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EFFECTS OF A PARENT-IMPLEMENTED INTERVENTION ON PRESCHOOL CHILDREN'S ENGAGEMENT IN CONSTRUCTIVE PLAY IN HOME SETTINGS

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EFFECTS OF A PARENT-IMPLEMENTED INTERVENTION ON PRESCHOOL CHILDREN'S ENGAGEMENT IN CONSTRUCTIVE PLAY IN HOME SETTINGS

A dissertation submitted in partial fulfillment of the requirements of the degree of Doctor of Philosophy at Virginia Commonwealth University

by

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Dedication

It is with deep love and gratitude that I dedicate this work to my mother, Brenda Faye Bechtold Boulanger, a lifelong student, educator, philanthropist, and mother to many, from whom I received my passion for learning, teaching, and serving others.

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Abstract

EFFECTS OF A PARENT-IMPLEMENTED INTERVENTION ON PRESCHOOL CHILDREN'S ENGAGEMENT IN CONSTRUCTIVE PLAY IN HOME SETTINGS

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University

Virginia Commonwealth University, 2022

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Constructive play is a creative process-oriented activity that promotes engaged learning through building and designing with materials. This study explores a parent-implemented intervention to promote active engagement in constructive play for preschool-aged children who are at-risk for developmental delay and answers the research question: Do parent-implemented environmental support strategies improve the child's active engagement in constructive play in the home? The research methodology utilized is a single-subject multiple baseline across-participants design with four participants. Visual analysis of the data supports a functional relation between the temporal, physical, and social-emotional environmental supports provided by the parents and the children's active engagement in constructive play. Social validity was strong as parents described this intervention as meaningful to their lives. These outcomes provide

evidence supporting the importance of centering and working with parents in their home environment, and evidence that empowering parents facilitates their child's active engagement in constructive play.

Keywords: Early Childhood, Constructive Play, Parent-Implemented Intervention, Home Setting, Environmental Supports, Family-Centered, Culturally Responsive

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Chapter I: Introduction

Accepted widely by society, play is foundational to childhood, learning, and happiness (American Occupational Therapy Association [AOTA], 2018; Piaget, 1945/1962; The United Nations Children's Fund [UNICEF], 1989, 2019; World Health Organization [WHO], 2019). It is through play that children learn about themselves, the physical world, and other people. It is also how children explore and practice new skills, learn to adapt to their environment, and cultivate a positive self-concept (National Association for the Education of Young Children [NAEYC], 2009; Reilly, 1974; Takata, 1974). Piaget (1962) and Huizinga (1939) define play as an enjoyable intrinsic and motivational interaction with toys, objects, or other people and does not meet a basic need or achieve a particular goal. As an essential life skill (Piaget, 1945/1962; Takata, 1969; Vygotsky, 1962), its impact on children's quality of life, development, and health has been studied across cultures and generations and is acknowledged worldwide. For example, in 1959, the United Nations Convention on the Rights of the Child created an international policy acknowledging children's "right to play" (United Nations Children's Fund, Article 1, 1989). Seminal research by Bronfenbrenner (1979), Bandera (1977), Piaget (1962), and Vygotsky (1962) emphasize the critical impact the environment has on children's behavioral, cognitive, sociocultural, and emotional development, including play. Consequently, through the pairing of environmental context with active engagement, exploration, and creativity, children learn about

and adapt to their world through play (Garvey, 1990; Law et al., 1996; Piaget, 1951; Reilly, 1974; Rigby, Huggins, Letts, & Stewart, 2003; Shonkoff & Phillips, 2000; Takata, 1969).

Statement of the Problem

Today, a growing number of young children are not prepared to enter school due to delays in social-emotional readiness that impact their active engagement in learning, a concern that has been amplified by the global COVID-19 pandemic (Irwin et al., 2021). In 2019, the American Academy of Pediatrics reported a growing concern that changes in today's lifestyle detract from child-led engaged play at home and contribute to reduced school readiness (Williams & Lerner, 2019). These differences refer to today's hurried lifestyle, family structure, expanded emphasis on enrichment and academic activities, increased electronic screen time, and reduced free play (Council on Early Childhood & Council on School Health, 2016; Ginsburg, 2007; Williams & Lerner, 2019; Zigler & Bishop-Josef, 2009).

Of particular concern is the number of young children who are "at-risk" due to poverty, trauma and toxic stressors, and unidentified disabilities. These children have reduced opportunities to develop emotional readiness through play at home than their typically developing or more affluent peers do (Bierman et al., 2015; Hatcher & Page, 2019; Raver et al., 2011). Toxic stressors and trauma include physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, and economic hardship (Williams & Lerner, 2019). Unidentified disabilities, such as developmental delays, place young children at higher risk for future academic, mental health, and behavioral difficulties (Cooper, 2006; Council on Early Childhood & Council on School Health 2016; Denham, 2006; Williams & Lerner, 2019).

Nationally, and specifically in the state of Virginia, over 40% of all young children do not demonstrate the academic or social-emotional school-readiness skills they need to be successful in kindergarten (Commonwealth of Virginia Executive Directive Four, 2019; Early Childhood Technical Assistance Center & Center for IDEA Early Childhood Data Systems, 2019). The skills gap increases for children living in poverty, with 52%, compared to only 25% of children from moderate or high-income households, not demonstrating the physical well-being, self-regulation and self-management skills, social-emotional abilities, and language and cognitive readiness skills needed for school (Williams & Lerner, 2019). To ameliorate the effects of toxic stress, poverty, and disability, the American Academy of Pediatrics (AAP) recommends teaching children resilience through play. The AAP also recommends play in the family context as a best practice for promoting healthy child development and social-emotional well-being (Ginsburg, 2007; Williams & Lerner, 2019).

Rationale for the Study

Given that play and child development are connected, and the impact of the home environment is critical for child development and school readiness, this study explores a parent-implemented intervention to promote active engagement in constructive play for preschool-aged children who are at-risk for developmental, social-emotional, or behavioral disability. Parent education about the importance of play and the physical, temporal, and social-emotional home environment enables parents to provide support and minimize barriers, facilitating their child's active engagement in constructive play.

