording a story through writing or voice on their mobile device. They were allowed to begin recording their tale from memory or by choosing a picture or sentence prompt from which to start. Once the parent or child completed their part of the story, the other family member could pick up where they left off. This cycle continued until both guardian and child agreed on the content used for the story.

In order to gain perspective on how well the tool worked and what effect, if any, it had on early learners, the open-ended interviews and permitted observations conducted during the study continued into the implementation phase until the end of the stage in question. The next step in the process, at the end of implementation, involved ending interviews and observations. The purpose of these concluding instruments was to locate the usefulness of the tool and also any new literacy-learning discoveries that differed from those found at the beginning of the study. After these ongoing inquiries and inspections, the ending survey regarding the mobile application was used to gain greater perspective on the tool's role in the home literacy-learning process, its effects on the early childhood learners in the examination, and any improvements needed to increase the effectiveness of the tool and its aid to literacy growth.

Data Collection

Data collection took place through interviews, observations, and Likert-type digital surveys. The latter of these methods followed the implementation of the digital storytelling mobile application, Kid Forward. After issued demographic questionnaires, the investigation began with initial formative parent interviews and observations of both parent and child with parental permission. The interviews were guided, open-ended, and face-to-face, with questions asked concerning literacy-learning activities in the home prior to the implementation process. As the parents were the foremost and closest in proximity to their children in the home literacy-learning environment, interview data was collected from the parental participants in the research study (Yeo et al., 2014). Concerning the beginning observations, children were involved only with prior consent from adults.

After the preliminary interviews and the inauguration of Kid Forward, open-ended interviews and observations took place during the course of the study four times in order to collect data on the functioning and feedback of the storytelling mobile application in the home literacy-learning routine. Next, following the final implementation interview, data was collected in the form of ending surveys for gauging reactions on the program use and any changes necessary to create a better teaching tool. These methods were deemed appropriate in the proposal of a teaching solution in addressing the risk of illiteracy and to make improvements to the digital storytelling instrument, the latter of which was designed as a teaching and collaboration tool between parents and children (Herr & Anderson, 2015; Spaulding, 2014). The beginning, middle, and ending interview questions are included in Appendices A through C, respectively. Additionally, the survey questions on the storytelling mobile application utilized a Likert-type format. These survey questions are included in Appendix D.

Identification of Attributes

In association with the action research study on the mobile storytelling tool in regard to the literacy-learning process, there were a number of attributes identified. With respect to the instrument involving narrative creation, attributes were the following: communication, collaboration, interpersonal skills, and creativity. The following definitions of these identified attributes are listed below.

1. Communication: The exchanging of information through the use of any words, sounds, messages or behaviors, often between cultures. In literacy learning, this includes written and oral interactions.
2. Collaboration: Working with another party to create a solution, ending product, or achieve a collective goal.
3. Interpersonal skills: Operational abilities, sometimes described as motor skills, in use when interacting from person to person successfully.
4. Creativity: The use of imagination to bring new ideas into reality.

In the study, communication measurements were gauged in accordance with two specific categories. As the experiment focused on the aspect of storytelling methods as a means of literacy learning and development, these classifications were chiefly separated by written interactions and oral communications. Moreover, both classifications were measured predominantly by parents prior to, during, and after the impartation of the storytelling mobile application on a rating scale of zero to five. To measure and determine the collaboration levels at the commencement, duration, and ending of the investigation, partnership was also rated and measured on a scale of zero to five. Interpersonal skills and creativity were rated and measured in the same manner and scale.

Data Analysis Procedures

As formerly cited, the ultimate purpose of the study was to determine the effect of a storytelling solution on early childhood learners. Interviews, observations, and surveys were collected from the research population specifically from the parent participants, for the purpose of data analysis. The principal researcher was the both the sole collector and analyzer of the obtained research data. The data included demographic questionnaire answers, audio recordings with transcripts and field notes gathered during the pre-implementation and post-implementation interviews, and study completion survey responses. These facets of the research were included in the data analysis. Additionally, to distinguish between participants and ensure privacy, each familial group was assigned a numerical value, an assignment which helped differentiate files accordingly.

As recommended by Creswell (2013), the data collected among families was organized and prepared for analysis. Audio recordings and field notes were typed and catalogued in consistence with the designated familial figure. Among each section of families, reports collected were sorted once more according to the method with which the respective data was obtained. Pre- and post-implementation Interviews and observations were grouped together then sorted numerically in accordance to where in the process they took place. Similarly, the completion surveys were organized according to family number. In order to gain a sense of the information and ideas shared in accordance with the research question, the gathered information was read and reviewed three times. At this time, triangulation between sources was used to verify the accuracy of findings (Creswell, 2013). Notes on new impressions and ideas found from the research during each of the three evaluation sessions were written in the margins of the transcripts. Next, the found and sorted records were coded by way of Descriptive Coding (Saldaña, 2009).

According to Saldaña (2009), descriptive coding revolves around the use of a singular word or phrase to encompass the primary topics gained from the data. In order to acquire the singular thematic descriptive word for the aspects of the study, responses on questionnaires, interview transcripts, field notes, observations, and surveys were each read by the researcher at least three times to both understand the home's literacy activities before and after the program implementation and locate patterns and code themes common among families. From the pre-implementation data, which included demographic questionnaires and pre-implementation interviews, initial common themes found were recorded in the form of a list of topics. In accordance with Tesch's eight instructions for the coding process as explained by Creswell (2013) and Saldaña (2009), these topics were further analyzed for commonalities in order to find ways to reduce the number of categories. Data was then assembled into each of the final categories. After the addition of all post-implementation data and final surveys, the data was recoded (Creswell, 2013). Through descriptive coding, the topics birthed from the second coding session were analyzed and merged with the categories from the first session.

Limitations and Delimitations of the Research Design

With the research design, accompanying limitations were present. One such limitation resided within the introduced story-creation program. As the principal researcher developed it, there was a possibility of a conflict of interest. This conflict of interest had the potential to create bias in the results. In order to depress this likelihood, reflection for bias and examination of any opposing phenomena took place to ensure that findings were authentic and trustworthy. Additionally, it was acknowledged early on that parents may have a need concerning technological assistance. To account for this, participants could reach out to the researcher with any questions or concerns so that there was no interference in the results in the end.

Also, in connection with the study, the final restriction involved that of direct data collection exclusively from parents. Parents in the research population were asked questions about literacy-learning practices in the home. If a parent had struggles in the area of literacy learning,

either currently or in the past, it was likely that this matter would affect practices performed in the home; therefore, parents may have been reluctant in sharing such information (Chaney, 2014). The circumstance was understood and adjustments to the face-to-face interviews were made. Options of omitting a question or changing interview location if the participant desired were given, and only study-relevant matters of concern were discussed to ensure trust and comfort as the study progressed. In association with the limitations of the research design, there were also delimitations set in place.