Brief Review of the Literature

Importance of Play for School-Readiness

Children's play is a primary vehicle for learning in early childhood and is related to acquiring both pre-academic and social-emotional school-readiness skills (Ginsburg, 2007; Takata, 1974; Williams & Lerner, 2019). It also provides young children the practice and opportunity to respond to their environment adaptively, building emotional readiness and coping skills foundational for active attention and engagement (DiCarlo et al., 2016; Ellis, 1973). One of the most common types of play in the preschool years is constructive play, an active, hands-on type of play where children build and combine objects to experiment and enjoy the creative process of construction (Drew et al., 2008; Harel & Papert, 1991). A critical component of social-emotional learning is self-management, a skill that enables children to regulate their emotions and behaviors and to persevere with challenging tasks (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2020). In children's play, active engagement in the play activity demonstrates self-management (CASEL, 2020; Florez, 2011).

Importance of the Home Environment

Research shows that the natural home environment contributes to developing play and emotional-regulation skills (Shonkoff & Phillips, 2000) and reveals that the environment impacts the child's active engagement, attention, and participation (Bronson, 2000; Law et al., 1996; Ziviani & Rodger, 2006). Bundy et al. (2009), using the Test of Environmental Supportiveness (TOES), confirmed that the environment has a direct and significant effect on children's play and playfulness.

Throughout the literature, we find environmental practices that support the development, play, and learning of young children, including those with or at-risk for disabilities. These ecological practices fall into several distinct categories that address the physical environment (space, materials, sensory input), the social-cultural environment (family members, friends), and

the temporal environment (time, routines). By supporting their child's home environment, parents can nurture and facilitate their child's learning and development, health and safety, and engagement in play (Division for Early Childhood [DEC], 2014; Kuhaneck & Kelleher, 2015; Miller & Kuhaneck, 2008).

Importance of Parent-Implemented Intervention

Parents are the primary influence on their children's learning and development in the natural home environment. As noted throughout the literature, parent-implemented interventions are a successful evidence-based method of effecting change for children and families. With collaboration, guidance, and coaching from professionals, parents can adeptly implement intervention strategies for their young children in their homes and communities. Benefits of parents providing the intervention include increasing parental and family capacity to support the learning and development of their children (Trivette et al., 2010), reduced parental stress, improved parental responsiveness to their child's needs, and the ability to practice and generalize the intervention across natural environments (Shire et al., 2016). Unfortunately, research on parent-implemented interventions for preschool-age children in home and community settings is sparse (Rieth et al., 2018). The preponderance of research has focused on parent-implemented language, communication, and behavioral strategies. Relatively little research has focused on interventions to facilitate play (Fettig & Barton, 2014).

Theoretical Foundation

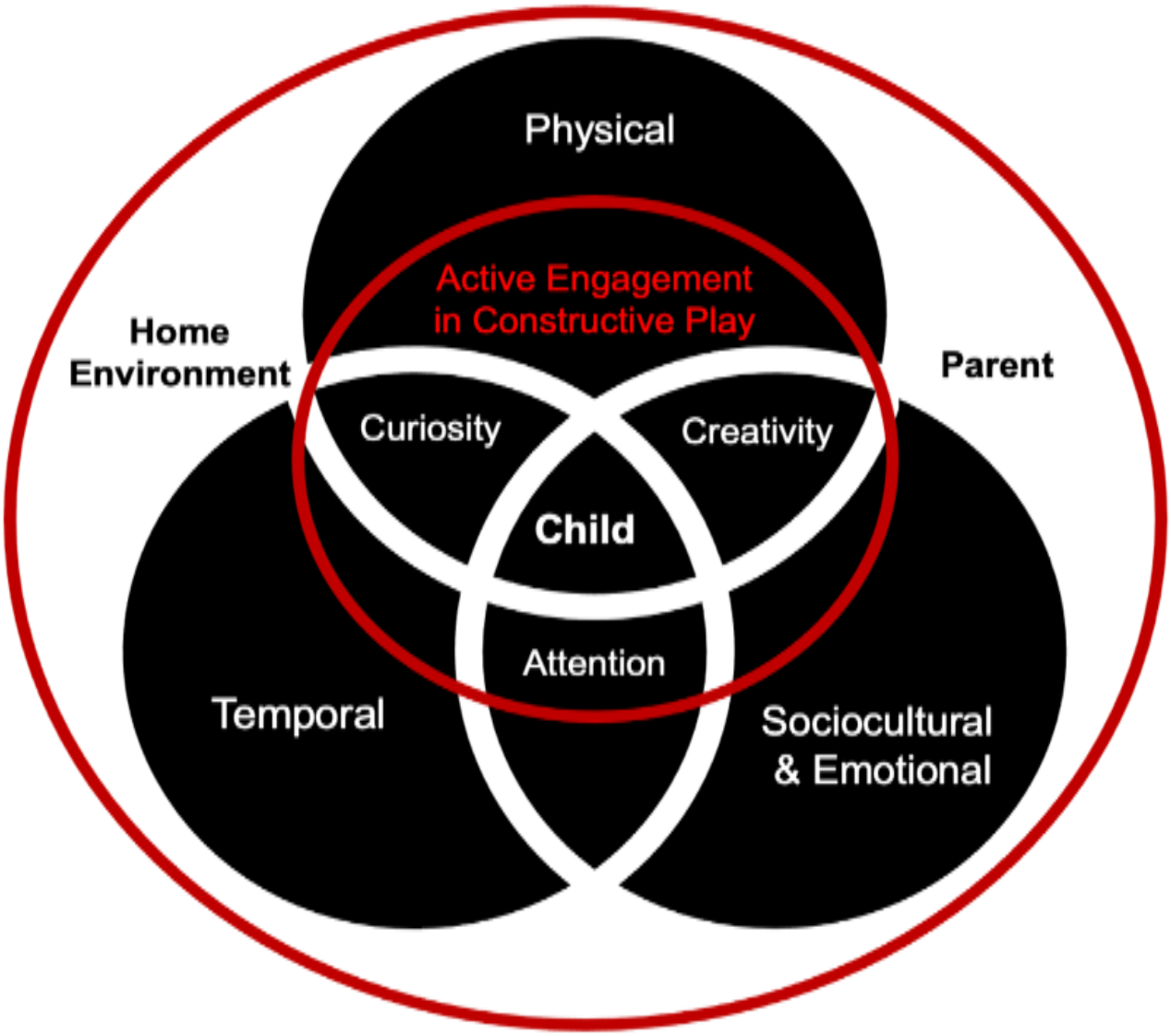
This dissertation study is guided by the constructivism learning theory that describes the impact of the home environment on the child's exploration, creativity, and active engagement (Dewey, 1929; Ellis, 1973; Piaget, 1980; Vygotsky; 1962). This theory postulates that the child individually creates knowledge through interactions and personal experiences with their

physical, sensory, and social environments. Through curiosity and self-directed exploration, the child becomes an engaged, active learner, developing their understanding of their world (Dewey, 1929), and constructs knowledge through hands-on experiential play (Harel & Papert, 1991; Paul, 2005).