The study concerned that of early childhood literacy learning in the home and what effects, if any, the storytelling mobile application had on early childhood learners inhabiting said home. Only parents, guardians, or caretakers living in the United States with preschool-aged children in their care were chosen for the action research study. Also, only preschool-aged children whose parents were already participants in the study were able to join the research population with the adults. Boundaries were established in this manner due to the focus on the home environment, the family unit, and the literacy practices within the home. Another such delimitation was the number of research participants. The study followed the guidelines of action research and qualitative study with the selection of five families from a nationwide pursuit for caregivers with preschool-aged children. Yielded results as to the effects of the introduced storytelling mobile application on early childhood learners did not represent the entirety of the United States or the cities in which the participants resided (Creswell, 2013).

Validation

To ensure the reliability and dependability of the data, steps suggested by Creswell (2013) were intended and followed. During interview sessions, member checking was performed with adult participants. Once all study data was collected, a triangulation of reports attended through the established methods was performed. Finally, throughout the procedure of data accumulation,

introspective researcher reflection and reflexivity accompanied each interaction with participants in the study. All data acquired has been kept in a locked filing cabinet and will remain there for a period of three years.

Credibility

As has been established, the majority of the data was from the point of view of the parents of the selected research population. Therefore, the approach of member checking involved ensuring that the research participants understood the course of the study and were able to trust the researcher (Harper & Cole, 2012). For the purpose of building a necessary rapport with the participants in the interview and observation phases, the locations for such data collections were chosen by participants. With the allowance of this choice, participants were more comfortable, trusting, and honest about providing answers about home literacy practices.

In this manner, questions listed in Appendices A through C were asked to the participants in a guided manner, a method that gave participants consent to speak freely on the given subject (Creswell, 2013; Spaulding, 2014). In this manner of direction, the freedom to speak was in accordance with only the subject of each question as it was asked. Furthermore, each interview query was asked in an open-ended, non-leading format. Inquiries were semi-structured and conducted in a formal manner, shifting only when relevant routes of conversation rose (Edwards & Holland, 2013). Freedom in this manner not only allowed the research participants to answer questions without limit, but also opened up the possibility for new phenomena on the part of the researcher (Creswell, 2013). Conclusively, at the ending point of each interview session, added thoughts, ideas, and opinions from the participants opened relevant discussions between researcher and participants, allowing for study members to make any final commentary (Harper & Cole, 2012).

Dependability

In relation to the action research study, ensuring dependability involved triangulation of results between the sources of data collection for verification during the analysis process (Creswell, 2013; Hussein, 2015). In addition to establishing the interviews and observation locales according to participant preference, member checking during said interviews and observations were fulfilled. Reflexivity and accompanying researcher reflection was used for quality control and the reduction of bias during the course of the research study (Berger, 2015).

Expected Findings

With each method of the data collection and analysis, certain findings were expected to be obtained. In regard to current home literacy activities, initial interviews and observations were expected to reveal low to moderate practices concerning literacy activities in the home. Additionally, with regard to questions on storytelling as a literacy-learning activity in the home, it was expected that low to moderate practices as well as initiation on the part of the preschool-aged children in the home would be found. Observations, when permitted by the parents, were expected to reveal low to moderate demonstrations of literacy activities (Chaney, 2014; Huisman, 2012; Nguyen et al., 2015; Rose et al., 2015). New phenomena were expected to reveal additional details on utilized literacy-learning programs in the research participants' areas such as the strengths and weaknesses of said community-based organizations.

Additionally, it was predicted that while there may be some nervousness of adults at the commencement of the study, information on the literacy-development process of early childhood learners and neighborhoods setting would be shared (Chaney, 2014; Consalvo et al., 2015; Piazza & Duncan, 2012). At the introduction of the collaborative tool designed to aid in early childhood literacy learning, it was expected that the parents and children would have initial questions about the mobile application but would be able to grasp the purpose, design, and operation with ease

(Yarosh, 2015). Furthermore, during the interviews and observation at the time of the digital tool's use, it was expected that literacy-learning practices, storytelling-based and otherwise, would be increased as parents and children continued to collaborate with the device (Sylla et al., 2015). Other benefits expected were an increase in engagement between parent and child and a decrease in conflicts or tension amid family (Yarosh, 2015). The ending survey in the mobile application was also expected to reveal that the mobile application was helpful in building literacy development through storytelling.

After the implementation process, through ending interviews and surveys, it was expected that the digital storytelling mobile application would enhance storytelling practices and, ultimately, literacy learning and development in the home. It was also expected that feedback for necessary improvements to the program to best aid preschool-aged literacy learners would be offered (Yarosh, 2015). As mentioned previously, few action research studies have delved into an experiment on a collaborative digital storytelling teaching tool to help combat the risk of illiteracy in early childhood learners. This research study aimed to fill this gap and explore the usefulness of the presented solution among families in various homes.

Ethical Issues

Within the action research study and associated qualitative collection methods, ethical issues were present before, during, and after the research study as well as during the analysis process (Creswell, 2013). In order to ensure that the investigation and the associated methods remained principled, the following conditions were established:

1. The study, its purpose, and the process were explained to each adult participant. The explanation in question included the parameters of both parent and child roles in the investigation.

2. The storytelling mobile application and the researcher's role as designer of the program were disclosed to parent participants.

3. All identifying information of each family group and associated participants were kept both electronically sealed by passcode and locked in the researcher's filing cabinet. Following a three year period after the conclusion of the research study, information will be destroyed held will be destroyed.

4. Data collected for analysis only contained the numerical value assigned to each family.

5. Member checking was completed at each interview to ensure that participants understood the literacy-learning questions presented to them.

Conflict of Interest Assessment

Primary conflict of interest in the study lied in the storytelling mobile application. The digital teaching tool was developed by the principal researcher in order to provide a collaborative, literacy-learning solution at the early childhood level. Therefore, conflict of interest existed, as the developer of the tool would want the tool to be successful due to trademarking and future large-scale distribution goals. To combat the conflict of interest, participants were notified of all details of the action research study. Moreover, feedback was provided on the mobile application from participants. To create a better teaching tool between parent and child, any requested changes from study members were taken into consideration. Some changes were added during the course of data collection.

In addition to the Kid Forward program, there was potential for the researcher's beliefs to compromise the objectivity of the research study. To combat the risk of researcher bias, non-leading interview questions and member checking were used as tools to reveal and consider the

various and new perspectives of the research participants. Also, constant reflexivity and reflection for personal bias took place at each stage of the data collection and research.

Researcher's Position

The principal investigator's social position in the qualitative research case study addressed the possible effect on reflexivity. As previous education experience was held in environments from lower income to higher income neighborhood schools for more than ten years, social beliefs associated with the matter of literacy learning have been established and the achievement gap witnessed firsthand. Prior to entering the investigation phase, these beliefs were examined to override any potential subjectivity. Once the research study began, these initial biases and years of experience in the education sector were shared with research participants as part of the details of the investigation.