Cognitive and social constructivism learning theories also recognize the influence of the physical, temporal, sociocultural, and social-emotional environment on the child's health, development, learning, and play (Piaget, 1945/1962; Vygotsky, 1976). According to Bodrova and Leong (2004), the environment is paramount to learning as it affects children's interests, curiosity, and motivation to explore, play, and learn. As the conceptual framework for this study (see Figure 1), Constructivism explains how the provision of environmental supports and reduction of environmental barriers, implemented by parents, leads to changes in the children's active engagement in constructive play. Essential and intrinsic to the constructivist theoretical perspective is the understanding that culture is not only ecologically related socially and physically, but historically and politically as well. In this way, Constructivism provides a lens of contextualized cultural relevancy critical to working with underrepresented populations such as children at-risk for developmental disabilities (Bal & Trainor, 2016; Blanchet Garneau & Pepin, 2015).

Figure 1

Conceptual Framework



Research Question

The interrelationships between children's active engagement, play activities, and school readiness are well-documented in the literature (Ginsburg, 2007; Takata, 1974; Williams & Lerner, 2019). Additionally, there is much literature supporting the practice of working with parents to implement interventions to improve language, communication, social-emotional,

behavioral, and other developmental skills for young children (Adams & Tapia, 2013; Barton et al., 2020; Case-Smith, 2013; Rush & Shelden, 2011; Webster-Stratton & Reid, 2009). However, the impact of teaching parents to facilitate children's play has far less presence in the literature. Therefore, this research study investigates the effects of parent-implemented strategies on improving the child's active engagement in constructive play. The following research question guides this study:

> Do parent-implemented environmental support strategies improve the child's active engagement in constructive play in the home?

Research Design and Methodology

This dissertation study examines the effects of a parent-implemented environmental intervention on improving children's active engagement in constructive play in the home environment. The research methodology selected for this study is a single-subject multiple baseline across-participants design with four participants. This design provides experimental control as the concurrent baseline phases are followed by staggered intervention conditions across all participants. Child outcome data were collected on the child participants' active engagement in constructive play during baseline, intervention, and maintenance phases. Interobserver agreement (IOA) was established and maintained across all conditions. Fidelity of intervention was observed and measured to ensure the reliability of the intervention. Social validity was assessed to discern the meaningfulness of the intervention in the lives of the participant parents and children.

Participants attended local public and private preschool programs serving 4-year-old children in an urban mid-size mid-Atlantic city. Children selected to participate met inclusion and exclusion criteria, were identified as at-risk for disability by their preschool teacher or

parent, and demonstrated developmental, social-emotional, or behavioral difficulties that affected their play at school or home. For purposes of this study, "at-risk" is defined as having a diagnosed or suspected disability in the categories of developmental delay, autism spectrum disorder, or attention deficit disorder, or being at-risk for a disability due to trauma or poverty.

Aligned with single subject multiple baseline research design, participants began baseline data collection simultaneously, allowing for concurrent and repeated monitoring of the baseline condition. The introduction of the intervention was then staggered across participants, order determined based on their submission of baseline play recordings demonstrating a stable level and a contra-therapeutic trend direction. Prior to introduction of the intervention, the researcher met with each parent to inquire about their views on play, their child, and their family. This interview allowed for a more individualized intervention experience to account for differences in the family's culture and the child's developmental needs and preferences. Parents were then instructed on the intervention via a virtual 60-minute educational session that included a scripted PowerPoint presentation with visuals, written and verbal instructions, and opportunities for questions, discussion, goal setting, and self-reflection. Follow-up guidance, coaching, and support via text and phone was provided throughout the intervention phase to reinforce the intervention procedures and to provide parents feedback and additional guidance. This parent education and follow-up support informed and enabled parents to implement the intervention of modifying their home's physical, temporal, and social-emotional environment to facilitate their child's engagement in constructive play.

Results and Implications

The results of this study suggest a functional relation between the parent-implemented ecological intervention and the improvement in their child's active engagement in constructive

play at home. This established functional relation indicates the effectiveness of the parent-implemented intervention on young children's active engagement in constructive play. These results were determined using visual analysis, looking at level, trend, and variability within and between phases, and percentage of non- overlapping data (PND). Visual analysis of the level changes between baseline, intervention, and maintenance phases strongly supports a functional relation between the parent-implemented intervention and increased engagement in constructive play. Anecdotal evidence suggests the intervention was further generalized across people and settings. The social validity in this study is strongly supported by parent report and their expressed appreciation of the meaningfulness and value the intervention has had on their lives, impacting much more than their child's play skills by improving their parent-child relationship and daily home life. Implications are discussed in Chapter Five on future research, professional development for early childhood teachers and parents, and policy directions that address the importance of empowering parents to support their young children's learning through play.

Definition of Terms

Active Engagement: Active engagement in play requires positive emotional involvement and interest of the child so that play is joyful (Godin et al., 2017).

Children at Risk: Children who are at risk for developmental delay due to one or more underlying risk factors including poverty, a history of trauma, or disability (Williams & Lerner, 2019).

Constructive Play: Constructive play is an active, hands-on type of play where children build and combine objects to experiment and enjoy the creative process (Drew et al., 2008; Harel & Papert, 1991).

Emotional Readiness: Emotional readiness, also known as coping or emotional regulation, refers to the child's ability to organize, integrate, respond to, or otherwise adapt to and actively engage in their environment and the demands of everyday living (Brenner, 1987; Sutton-Smith, 2001; Williams & Lerner, 2019).

Parent-Implemented: Parent-implemented interventions allow parents to effect meaningful change for their child using evidence-based and research-supported practices. Parents receive training to provide the treatment for their child themselves (Amsbary & AFIRM Team, 2017; Nevill et al., 2018).

Play: Play is a pleasurable and intrinsically motivating exploration and interaction with toys, objects or other people not performed to meet basic needs or attain an externally defined goal (Huizinga, 1939; Piaget, 1945/1962).

School Readiness: School readiness refers to the child's developmental readiness for school in physical, cognitive, social, and emotional development (NAEYC, 2019).

Chapter II: Literature Review

This literature review summarizes the importance and impacts the home environment has on young children's play and how it facilitates the active engagement that is foundational for school readiness. Throughout the literature, there are noted connections between active engagement, creativity, attention, emotional regulation, and school-readiness skills that young children learn through play (Division for Early Childhood, & National Association of Education for the Young Child [DEC/NAEYC], 2009; Head Start's Early Childhood Learning and Knowledge Center, 2019; Saunders et al., 1999; Ursache et al., 2012; Vygotsky, 1962). It is apropos that play is the intervention medium in this study, given that play is one of the primary modes of learning in early childhood it is the vehicle that allows children to explore, understand, and respond to their environment (Bundy, 1997; Bundy, Trantor, et al., 2009; McInnes et al., 2009, 2011; Miller & Kuhaneck, 2008; Reilly, 1974; Rigby & Gaik, 2007).

First, I define school readiness and examine the impact of childhood poverty and disability on children's home environments, play, and, ultimately, their school readiness. Second, I discuss the types and categories of cognitive and social play, focusing specifically on the benefits of constructive play on learning, engagement, and creativity in early childhood. Within this section on the importance of play, I further expound on the importance emotional regulation has on the child's ability to be actively engaged in the play experience. Third, I outline the

literature that illustrates the impact of the home environment, specifically focusing on the contextual factors of the physical, temporal, and social-emotional environment, as identified by the DEC Recommended Practices (2014) of the Council for Exceptional Children (CEC). Finally, I discuss the benefits of parent-implemented interventions in the natural home setting. Altogether, this review synthesizes the literature related to parental influence on the home environment to facilitate children's active engagement in constructive play for academic and social-emotional school readiness. It also lays the foundation for the research design and methodology.

Impact of Poverty and Disability on School-Readiness and Play

School readiness is the demonstration of the necessary cognitive, linguistic, social, and emotional skills young children need to engage, participate, socialize, adapt, and critically think to best learn in their kindergarten year (Head Start, 2019; National Association for the Education of Young Children [NAEYC], 2009; Snow, 2006; United Nations Children's Fund [UNICEF], 2012; Williams & Lerner, 2019). Through a nurturing, supportive home environment with parental involvement, young children gain school-readiness skills such as the ability to attend to learning, cognitive flexibility, and academic knowledge gains in math and literacy (CEC & CSH, 2016; Piaget, 1945/1962, 1970; Williams & Lerner, 2019). However, risk factors that affect school readiness include poverty and the presence or risk of disability.

Poverty is considered a multi-faceted ecological risk factor for school readiness and is associated with academic, social-emotional, and developmental delays (Bierman et al., 2015; Hatcher & Page, 2019; Raver et al., 2011). In the United States, 17% of young children live in poverty, with income less than $25,926 for a family of four with two children, while 43% of young children are from low-income families making less than $51,852 in 2019 (Koball et al.,

2021; National Center for Children in Poverty [NCCP], 2020). Given poverty as a risk factor for school readiness, children in poverty average a two-year delay in school readiness compared to young children from middle and upper socioeconomic households (Milteer et al., 2012). Nationally, according to the National Center for Children in Poverty (NCCP), close to 50% of young children from economically disadvantaged backgrounds do not demonstrate the school-readiness skills that 78% of young children from more affluent households do (Roos, Wall-Wieler, & Lee, 2019).

Contributing to the complexity of poverty as a risk factor for delays in school readiness are the associated risks of physical and mental health problems for both children and parents, limited access to education and healthcare services, increased rates of parental depression and stress, and difficulty meeting basic security needs of food, clothing, housing, and safety (Hsueh & Yoshikawa, 2007; Riley et al., 2009; Whitaker et al., 2006). The perceived and real lack of physical safety in impoverished neighborhoods is directly associated with reduced opportunities for outdoor play. Interestingly, public schools in these communities do not help off-set this lack of outdoor play since 28% of schools in high-poverty neighborhoods offer no outdoor recess time to their students (Milteer et al., 2012; Ramstetter et al., 2010). Consequently, poverty presents a confluence of predisposing risk factors that cumulatively impact children's physical, cognitive, and social-emotional well-being (Evans, 2004). Child development professionals recommend that children from low-income families need opportunities to learn how to play and time to play to help mitigate the effects poverty has on child development (Miller & Almon, 2009).

The presence or suspicion of disability is also a determinant for school readiness. Young children not yet identified as having a disability often struggle with the transition to kindergarten

due to a lack of pre-academic and social-emotional school-readiness skills (CEC & CSH, 2016; Jeon et al., 2011; Williams & Lerner, 2019). For example, in Virginia, 66% of children with identified disabilities were not as prepared to enter school as were their typically developing peers (Virginia Kindergarten Readiness Program, 2020). Early intervention helps ameliorate many delays in school readiness for young children with disabilities. Those identified with a disability who receive early intervention Part C and Part B services under the Individuals with Disabilities Education Improvement Act (IDEA; 2004) show much greater school readiness than their under-served, under-diagnosed, and unidentified at-risk peers (CEC & CSH, 2016; Jeon et al., 2011).