Interest in the study was birthed from work in the education sector. Having served formerly in this sector for over 10 years, primary experience was spent in both early childhood and elementary school segments of students. Vocational efforts were devoted to the classroom, community programs, and individual schoolchildren divided among financially-diverse zones. Literacy and overall education problems were witnessed firsthand and solutions according to each student were explored. Taking into consideration the features of fruitful learning and literacy-learning methods that best helped past students, the storytelling mobile application was developed for research exploration.

Ethical Issues in the Study

As indicated above, the research study held ethical issues. Understanding the prevalence of such issues, conditions were put in place to lower the risk of moral concerns while increasing trust and a positive relationship between the researcher and study participants. Conflict of interest assessments uncovered the possibility of ethical issues stemming from the principal investigator's

role as designer of the examined storytelling mobile application. To lower the risk of unethical practices and negative impacts, changes to the mobile teaching tool were made during the study in accordance with feedback from research participants. These alterations were discussed with participants, as they were briefed before, during, and after the study to ensure trust and honesty in the research study.

Ethical issues presented with the study were also attached to the researcher' position. Though some bias is normal, it was understood that the subject matter and the associated action research study presented sensitivity to partiality in the results. Therefore, reflexivity and reflection were performed to bring down personal bias, as openly exploring inward areas of the researcher during the course of the study allowed for honest examination and, ultimately, an honest inspection of the data.

Summary

This chapter concerned that of the constructs of the action research study and the qualitative-based components used to collect and analyze data. Furthermore, the research question was restated and further supplemented with the details of the initial beliefs, rather than hypotheses, that drove the study. The purpose and design of the examination was addressed and explained, while the research population and the chosen sampling method was discussed as well. Specifically, the method of convenience sampling was referenced and clarified in connection with the study.

In conjunction with the mentioned particulars, the instrumentation in which data collection took place was explained, along with detailed data collection methods, attributes, and subsequent analysis procedures for the questionnaires, interviews observations, and surveys. The inevitable limitations of the research study and its design were also expounded upon, as were the associated delimitations. In the same manner, expected findings were stated throughout this chapter. To ensure that these findings were as accurate as possible, validation precautions were taken to

combat ethic issues, including those within and around the principal investigator. In addition, steps were put into place to remedy any negative impacts. Chapter 4 will follow and proceed with the course of the action research study on the collaborative and storytelling-based solution in relation to the home's literacy-learning environment.

Chapter 4: Data Analysis and Results

The research question explored was identified as follows:

1. How will the implementation of a storytelling mobile application help to improve literacy learning for early childhood learners?

Scholars and researchers have established the home as key to positive educational experiences in a child's early formative years. These parent-led involvements affect childhood growth in academia, social maturity, and the emotional development aspects of life (Broström et al., 2014; Okado et al., 2014; Sukhram & Hsu, 2012; Yeo et al., 2014). However, between higher-income and lower-income neighborhoods, there is an achievement gap within which early childhood literacy learners of the latter are affected by negative factors, such as crime, limited finances and resources, a lack of collective literacy programs, and poverty prior to entering the kindergarten classroom (Chaney, 2014). These undesirable dynamics heighten the risk of illiteracy. To address the problem of this risk and to encourage early literacy learning in the home, the collaborative, play-based method of storytelling was deemed necessary for exploration (Agosto, 2013; Nguyen et al., 2015; van Oers, 2015).

Storytelling, also known as story creation, is defined as the act of sharing a story between two parties, either from one's own memory or without the assistance of a ready-made book (Langellier & Peterson, 2006). This collaborative act is one that provides educational, social, and neurological benefits to early childhood literacy learners and combines aspects of learning with cost-effectiveness, as it is done primarily between family members and framed by their own words (Alvarez & Mearns, 2014; Chaney, 2014; Germer et al., 2013; Langellier & Peterson, 2006; Morgan, 2014; Petty, 2009). The purpose of the action research study was to evaluate the usefulness of a designed storytelling mobile application in early positive and collaborative literacy learning between preschool-aged children and their parents or caregivers. Additionally, a

secondary purpose and associated benefits surrounded the construction of a better literacy-development instrument.

The action research study was guided by three theories of the conceptual framework. First, Social Learning Theory, founded by Albert Bandura, declares that pupils absorb lessons through a natural cycle of human behavior: asking questions, gaining answers, and picking up cues from others (Bandura, 1977; Gong et al., 2014). The second of the theories, Situated Learning Theory, asserts that inadvertent learning takes place through Legitimate Peripheral Participation or knowledge gained through alliance between learner and teacher (Lehmann & Chase, 2015). Lastly, in Narrative Performance Theory, family members engage in the practice of storytelling, building both communication and individual and familial identity (American Journal of Play, 2013).

Description of the Sample

Recruitment occurred initially in Camden, New Jersey for the designated five families with preschool-aged children between the ages of three and five. The study required a smaller number of participants to allow for in-depth examination of each family's progress with the storytelling program and related early childhood literacy- learning development. Five families in total were added to the research study.

At the enrollment stage, potential adult participants were contacted and asked to complete a demographics questionnaire relating to the following: respective residences, ages of children in the home, and electronic device familiarity. At first, three families from Camden, New Jersey responded and agreed to join the research study. With a lack of response further response in the initial area and the intention of achieving the selected numeric range of five families, the scouting location for research participants was extended nationwide. With this extension, one family from Henderson, Nevada and one family from West Jordan, Utah responded and subsequently enrolled in the investigation months after the first three families had begun. The prerequisite for

guardianship of preschool-aged children remained intact, establishing the familial group number at five and the individual participant number at ten.

Family One consisted of two parents and four children. Both adults were college-educated, with one parent who working within the Camden, New Jersey public school system. Originally from Chicago, Illinois and having used electronics for more than seven years, Family One's cultural makeup was indicated as that of Caucasian and Hispanic or Latino via the distributed demographic questionnaire. Two of their four children were under the age of five. One child, a four-year-old daughter, was authorized for involvement in the investigation by the mother, the sole adult who provided questionnaire, interview, and survey answers throughout the duration of the research study.

Family Two had resided in the Camden, New Jersey area for four years. Having indicated Hispanic or Latino on the demographic inquiry as the major ethnic background of the home, the adult research participant had two children in total, both daughters, with one child of preschool age at four years old. As shared by the mother of the home and the provider of responses to questionnaires, interviews, and surveys, Family Two engaged in electronic use on a daily basis at home, work, school, and in public areas. The adult participant was the mother and sole parent in the home.

Similar to the previous two domestic units, Family Three had resided in Camden, New Jersey for eight years. The single-parent caregiver, a mother and guardian of three sons, specified Hispanic or Latino as the ethnic background of the home on the questionnaire. One son was four-years-old, the youngest among the siblings in the home. In addition, according to the adult participant, mobile devices among the familial unit had been use for at least seven years on a weekly to daily basis. The mother of the home was the adult participant who offered insight into

literacy learning in the home before and after the implementation of the storytelling mobile application.