Jeon et al. (2011) explored the influence of early intervention on school-readiness skills. They conducted a longitudinal follow-up study from the secondary data analysis from the Early Head Start Research and Evaluation (EHSRE) project (Administration for Children and Families, 2002), following young children from age one year until they entered kindergarten. This follow-up study consisted of 2,183 low-income children in the following categories: receiving Part C services *(n* = 129), identified with a developmental disability *(n* = 287), identified as having a medical condition risk (*n* = 741), suspected as having both a developmental delay and a medical condition risk (*n* = 395), and those not identified as having one of the above disability indicators before age three (*n* = 631). After controlling for covariates, children suspected of having a developmental delay but who did not receive early intervention services demonstrated lower pre-academic and lower social-emotional school-readiness skills than their typically developing peers (Jeon et al., 2011). These findings affirm and illuminate suspected disabilities as a risk factor for school readiness, at least for children living in poverty. Their findings suggest that children at the intersection of poverty and disability have a unique risk for delays in school

readiness (Jeon et al., 2011). Additional research is needed to explore this dual risk compared to more affluent children suspected of having a developmental disability.

Play

Definition and Benefits of Play

Play is a difficult concept to define since it is not one specific activity but rather an orientation or approach (Piaget, 1945/1962). Perhaps Chance (1979) best explains the difficulty in understanding the elusive concept of play. He writes, “Play is like love: everybody knows what it is, but nobody can define it.” (p. 1). Theorists and professional organizations have long differentiated play from other childhood occupations such as chores and formal education (Skard & Bundy, 2008; Sylva, 1977). Play is distinguished from work by its definition as a pleasurable, intrinsically motivating, personally meaningful activity that is not goal-directed or fulfills a basic need such as food, shelter, or safety (Huizinga, 1939; Piaget, 1945/1962; United Nations Children's Fund, 2019).

Play is an essential and primary developmental activity of childhood. It is through play that children cultivate their self-esteem (Reilly, 1974), cognitive and problem-solving (Piaget, 1945/1962; Vygotsky, 1962), language and communication (Goodson & Greenfield, 1975), social and emotional skills (Parten, 1932; Vandenberg, 1981; Vygotsky, 1962), and sensorimotor coordination skills (Michelman, 1974; Smilansky, 1968; Takata, 1969). Over the years, theorists such as Huizinga (1939), Piaget (1962), and Vygotsky (1962) have attempted to define play. Huizinga (1939) describes play as having the following characteristics: play is voluntary, distinct from real-life, not goal-directed or connected to the fulfillment of basic needs, characterized by order, and produces feelings of tension and joy. Piaget (1962) views play as a child’s means to become competent in their environment, better understand their world, and reflect their cognitive

abilities. However, he distinguishes play from non-play activities by the following criteria: play is an end in itself; spontaneous and not controlled by outside influences; pleasurable with pleasure derived from activity process, not the achievement of an end goal; lacks organization of thought relative to serious thought; is free from conflicts imposed by reality, and the incentive of play is self-motivating.

Many researchers including Parten (1932), Piaget (1945/1962), Smilansky (1968), and Takata (1974) have attempted to describe play by breaking down the characteristics into play taxonomies of developmental levels and sequences (see Table 1). Parten (1932) observed the social aspect of play and describes six stages of social play for young children. Piaget (1945/1962) classified play into developmentally sequenced categories based on children's cognitive developmental level. Smilansky (1968) expanded Piaget's cognitive stages to include functional, constructive, and symbolic play leading up to games with rules. Takata (1974) describes epochs of play that progress with age and further expand Smilansky's concept of constructive play. Although developmental and hierarchical in nature, Stagnitti (2004) explains that the stages, categories, and epochs of play are not mutually exclusive; they grow in sophistication, build on previous play experiences, and earlier stages are revisited in novel contexts.

Table 1

Play Taxonomies

Stages	Pardon (1929) Social play	Piaget (1945) Cognitive play	Smilansky (1968) Cognitive play	Takata (1974) Cognitive play
Birth - 3 months	Unoccupied	Sensorimotor	Sensorimotor	Sensorimotor

Birth - 2 years	Solitary			
2+ years	Onlooker		Functional	Symbolic
2 - 3 years	Parallel	Preoperational	Constructive	Simple-Construction
3 - 4 years	Associative			
4+ years	Cooperative		Symbolic or Dramatic	Dramatic Complex-Constructive Pre-Games
7 - 11+ years		Concrete Operational	Games with Rules	Concrete Operational
12 - 16+ years				Recreation

Constructive Play

Constructive play is a creative process-oriented activity that promotes learning and development and serves as a foundation for pre-academic and social-emotional growth (Drew et al., 2008; Drew & Rankin, 2004; Johnson, Christie, & Wardle, 2005). It involves hands-on interaction and manipulation with open-ended materials to create, combine, and build. Theoretically, constructive play aligns well with the learning theory of constructivism as children make knowledge and learn by interacting with their environment (Harel & Papert, 1991). Through this self-directed exploration and creative construction with objects, toys, and items from nature, the child investigates, discovers, and learns about their world (Van Alstyne, 1932; Yogman et al., 2018). Consequently, the child practices problem-solving, cognitive, and social-emotional flexibility, and emotional self-regulation as they experiment, experience failure, make corrections, and continue playing and learning (Forman, 1998; Pepler & Ross, 1981; Yogman et al., 2018).

According to play theorists and researchers, constructive play is the predominant play during the preschool years. It accounts for 40% of play activities for children ages three years and six months, and 50% for children between ages four and six (Christie & Johnsen, 1987; Drew & Rankin, 2004; Rubin, 1985; Rubin et al., 1983). Constructive play is a stage of play that emerges from functional play with objects at around age two and blends with imaginary dramatic play around ages four or five, increasing in complexity and creativity over time (Drew & Rankin, 2004; Smilansky, 1968; Takata, 1974). In general, constructive play tends to be under-researched due to this overlap with functional and dramatic play. Constructive play occurs during solitary, parallel, and group play activities, progressing in cognitive complexity with each child's individual experience and cognitive development (Christie & Johnsen, 1987; Rubin et al., 1976; Rubin et al., 1978).

Constructive play is best known for its correlation with early math skills development, but it also supports growth in pre-academic literacy and social and emotional skills (see Table 2). Through active engagement and manipulation of physical materials children acquire foundational skills in spatial literacy, cognitive problem-solving skills, and mathematical classification skills such as color, size, shape, texture, quantity, systems, and sequences (Miyakawa et al., 2005). This type of flexible, creative exploration lays the foundation for mathematical competencies in algebra, geometry, calculus, architecture, and engineering (Pollman, 2010; Wolfgang et al., 2001, 2003). Furthermore, constructive play in early childhood correlates with literacy and language development, with research revealing that hands-on play with non-electronic toys and objects is associated with improved quality and quantity of language growth (Przybylski, 2014).

As young children refine their visual discrimination skills through play by combining objects (Stroud, 1995), they develop the pre-reading skill of patterning, visual discrimination,

and the interpretation of abstract symbols, underlying skills for reading text (Owocki, 1999). During both group and solitary play activities, including constructive play, young children strengthen their language knowledge as they rehearse vocabulary and apply descriptive words to label objects, attributes, and actions (Zosh et al., 2015). In addition to fostering pre-academic math and language literacy benefits, constructive play also facilitates emotional readiness skills (Sutton-Smith, 2001). Constructive "making" play also provides an adaptive opportunity for the child to learn about their own capacity and agency in the environment (Marsh et al., 2019; Sutton-Smith, 2001). Moreover, constructive play is known to foster self-regulation, creativity, enthusiasm, persistence, decision-making, and emotional resilience (Bodrova et al., 2013; Day, 2006).

Table 2

Characteristics and Benefits of Constructive Play

Description	Actions	Materials	Pre academic	Social-emotional
Hands-on	Build	Toys (blocks, Legos)	Problem-solving	Social flexibility
Open-ended	Construct	Household objects (spoons, containers)	Cognitive flexibility	Emotional regulation & resilience
Flexible	Create	Familial-cultural items (memorabilia)	Mathematical classification (size, color, shape, pattern)	Increased alertness & attention
Process-oriented	Combine	Household materials (recycled boxes)	Visual discrimination	Increased engagement
Creative	Experiment	Items from nature (rocks, twigs, shells)	Language vocabulary	Self-determination & agency
	Discover	Art & craft materials (tape, string, paper)	Fine motor skills	Creativity & imagination
		Sensory materials (playdough, sand)		

Current research focusing on constructive play is limited (see Table 3), much less constructive play in the home. Most play research targets functional, pretend, or social play skills rather than looking specifically at the developmental benefits that creative, constructive process-oriented play with objects offers. However, descriptions of constructive play for preschool-age and older children in the literature include engineering (Bairaktarova et al., 2011; Ness & Farenga, 2016), construction play (Forman & Hill, 1984; Takata, 1974), tinkering (Bevan et al., 2014; Nemeth & Brillante, 2017), makerspace (Marsh et al., 2019), and loose-parts play (Gibson et al., 2017; Nicholson, 1972). These genres of constructive play also encourage creativity (Drew & Rankin, 2004), a sense of agency (Sutton-Smith, 2001), early engineering (Ness & Farenga, 2016), and design skills (Nicholson, 1972; Resnick & Ocko, 1991). The similarity of these play genres is the combining of materials for the enjoyment of creating, which in turn ignites the child's imagination, increases the quality of play engagement (Bundy et al., 2017), and leads to dramatic or pretend play (Nicholson, 1972; Takata, 1974). Furthermore, Nicholson (1972) explained the relationship between the environment and constructive play in his theory of loose parts; he proposed that the design of the environment influences creativity, engagement, and discovery.

Table 3

Constructive Play Studies

Author	Research design	Number & age of participants	Setting	Target skill	Findings
Bundy et al., 2017	Randomized Controlled Trial (RCT)	*N* = 226 5-7 years	School	Engagement	Effect size for play engagement was significant (d = .27), and field notes revealed increases in creativity and social play.

Lai et al., 2018	Literature Review: Qual (11), Correlation (6), Quasi-experimental (9), RCT (5), Mixed-method (1)	32 studies 4-6 years	School	Cognitive	Non-digital loose-parts constructive play stimulates the cognitive development of preschool-age children.
Parker et al., 1999	Pre-posttest longitudinal	N = 173 3-4 years	Home and school	School readiness	Increases in parents' understanding of the importance of play predicted increased child independence (p = .001) and curiosity/creativity (p = 0.14
Schmitt et al., 2018	Randomized Controlled Trial	N =59 38-69 months	School	Math Executive Function	Medium effect sizes indicated semi-structured block play led to improvements in math (numeracy .37, shape recognition .56, mathematical language .37), and executive functioning skills (cognitive flexibility .51, global executive functioning .32).
Wolf-gang et al., 2003	Correlation Longitudinal	N = 37 3-4 years	School	Math	Play with LEGOS at ages 3-4 is a significant predictor for school achievement in mathematics in middle and high school (F = 0.0259).

Research supports the relationship between sociodramatic play and emotional self-regulation (Garvey, 1990; Smilansky, 1968). However, there is less research exploring the relationship between constructive play, emotionally regulated active engagement, and school readiness. What is known is that constructive play is an opportunity for self-reflection and

interpreting one's feelings. This lens views constructive "making" play as an adaptive opportunity for the child to learn about their capacity and agency in their environment (Marsh et al., 2019; Sutton-Smith, 2001). Moreover, constructive play fosters creativity, enthusiasm, persistence, decision-making, self-regulation, and emotional resilience (Bodrova et al., 2013; Day, 2006). Although not frequently acknowledged in play literature, non-social or solitary constructive play is linked to improved self-regulation of emotions, increased alertness, happier mood states, peace of mind, and feeling in control of the environment (Larson, 1990; Luckey & Fabes, 2005).

Active Engagement, Emotional Readiness, and Play

Emotional regulation, also known as coping or resilience, is a necessary skill of childhood and social-emotional school readiness. It is the ability to adapt emotionally to organize, integrate, respond to, or otherwise adapt to their environment and the demands of everyday living (Brenner, 1984; Denham, 2006; Denham et al., 2014; Grolnick et al., 2006; Howse et al., 2003; Murphy & Moriarty, 1976; Williams & Lerner, 2019; Williamson, 1985; Zeitlin et al., 1987). In other words, an emotionally regulated child is better able to actively engage in play.