The fourth family was one of two located outside of Camden, New Jersey. Family Four had lived in Henderson, Nevada for two years. As told by the mother of the two-parent home, Caucasian and Non-Hispanic was signified as the nationality on the demographics questionnaire filled out by the research participant. There were two children of preschool age in the home, both sons. One was three-years-old, while the other turned five years old prior to the beginning of data collection. Mobile device familiarity spanned at least seven years and access to digital means ranged in frequency from weekly to daily use. Lastly, all study responses recorded were provided to the researcher by the mother of the home.

The final domestic group, Family Five, had resided in West Jordan, Utah for five years. The nationality indicated by the mother of the home via the demographics survey was Caucasian and Non-Hispanic. The two-parent home contained two children under five years old. Mobile device use in the home was designated as seven years or more on a daily basis. Responses from the questionnaire, later interviews, and the final survey were provided from the perspective of the mother in the home.

Like those in Families One, Two, and Three, the adults in the outlier families of Four and Five were mothers of at least one child at the specified preschool age range of three to five years. The preschool aged child members of the study were either the middle or the youngest among their siblings. Finally, the mothers provided detailed answers to questionnaires, all subsequent interview questions on literacy learning in the home, program feedback, and ending surveys.

Research Methodology and Analysis

The study significance revolved around addressing the risk of illiteracy at the early childhood level through a storytelling-based mobile application. Records on home literacy-learning

and tool implementation in the form of interviews, observations, and surveys were collected from the aforementioned five families to gain perspective on the initial literacy-learning environment in the home and what changes, if any, occurred following implementation. The utilized methods followed the approach of action research. Using the theoretical bases of Social Learning Theory, Narrative Performance Theory, and Situated Learning Theory, the collection methodology involved direct implementation of an instrument and its effects on a given population. The data included in the analysis consisted of the following: demographic questionnaire answers, audio recordings with transcripts and field notes gathered during the pre-implementation and implementation interviews, and study completion survey responses.

Each familial group was assigned a numerical value and the collected reports were sorted in accordance with the appointed digit. Under the allocated familial group, evidence was sorted once more, this time according to the method with which the respective data was obtained. Gathered information was read and reviewed three times with the interviewees. As specified, triangulation between sources was used to verify the accuracy of findings, while notes on new impressions and ideas were written on the transcripts (Creswell, 2013). Coding by way of descriptive means followed (Saldaña, 2009). According to Saldaña (2009), descriptive coding leverages a singular word or phrase to cover the themes of the data.

From the pre-implementation data of demographic questionnaires and pre-implementation interviews, common topics were identified and written down. These topics were then further analyzed for commonalities to reduce the number of categories (Creswell, 2013). With the addition of all implementation data, including all interviews and exit surveys, the information collected was recoded for new topics and commonalities (Creswell, 2013). Based on responses given by the parents about the application's effects, the previous, pre-implementation themes were reviewed as well as merged or eliminated accordingly. New, final categories were born in their place.

Summary of the Findings

The research question was used to identify the influence of a storytelling mobile application on early childhood literacy learners. After coding demographics, interviews, observations, field notes, and surveys through Descriptive Coding, the data revealed the following final themes: Quality Time, Learn Anywhere, Creativity Growth, and Language Development.

Quality time. The mothers of Families One through Five reported home-based literacy-learning engagement activities between them and their preschool-aged children both before and after the implementation of the storytelling mobile application. Prior to the story-creation learning tool introduction, collaborative reading, alphabet work, sight-word phonetics, and writing were featured in their preschool children's journey toward early childhood literacy-learning development in the home. Mothers also mentioned that the performed literacy activities often encompassed both younger and older siblings. For example, the mother of Family Two shared in the pre-implementation portion of the study, "I try to read with the girls every day for at least 20 minutes."

Of her respective home literacy-learning practices, the mother of Family One added that "when one child starts, all of them want to it." The mothers of Family Three, Four, and Five shared similar statements about literacy-development activities in the home. None of the mothers mentioned collaborative storytelling as a prior method of literacy learning in the home.

Participating mothers and their children showed excitement at the added aspect of storytelling. At the inauguration of the first implementation interview, one child participant eagerly created multiple one-on-one stories. During this session, mother and child took turns accepting the lead in the creation of the tale. The story-creating process lasted for 15 minutes before the parent halted the narrative to allow the interview to proceed. While operating Kid Forward, the

storytelling mobile application, the mothers of the five families found that storytelling added a deeper layer of activity in parent-to-child dialogue.

With the element of story creation, the child participant of all groups elaborated on matters primarily involving the day's experiences and surroundings. In turn, the mothers focused on the speaking child by listening closely and asking supplemental questions. "When I showed him the pictures of the different people, he said, 'that's like my classroom,'" the mother of Family Three shared of hers and her son's use of the picture prompts on the application. Other mothers reported such occurrences where the use of the storytelling mobile application encouraged familial discussion and updates beyond the scheduled literacy-learning activities.

As the mother of Family Four communicated in reference to her collaborative use of the mobile application with her three-year-old son, "He was really excited to do it. We even walked outside and I asked him the color of the sky. I formed the sentences but it was all stuff that he was talking about to me." Mothers among the five families found that the use of the storytelling mobile application created greater quality time, which in turn enabled the enthusiastic sharing of points of view between parent and child.

Learn anywhere. New family births, immediate preparations for school, and varied home schedules among the participants affected the home literacy-learning activities. During the research study, participating mothers were often unable to work directly on the digital program. Nevertheless, they and their children incorporated the use of storytelling both in and away from the home. The mother of Family One shared that her four-year-old daughter "has been telling a lot of stories, but we haven't had time to record them on the application." Likewise, the mother of Family Two explained during the implementation process that "Unfortunately, we haven't been able to use it [the program] much because of my schedule, but I let her create stories on the app based on the pictures she sees on it."

Echoing the sentiments of her fellow participants, the mother of Family Five shared, "We didn't do much with the app just because we've been so busy, but we have been telling stories…the same things that the app does, but not actively on the app." In essence, the mothers and children learned that while discontinuities in literacy-learning schedules could not be controlled, it was possible to learn anywhere with the storytelling application and its primary component: narrative creation.

Growth in creativity. Educational and neurological findings from scholars and researchers detailed that storytelling projects in both written and digital forms aid in the retention of information and increased development of creativity (Alvarez & Mearns, 2014; Morgan, 2014; Nguyen et al., 2015). Creativity and inventiveness are vital factors in the home literacy-learning process (Huisman, 2012). In the research study, the five families reported that the introduced storytelling mobile application, Kid Forward, increased creativity in their children. "She's become a lot more creative in coming up with stories, so I think it allows her to use her imagination more during the times we use the app," the mother of Family Two commented, sharing improvements seen while working with the application and telling stories.

From the growth in creativity due to the storytelling tool, the families noticed an increase in confidence and greater excitement for the upcoming school year. "He's definitely becoming a lot more confident and not so discouraged," the mother of Family Four shared of her five-year-old son's experience. This mother continued by stating, "He used to be mopey about school, but now he's excited and understanding things a little better…I would really like to keep working on it [the application] with my children."