One of the many factors that affect a child's emotional regulation, and ultimately their play engagement, is the impact of their physical and social-cultural environment (Eisenberg, 2020; Ellis, 1973; Thomas & Chess, 1977; Thompson, 1994). The child's relationship with their parent and the socio-cultural and emotional supports the parent provides plays a significant role in the development of emotional regulation and active engagement skills in early childhood (Brophy-Herb et al., 2013; Division for Early Childhood [DEC], 2014; Ginsburg, 2007; Kopp, 1982; Morawska et al., 2019; Morris et al., 2007; Williams & Lerner, 2019). For example,

parents who are in-tune with their own emotions model positive emotional regulation for their children (Eisenberg et al., 2005; Denham et al., 1997). Furthermore, research shows that parents' sensitivity to their young children's emotions during play is essential to learning adaptive emotion self-regulation and fosters the child's sense of agency (Caiozzo et al., 2018; Dunsmore et al., 2013; Kopp, 1989; Thompson, 1994; Yogman et al., 2018).

Viewed through a neurobiological lens, when children engage in play that is meaningful, the area of the brain that controls emotions is stimulated, resulting in feelings of pleasure that are calming and emotionally regulating and in cortical changes in the brain that result in learning (Penfield; 1975; Pibram, 1971). In other words, play does not occur when the child is in a state of uncertainty or anxiety (Weisler & McCall, 1976) but occurs when the child is familiar with their environment (Hutt, 1979). Similarly, Ellis (1973) suggests that the home environment impacts the child's emotional regulation and readiness to explore, create, attend, and actively engage in play by facilitating their curiosity of novel, complex, uncertain, or surprise-containing stimuli. When the environment lacks these qualities, the child will be under-stimulated, their curiosity will not be piqued, and the quality of their play will be affected. When there is too much novelty, complexity, uncertainty, or surprise in the environment, the child will be too anxious and insecure to play. Thus, when environmental stimuli are "just right" for the child, curiosity is expressed through exploration, reinforcing active engagement in play (Berlyne, 1960; Ellis, 1973; Ellis & Scholtz, 1978).

Research demonstrates the natural reciprocity between play and emotional development. Not only does play foster personal growth, but children who can regulate their emotions and cope with their environment are better able to enjoy and benefit from their play (Berlyne, 1960, 1966; Brenner, 1984; Ellis, 1973; Garmezy & Rutter, 1983; Murphy & Moriarity, 1976; Werner

& Smith, 1982; Yogman et al., 2018). According to the Center on the Developing Child at Harvard University (Stress, 2017), play also serves as an activity to reduce anxiety and stress. Stress reduction occurs when the child engages in pleasurable play activity, stimulating the brain's limbic system, specifically the amygdala, that controls emotions (Johnson et al., 2016). This moderates impulsivity, emotionality, and aggression while improving executive functioning and attention (Yogman et al., 2018). In other words, play not only promotes young children's neurobiological brain development and fosters the ability to cope and adapt to life, but play also facilitates resilience to adversity and hardships such as poverty, trauma, and toxic stress (Yogman et al., 2018). Vygotsky (1976) valued this relationship between emotional regulation and play, explaining that children practice emotional self-control continuously through play, stating, "a child's greatest self-control occurs in play" (p. 99).

Impact of Poverty and Disability on Play

Children at-risk for disabilities often require a more structured play environment as their play reflects potential difficulties with attention, flexibility, persistence, initiative, and active engagement (Barton et al., 2020; Behnke & Fetkovich, 1984; Horne & Philleo, 1942; Hulme & Lunzer, 1966; Riguet & Taylor, 1981). In their longitudinal study on play with young children with autism spectrum disorder, Wilson et al. (2017) described how young children with disabilities do not demonstrate the same complexity or frequency of play in similar environments and with similar play materials as their typically developing peers do. Conversely, research demonstrates that the play of children with disabilities is similar in type, frequency, and duration to their non-disabled peers when matched developmentally rather than chronologically (Horne & Philleo, 1942; Tizzard, 1964) and that parents of children with disabilities understand the importance of play for their young children (Childress, 2011).

At-risk and poor children also experience more difficulties securing resources and support such as money, time, information, materials and supplies, emotional support, and assistance (Law et al., 2013). Rubin et al. (1976) observed that observed children from low-income families engage more in functional play and less in creative, constructive play than their more affluent peers. This influence of poverty on constructive play, especially when compounded by the intersection of disability, merits further exploration highlights the need for environmental scaffolding by parents to support participation and engagement in play to facilitate the joy of playing and improving school readiness (Childress, 2011; Pierucci et al., 2014; Yogman et al., 2018). Also, according to more recent views on disability, children with disabilities not only have a right to play but are entitled to the voice, agency, identity, equity, and life happiness that play provides (Buchanan & Johnson, 2009).

Home Environment

Play is not only influenced by the child's cognitive, social, and developmental levels (Parten, 1932; Piaget, 1945/1962, 1962; Smilansky, 1968; & Takata, 1969, 1974), but by the physical, temporal, and social-emotional contextual factors in the child's environment (DEC, 2014; Fabrizi et al., 2016). Children play when they are familiar and comfortable with their environment and can cope with and explore physical, social, and sensory stimuli (Hutt, 1979; Weisler & McCall, 1976). However, many young children who are at-risk for social-emotional, behavioral, or developmental disabilities struggle to actively engage, explore, and adapt to their environment, which reduces their opportunities to play. Unless a child's environment changes or they learn to adapt, they may be either under-stimulated or overwhelmed by their surroundings (Takata, 1974); their play will not be optimally creative, joyful, or engaging enough for learning to occur. The Center on the Social and Emotional Foundations for Early Learning (2019), the

National Association of Education for the Young Child (2009), the Division for Early Childhood (2014), and the American Academy of Pediatrics (CEC & CSH, 2016) recognize the importance of parental engagement and the home environment on child development and promote play in the home as a primary means for young children to learn valuable developmental life skills. This critical importance of the home environment, both physical and social-emotional aspects, emphasizes the need for parents to be aware and attuned to their child's developmental need for play.