As work with the storytelling mobile application progressed, the mothers found that creativity was increased when they and their children shared stories together. For example, the mother of Family Three shared that the use of the storytelling program made her son "more

creative." She also added, "He's got such a huge imagination, but when I do give him the prompts or tell him to make me up a story . . . his creative juices start to flow."

Language development. Narrative Performance Theory asserts that storytelling in all forms, including orally, begins in the home with the head of the family initiating the process (Huisman, 2014; Kimball et al., 2016; Nguyen et al., 2015). Storytelling is a play-based form of learning that fosters social connections and supports literacy development (American Journal of Play, 2013). Defined, literacy is known as one's reading, writing, and oral skills (Rose et al., 2015; Sukhram & Hsu, 2012). While the storytelling mobile application was introduced as a primarily digital tool for literacy learning, the mothers of each family and their children created, with and without direct use of the program, by way of conversation.

"He comes up with the story from the picture…after that, I write down what he says." the mother of Family Four mentioned when speaking about the use of conversation with the application. "The mother of Family Three agreed with this sentiment. "Even if I don't use the app, I'll get him to tell me a story with the prompts," she stated, referencing the verbal conversation that the storytelling program and associated pictures inspired. "I do think that the app has helped him to open up to say different things. It's definitely making him come out of his box."

Limitations in beginning language skills present a risk of difficulty in future literacy learning (Rose et al., 2015). The storytelling mobile application aided early childhood learners through increasing language development; as their mothers reported, the youngsters were eager to add their point of view in greater detail. According to the mothers and children in the research study, the use of a narrative creation program increased conversation, a finding which endorses necessary speech and language development (Colmar, 2014).

Presentation of the Data and Results

The research question used to guide the study was as follows: How will the implementation of a storytelling mobile application solution help to improve literacy learning for early childhood learners? There were a total of 11 research participants, including five mothers and six preschool-aged children. These mothers all shared a commonality in that they had one or more children in their care between the ages of three and five years old. Sixty percent of families were located in Camden, New Jersey, while the remaining forty percent represented outlier families residing in Henderson, Nevada and West Jordan, Utah.

Analyzed results from pre-implementation and implementation interviews, along with demographic questionnaires, ending surveys, and field notes gleaned from the participants, will now be presented before the final thoughts and ending parental feedback on the storytelling mobile application.

Parent-child quality time. The children participants ranged in age from three to five years of age, none of them first-born in their families but with multiple siblings either older or younger. The dynamic of siblings in each of the participating families spoke of a strong likelihood that families one through five were already prepared with a foundation of early childhood literacy-learning activities. Interview answers from the mothers of the home confirmed this and also produced the categorical matter of "quality time" in the homes. The participating mothers had their own respective challenges related to spending a sufficient amount of time discovering each individual child's interests, learning style, and more. The mother of the participating child in Family Two pointed out of her preschool-aged child, "Sometimes, we're in a rush and she wants to read." In reference to reading, the mothers of each home revealed that shared book reading, among other activities such as phonetic and alphabet work and employing book services at local libraries,

were a large part of the daily home literacy-learning process prior to the introduction of the storytelling mobile application.

Conversely, none of the families mentioned storytelling or narrative creation as a part of their home literacy-development routine. With the insertion of the storytelling mobile application, the mothers found that their individual preschool-aged children were able to express themselves verbally through one-on-one, parent-child conversations about the day and other matters. However, interruptions in parental schedule did occur frequently. One such disruption to the home literacy routine and associated quality time was the work schedule, as shared by the mother of Family Four: "I work nights. I can work with my older ones on the weekend during the days when I'm not working."

Mothers in question also had to shorten time spent performing literacy activities in the home because the routine and time with one child often encompassed the siblings. Expressing this sentiment, the mother of Family One stated that "when one child starts, all of them want to do it." With the entrance of the storytelling mobile application, she and the remaining four mothers found that creating stories helped to ease the burden through a collaborative process that stretched beyond routine and encouraged communication. The method of narrative creation between family members allowed both parties to share with one another and spend time together. "We use the app to create and make up stories for each other," the mother of Family One responded when asked about hers and her daughter's collaborative use of the mobile application. "I point out a picture and we would create a story together," the mother of Family One added. Unlike the literacy activities previously recognized in the home, the mobile storytelling program allowed for parents to work with their children while simultaneously building deeper familial rapport.

Program mobility: learning anywhere. As indicated on the demographics survey by the mothers of each family overall mobile device use took place on a weekly to daily basis. As stated in the initial, pre-implementation interviews, families used both physical and digital means of literacy learning to help their children prepare for kindergarten and learn to read. Activities in this manner were performed collaboratively for 20 minutes to one hour or more for at least twice per week. Since the storytelling mobile application was developed digitally, the participating mothers were able to grasp the use of the program quickly and aid their children in doing the same. The program further allowed for literary learning away from the home environment, which provided extra help for participant parents and homes when busy agendas became a greater issue.

At the study progressed and the pending school year approached, the home schedule grew in importance. Direct work with the storytelling mobile application had begun to decrease in the amounts of time per week. Despite the reported decreases, narrative creation still continued. When asked to provide insight on collaborative use with the offered storytelling solution, the mothers of each family found that telling and creating stories, with and without the mobile application, became a part of the home literacy-learning plan. “We didn’t do much with the app just because we’ve been so busy, but we have been telling stories…the same things that the app does, but not actively on the app,” shared the mother of Family Five with regard to use of the program. Overall, the mothers found that they were able to use components of the storytelling mobile application in and beyond the home. Thus, their children were able to learn anywhere.

Early childhood creativity growth. Literacy activities, including storytelling, can potentially build and inspire childhood inventiveness (Huisman, 2012). This is one of the beginnings steps in independent and critical thinking (Broström et al., 2014; Petty, 2009). By the third implementation interview, the storytelling mobile application had been fully integrated into each home. From the creation of stories between parent and child, growth in creativity emerged

among early childhood learners. For example, Family Two stated, “She’s become a lot more creative in coming up with stories so I think it allows her to use her imagination more during the times that we use the app.” Family Three also added of her son, “He takes one picture [from the app] and makes three stories from it. Before, he would take one picture and give one story. So I think that’s progress.”

Early childhood language development. Storytelling has the potential to promote language, literacy, and social skills (Nicolopoulou et al., 2015; Sukhram & Hsu, 2012). Mothers working with their children via the storytelling mobile application found that these early childhood learners also grew also in terms of language development. For example, the mother of Family Three stated regarding her son, “the app gets him to speak more and elaborate on things.” Furthermore, all child participants professed enjoyment and excitement at the aspect of storytelling. When children were asked by their parents to create stories together, they did so emphatically with the progression of each interview.

Final thoughts: survey. By the end of the research study, Families One, Three, Four, and Five remained participants throughout and had completed the survey as well. Due to a change in work schedule, Family Two was not able to participate to completion. Prior to the use of the teaching tool and during the pre-implementation interview, none of the adult research participants named storytelling or narrative creation as a part of the literacy-learning routine in the home. As data collection progressed to implementation of the tool, one hundred percent of the participants explained that familial schedule impacted the addition of something new to the literacy-learning routine. The finding of the change in household schedule was demonstrated through interviews and intervals from two weeks to over a month during which the inquiry sessions were conducted. Moreover, when asked what they liked about the mobile application in the final survey, the mothers mentioned that they enjoyed the idea of the storytelling mobile application combined with the picture and sentence prompts.

Initial reactions to the storytelling tool ranged in rating from neutral to very positive. In combination, the perceived quality of the program ranged in rating from low quality to higher quality. Of the four remaining families that completed the study, Family Three and Four stated that they would definitely need the addition of the storytelling teaching tool within their literacy-learning routine in the home. Families One and Five gave the program a neutral rating with regard to further use and necessity in their home literacy-learning routine.

In addressing the established research question of the study, the storytelling mobile application provided the addition of storytelling, digital or otherwise, and further early childhood enjoyment of literacy learning. The children in the research study demonstrated greater gains in language development and a rise in creativity and imagination. Consequently, parents directly witnessed a rise in quality time spent with *each* child as well as an allowance for prompting literacy learning and development from anywhere via digital storytelling.

Summary

The aforementioned sections illustrated the results of the data collected from a research population of five mothers and the six pre-school aged children under their respective custody. Four themes emerged from the action research study on the storytelling teaching tool and its effects on early childhood learners. Questionnaires, interviews, observations, and surveys with the mothers in question provided insight into literacy learning in the home, both before and after the implementation of the digital storytelling teaching tool. With the addition of the storytelling device, mothers saw an increase in confidence and creativity, while children were excited at the prospect of creating their own tales and sharing them with their parents. Chapter 5 references the discussion of responses and results gleaned from the research study, recommendations for further research into the subject of early childhood literacy and storytelling programs, and supplementary

conclusions surrounding the completed action research study. All information reviewed in the following chapter will illustrate connection to the purpose of the examination.

Chapter 5: Discussion and Conclusion

The research purpose involved that of addressing the risk of illiteracy at the early childhood level in a wide variety of neighborhoods, including underserved areas, with the method of digital storytelling via a mobile application. In order to determine the influence of the digital storytelling mobile application on early childhood learners and their families, information in the action research study on the literacy-learning home environment was collected prior to the introduction of the program. Subsequent methods of implementation in the form of implementation interviews, accompanying observations, and final surveys were also utilized to discover the use of the storytelling tool among the mothers and their children, and its impact on the home literacy process of learning in the home. Additionally, participant feedback that would make the program work best for the individual children was shared in accordance with their respective developments and unique situations. Descriptive Coding was used to locate common themes found during the course of action research for analysis. Chapter Five presents the method of coding as well as the themes in connection with the literature researched prior to the study's commence, the investigation limitations, and future research and practice with regards to early childhood literacy-learning in association with storytelling programs.

Summary of the Results

The research question that powered the action research examination was as followed: How will the implementation of a storytelling mobile application help to improve literacy learning for early childhood learners?

According to feedback from the participating mothers within the five nationwide families, storytelling, also known as narrative creation, was previously an unpracticed activity among the early childhood literary-learning activities performed in the home. Therefore, the introduction of the storytelling mobile application was a presentation of a fresh technique for literacy in its digital

form and overall in all five of the nationwide families. The resulting consequences in the action research study revealed that the presented storytelling mobile application brought about the innovative act of narrative creation, digitally and orally, into each family's home environment.

From the birth of the newfound collaboration-based activity among the participant family homes, the mothers found that there was an increase in quality time spent with those children participating in the study and those not. With the preschool children and their siblings, parental time devotion

birthed and the effects of early-childhood literacy learning were deepened through genuine parent-child conversations . Prior to the introduction of the storytelling application to the contributing mothers and children, the literacy-learning routine of each family, according to the mothers, consisted of educational mobile applications, shared book reading on a daily basis, the use of community resources, alphabet work, and other common physical and digital

means of literacy development. The element of collaborative narrative creation brought about natural familial conversation to an otherwise formal session of literacy-learning. Following the course of Social Learning Theory, the mothers saw that their respective home environment family time was increased because the adults gained day-to-day updates on the community from the perspective of their children that they may not have learned otherwise.

It was also found that the collaborative performance of familial storytelling through the mobile application also offered opportunity for children to learn anywhere. On the other hand, it was time and familial schedule that represented sizable factors in the determination of when and how long literacy-learning activities took place in the home. Furthermore, participating mothers found that storytelling, both with and without the storytelling mobile application, was an activity that could be done anywhere. Because the program and method were based in the aspect of

mobility, parents were able to work with their children at any given time during the day. The freedom to perform learning activities at the family's impulse coincided with Situated Learning Theory and Narrative Performance Theory, two foundational philosophies which assert that students learn the most from the environment and communities in which they live as well as the familial connections around them and directly in the home (Huisman, 2014; Okado et al., 2014; Yeo et al., 2014).

With the act of storytelling between the family members, growth in creativity also emerged. Between pre-implementation as well as implementation interviews, the participating mothers revealed an increase in their child's inventiveness in narrative creation. As the research study progressed, the mothers noted that their children created multiple stories from the picture prompts that the program offered. The tales between parent and child constructed grew more elaborate as the weeks passed and also included factors surrounding daily atmosphere and home community. With the progression in early childhood creativity, mothers reported that language development followed.

Past researchers have found that storytelling has numerous benefits for the development of early childhood learners. Language development is one of these gains. Mothers stated that the addition of the storytelling mobile application increased storytelling by digital means. They reported changes in this arena with regard to oral skills as well. Mothers also reported that their children would create stories verbally, often beginning the conversation between parent and child.

Discussion of the Results

The main purpose of this study was to explore the effect of a storytelling mobile application on early childhood learners. Additionally, the goal was to create a better tool that would assist early childhood learners of various backgrounds prior to their entrance into the classroom. Participating mothers communicated their home literacy activities with their children

before the implementation of the mobile application. During the process of applying the program and its attached feature of storytelling, the mothers provided their thoughts and feedback on the digital storytelling curriculum. They also allowed for periodic observations of the home literacy-learning environment.

From data collection, it was found that each of the families had their own literacy activities and routine already in place. This was a finding that was not fully expected on the part of the researcher. Therefore, the storytelling mobile application signified a new addition to the literary repertoire. Though none of the families had previously indicated that the means of storytelling was a part of the literacy-learning process, it is likely that this played a role in the positive effect of the mobile application on the early childhood learners in the home. In other words, because the mothers had previously been consistent in working with their children on literacy-learning activities, it was easier to insert something new and yield positive returns.

Prior to the introduction of the storytelling mobile application, it was believed that book reading would be a feature in the home. This expectation was met when each participating mother reported that reading books together with their children was an activity present among home literacy-development. According to the mothers in the study, storytelling brought about in larger aspects what book reading had only done in part: conversation. Because frequency of conversations increased, quality time, language, and even originality increased as well. It could also be argued that critical thinking and teamwork were birthed from this storytelling-based creativity. For instance, instead of the normal routine of reciting a ready-made book, children and mothers were able to create a tale from scratch. In the classroom and beyond, these early childhood learners will eventually work with others and develop solutions to problems. Therefore, storytelling started early childhood learner participants on the path to academic and future success.

Lastly, despite 60% of participants living in an area considered high-risk for illiteracy, it was shown that the children in all areas represented in the study desired to learn. The mothers in the examination created an environment in which they remain able to learn and enjoy the concept of learning, especially with regard to literacy activities in the home. Later, when kindergarten had begun for some student participants, the teacher and the classroom influenced further work on aspects such as homework and school papers. However, it was the parents who [initially] started this encouragement with the demonstrated learning activities in the home. With respect to adjustments made to the storytelling application following parental feedback, there were no noticeable differences in the outcomes.

Discussion of the Results in Relation to the Literature

The focus of this study was on observing improvements in and the effects of early childhood literacy learning that were birthed from the familial use of the storytelling mobile application. Scholars and researchers have found that in order for children to learn to read as soon as possible, reading activity must begin in the home as early as possible (Chaney, 2014; Okado et al., 2014; Santos et al., 2012). The environment can play a large part in the literacy-development process, as was seen in the research study through each of the family homes. While educators and various research professionals agreed that the home literacy environment is paramount in the formative years of the learning process, few action-based research studies and programs, particularly those focused on urban cities and neighborhoods, begin in early childhood and feature intergenerational literacy outside of shared book reading (Chaney, 2014; Rose et al., 2015; Sukhram & Hsu, 2012). Few studies have also explored the effects of an early childhood literacy tool in multiple cities and states.

Furthermore, in conjunction with the research, there can be times when the community surrounding the home is a reflection of the educational activities in the home.

This was not the case in the research study. Sixty percent of the families were located in Camden, New Jersey, an area considered high-risk for illiteracy. However, the mothers reported beginning literacy-learning activities as soon as possible. This resulted in their children enjoying learning and reading books.

The literature demonstrated that the act of storytelling or narrative creation allows for the framing of personal experiences between family members (Huisman, 2014; Kimball et al., 2016). During the course of the research study, the mothers had reported that based on the literacy-learning activities performed in the home before the introduction of the mobile program, storytelling or story creation represented actions that had not taken place in the home previously. When the storytelling mobile application was introduced, the program acted as a catalyst in the home literacy-learning activity routine of narrative creation. In accordance with the aspect of *play*, children were able to learn naturally and at their own pace (American Journal of Play, 2013).

Limitations

There were a number of investigative limitations that were not able to be controlled in the participant population. Firstly, the cultural makeup of each of the study participants was not as varied as was first anticipated prior to the study's commence. All participants designated themselves via the demographics survey as White – Caucasian/Non-Hispanic or Hispanic/Latino. Moreover, the participants formed the stories of their choice. The created stories and subsequent literacy-learning routines did not seem to involve any cultural elements or generational sagas. Therefore, the use of traditional culture and folklore in the literacy-learning process was not explored as necessary for the purposes of Narrative Performance Theory.

Secondly, due to the unpredictability of parent and child schedules, 40% of the implementation interviews were collected entirely through telephone consultations. Because of the

more detached method of data collection, the completed interviews lacked the factor of the accompanying visual researcher observations. Within the findings concerning participant demographics, all of the study members were biologically related to one another and consisted of only mothers and their preschool-aged children. None of the direct participants who provided answers to surveys and interviews were fathers or others, biological or not, who held guardianship over the preschool-aged children, a factor that likely provided a skew to the results and a less diverse perspective than intended.

In relation to study demographics, due to time and response constraints, recruitment was extended to the national level, seeking out areas other than Camden, New Jersey. As the experiment progressed, supplementary emphasis was placed just as much on the different regions of the participants as it was on the literacy-learning tools that the parents practiced in the home. This was due to the fact that each of the adult participants had the tools they needed for their children to work on the home literacy-learning process in the early childhood literacy development stage. Families who were not a part of the study may or may not have the tools, digitally or otherwise, required for getting their children started in the early childhood literacy-development process prior to beginning their years in the classroom in preschool.

There is also a present limitation with regard to the population size. A previously presented limitation was that of the population size of Camden, New Jersey, specifically that the study participants would likely not constitute a full depiction of home life and literacy activities in the entire city (Google Public Data Explorer, 2016). Due to the matter of the nationwide expansion of the sample size to the cities of Henderson, Nevada and West Jordan, Utah, the drawback also extends to the outlier areas. The two referenced cities and states are of various sizes and as such have a variety of school systems and methods of scholastic operation. While the number of participants was chosen for the qualitative purpose of in-depth exploration and program feedback,

it is recognized that the areas in which the representatives in the study reside are larger in number as a whole and vary just as much with regard to home situations, neighborhoods, quality of schools, and other contributing factors.

Limitations were present in the form of interviews. Some phone interviews were conducted over the telephone rather than face-to-face as intended. The changes were made due to the schedules of the adult and child participants. As promised, rearrangements were put in place to accommodate those who wanted to complete interviews but were unable to meet in person on a given day in the form of phone interviews and rescheduling to a more agreeable date. On the subject of the schedules and other matters, the number of the participants initially changed from five to four before the completion of the study.

One grouping of participants did not complete the study in its entirety. As a result, the amount of families decreased from five to four. Despite the change, the number of participants was still within the range of four and five families. Also, because of the schedules of the participants, the passing of time between interviews ranged from weeks to months. The timetable was also an issue that could not be controlled, as the itinerary was given for the purpose of making the participants feel comfortable enough to provide answers and insights on the subject of learning literacy.

Finally, concerning the mobile storytelling program, there is a present limitation because the solution in question was developed by the principal researcher of said program. In order to bring down the likelihood of researcher conflict of interest, several means of data collection were used to ensure that participant parents and children were able to give feedback with freedom. At the same time, reflection regarding any researcher bias in the action research study, chiefly at each stage of the collection of data, was completed in order to increase trustworthiness and authenticity. Concerning the mobile storytelling solution, the goal of the action research study was to create a

better and more collaborative tool with regards to the home literacy learning process. Because the storytelling program was at the early stages of design at its initial introduction to the families, there were numerous glitches in the tool, as reported by each mother of the five families.

Another limitation that was featured in the families pertained to the matter of a lack of diversity surrounding ethnicities and nationality, as literacy learning among cultures could have been explored in greater detail. Even though it was not shown to have played a role in literacy-learning development of the research participant homes, it may have had a part in home literacy routines in other homes beyond those participating in the research study. Finally, there is the subject of English Language Learners and English as a Second Language students. None of the children or adults in the study identified with the populations of foreign language learners. Had any participants been a part of this classification, the characteristic would have provided another prospect for examination in the field of literacy learning and solutions.

Implication of the Results for Practice

The aim of the action research study was to deduce the extent of the contributions made by the storytelling mobile application in reference to the selected five families of participants. There are several implications for the results in the practice of literacy as well as the literacy-learning storytelling mobile application that the parents and children used. One of the factors that played a major part in the study was time, namely the time for parents and children to work together on literacy-learning activities. Storytelling, according to the participants that were within the study, was something that the parents did with their children, both with and without the application. The aspect of mobility and availability in literacy learning could be considered in the area of future practices and proposed solutions.

In addition to the feedback that each parent provided, it was discovered that a learning tool that allowed the parents and their children to work together to grow skills in reading and writing at

a moment's notice would be appreciated. Converting Kid Forward into a paper version of the digital storytelling program and other updates are in the process of being added to the mobile application solution. Furthermore, there is an implication for English Language Learners in regard to the storytelling mobile application. While the action research study did not explore this population, there could be implications for this group, as the storytelling mobile application and storytelling in general would allow for greater ease in literacy learning as well as the integration of multiple cultures and languages into the literacy-learning process and routine.

Recommendations for Further Research

For the past action research study**,** interviews were collected in the form of demographic questionnaires, introductory pre-implementation interviews, implementation interviews once the storytelling program was presented to each family, and final surveys at the completion of the action research study. All of the specified methods of data collection were all conducted in order to understand the effect that the Kid Forward storytelling mobile application had on early childhood literacy learners. As per the requirements of the study, the mothers of Families One through Five were the caregivers who provided answers in the research study. In further research into storytelling programs and its effects on the early childhood sect of literacy learners, entire families could be queried about the home literacy learning activities both before and after implementation. The future population would include the fathers as well as related caregivers or non-biological guardians who may also live in the home with the preschool learner, as they may provide different answers and unique perspectives regarding the literacy activities in the home and use of any storytelling mobile application.

Also, recommendations for further research may call for an enlargement of participants in the study population. Extending the number of contributors beyond five families may also enhance the number of viewpoints provided, thus increasing the diversity in thoughts and feedback given in

regards to the individual student's home literacy-learning environment and any associated activities designed for the development of literacy learning skills. Performance of the recommendation to add to the number of participants would give the future researcher more data with which to work. The more data that the researcher would obtain, the more that said investigator would be able to make positive alterations to the presented storytelling program for the good of the participating students and their families.

The action research investigation into a storytelling mobile application and its effect on early childhood learners called for multiple locations of parents who were caregivers of one or more children between the ages of three and five. Further research could also explore multiple participants in the same ethnic group as well as in the same neighborhood. The future samples could include those who are learning English as a Second Language in order to determine effects on literacy-learning in the process of studying the English language. Examining the populace of those who speak foreign languages adds a new way of looking at and greater strides toward understanding what hurdles English learners experience during literacy learning at the early childhood level in preparation for the classroom.

Conclusion

The research question has been thoroughly addressed. In the context of the aforementioned action, research study, storytelling provided an addition to the literacy-learning repertoire that the parents had already established prior to the beginning of the study. The communicative act increased individual conversation between parent and child. Time devoted to both the preschool-aged children and their siblings intensified the effects of the literacy-learning activities performed in the home. Furthermore, the presented solution to illiteracy risk offered parents a catalyst for the beginning of literacy- learning practices in the home.

The mothers shared that they have had issues with the school system in which their children attend classes. The problems have concerned the progress of their children in class and a lack of literacy resources accessible to their students and others children city and statewide. Creating narratives within the family is a way to combat the difficulties in gaining scholastic assistance at the early childhood level. Likewise, the action of telling stories adds value to the literacy-learning process. In summary, the solution provides a means of literacy learning as well as a way to get the process started in an easy, natural routine with the tools that are already accessed in the home environment: electronic devices and imagination.

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Appendix A: Home Literacy Environment Storytelling Teaching Tool

Pre-Implementation Interview

*Interview questions will be read aloud to interviewees

Questions

1. Describe your literacy-learning routine with your child. What activities do you and your child do together?

2. How often do you and your child engage in literacy-learning activities in the home? (i.e. reading books, writing, telling stories)

3. Who begins these literacy-learning activities and how often?

4. Can you and/or your child demonstrate your home's literacy-learning activities? (Observations if permitted)

5. Describe your experiences with early childhood literacy-learning programs in the city.

6. If used, how have these programs aided your home's literacy-learning environment?

7. Describe your experiences with electronic programs in your home's literacy- learning environment.

8. If used, how have these programs aided your home's literacy-learning environment?

9. Thank you for your valuable information. Is there anything you'd like to add?

Appendix B: Home Literacy Environment Storytelling Teaching Tool

Implementation Interview

*Interview questions will be read aloud to interviewees

Questions

1. Describe your literacy-learning routine with your child. What activities do you and your child do together?

2. How has this routine changed since the implementation of the teaching tool?

3. Describe yours and your child use of the teaching tool.

4. Who begins these literacy-learning activities and how often?

5. Thank you for your valuable input. Is there anything else you would like to add?

Appendix C: Home Literacy Environment Post-Implementation Interview

*Interview questions will be read aloud to interviewees

Questions

1. Describe your literacy-learning routine with your child. What activities do you and your child do together?

2. How has this routine changed since the implementation of the teaching tool?

3. Describe these changes.

4. Describe how you and your child have used the teaching tool and how frequently.

5. What changes would you recommend to the teaching tool?

6. Thank you for your valuable information. Is there anything you'd like to add?

Appendix D: Implementation Survey

For each item identified below, mark the answer that best fits your judgment of its quality.

1. What is your first reaction to the teaching tool?
    - Very positive
    - Somewhat positive
    - Neutral
    - Somewhat negative
    - Very negative

2. How would you rate the quality of the tool?
    - Very high quality
    - High quality
    - Neither high or low quality
    - Low quality
    - Very low quality

3. How innovative is the tool?
    - Extremely innovative
    - Very innovative
    - Somewhat innovative
    - Not so innovative
    - Not at all innovative

4. When you think about the tool, do you think of it as something you need or don't need?
    - Definitely need
    - Probably need
    - Neutral
    - Probably don't need
    - Definitely don't need

5. How would you rate the value of the tool?
    - Excellent
    - Above average
    - Average
    - Below average
    - Poor

6. In your own words, what are the things that you like most about this teaching tool?

7. In your own words, what are the things that you would most like to improve in this new product?

Appendix E: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously-researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

> As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does "fraudulent" mean?

"Fraudulent" work is any material submitted for evaluation that is falsely or improperly presented as one's own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate's final work without full and complete documentation.

What is "unauthorized" assistance?

"Unauthorized assistance" refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another's work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University- Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

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