For the above reasons, the naturalistic home environment plays a vital role in a young child's engagement in play, their ability to regulate emotions, and their participation in daily life (Law et al., 1996; Ziviani & Rodger, 2006). Throughout the literature, we find common themes of environmental supports and barriers that impact young children's engagement in play. These categories include physical attributes (space, materials, sensory, health, and safety), social-cultural and social-emotional attributes (family members, friends), and temporal attributes of the child's home (time, routines, roles), with environmental attributes serving as either supports or barriers for play development (Campbell & Sawyer, 2004; DEC 2014; Harms et al., 2014; Knox, 2008; Rigg, 2012; Skard & Bundy, 2008; Smith, 2008). The natural home environment influences not only the child but impacts how the family can nurture and support their child's play development (Kuhaneck & Kelleher, 2015; Miller & Kuhaneck, 2008; Xu, 2010).

Physical Environment

The physical arrangement of space and materials in the environment is essential to facilitate children's play, and in the home often reflects the family's culture, beliefs, and values (Law et al., 1996; Nemeth & Brillante, 2017 New, 2009; Xu, 2010). It is also where parents can begin to provide supports, reduce barriers, and facilitate play in the home for the child to

construct knowledge (Montessori, 1964, 1995; Strong-Wilson & Ellis, 2009). In fact, the physical environment is so crucial in Montessori and Reggio Emilia pedagogy that it is considered one of the child's "teachers" (Montessori, 1995; Strong-Wilson & Ellis, 2009). Physical space for play in the home should be set aside, congruent with family cultural values, meeting the needs of the child by being adequate in size to allow movement to play, flexible in use to allow creativity, adaptable to the needs of the family, and be a physically safe space (Kiewra & Veselack, 2016; Knox, 1974; NAEYC, 2019; Rubin & Howe, 1985; Skard & Bundy, 2008).

Physical home environments (see Table 4) should inspire creativity, exploration, and innovation by being pleasant esthetically and sensorially (Biermeier, 2015; Montessori, 1964; Strong-Wilson & Ellis, 2009); without over or under-whelming the child's visual, touch, auditory, movement (vestibular and proprioceptive); olfactory; or gustatory senses (Kuhaneck & Kelleher, 2015; Piller & Pfeiffer, 2016). The environment should also provide comfortable and healthy air temperature, lighting, sound volume, and air quality (Rigg, 2012). Materials, including toys, should be easily accessible for the child to reach, touch, manipulate, and use to construct play (Knox, 2008; Strong-Wilson & Ellis, 2009). The type of materials offered to the child is important, as they should be flexible and open-ended to facilitate imaginative, constructive, or exploratory play.

Examples of open-ended materials include playdoh, blocks, everyday household items, or items from nature to use for creative construction and imitation play. Choices in play activities and diversity and novelty of play materials are also essential to support a young child's engagement in play (DiCarlo et al., 2016; Park et al., 2019; Rigby & Huggins, 2003; Strong-Wilson & Ellis, 2009). Research also shows a child's opportunity to have choices in play

materials is essential to increase interest and active engagement. DiCarlo et al. (2016) revealed that when young children were given choices in play materials, they engaged with a toy for an average of six minutes, but without choices, their active play engagement decreased to 2.5 minutes. As defined in the DiCarlo et al. study, active play engagement is the child using the toy in an intended manner, looking at, talking about, or interacting with the toy. They measured time on task using a stopwatch and stopped only after the child stopped playing for more than 10 seconds. In a similar study by Fabrizi (2016), findings were similar, demonstrating that fewer choices (i.e., four rather than16) lead to extended periods of engagement with the chosen toys. Barriers to supporting young children's play at home include using technology in place of child-led play with non-electronic toys and parental resistance to altering the physical home environment. The reduction of these physical environmental barriers requires parents to make changes based on their child's individual development, skills, and interests (Bundy, 2012; Sanderson & Preedy, 2016; Sterman, 2018).

Table 4

Characteristics, Supports, and Barriers of the Physical Home Environment

Supports	Barriers	Studies
Space: Comfortable, safe, accessible		Biermeier, 2015; Kiewra & Veselack, 2016; Knox, 1974; Kuhaneck & Kelleher, 2015; Montessori, 1964; NAEYC, 2019; Piller & Pfeiffer, 2016; Rigg, 2012; Rubin & Howe, 1985; Skard & Bundy, 2008; Strong-Wilson & Ellis, 2009
	Space: Parental resistance to altering the physical home environment	Bundy, 2012; Sanderson & Preddy, 2016; Sterman, 2018

Materials: Open-ended, inviting, accessible; diverse choices based on the child's development, skills, and interests		Bundy, 2012; DiCarlo et al., 2016; Fabrizi, 2016; Kiewra & Veselack, 2016; Park, 2019; Rigby & Rodger, 2006; Sanderson & Preddy, 2016; Sterman, 2018; Strong-Wilson & Ellis, 2009
	Materials: Use of screens or technology in place of hands-on materials	Bundy, 2012; Sanderson & Preddy, 2016; Sterman, 2018
	Materials: Difficulty securing resources such as money, materials, and supplies	Law et al., 2013

Social-Emotional or Social-Cultural Environment

Each family has its unique social-emotional or social-cultural environment that influences the child's development (Bodrova, 2003), but several themes are common to supporting play in the home (see Table 5). These themes include the parent's attitude about children's play, the type of social-emotional support they offer, and how families communicate the value of play concerning their unique family culture and heritage (LaForett & Mendez, 2017). Setting the social-environmental scene involves parents providing an emotionally safe and emotionally responsive relationship. Parents are encouraged to respect their child's play experiences with warmth, enthusiasm, playfulness, and enjoyment with their child and for their child's play, along with compassion and understanding of the child's frustrations (Fabrizi, 2016; Fabrizi et al., 2016; Lemay et al., 2016). This emotional engagement and demonstration of caring and interest from the parent help the child feel emotionally regulated, encouraging them to engage further, explore, and ask questions (Weisberg et al., 2013). The adult's playfulness in the social environment correlates directly with higher playfulness in children (Bundy, Waugh, et al., 2009; Pinchover,

2017; Skard & Bundy, 2008). Additionally, a positive parental attitude, paired with time in the daily schedule, communicates that play is a valued activity (Skard & Bundy, 2008).

The literature recommends parents support their young children's play by being physically, socially, and emotionally available, and asking open-ended questions, and following the child's lead in play (Kiewra & Veselack, 2016; Knox, 2008). The National Association of Education for the Young Child (NAEYC, 2019) promotes the following effective teaching strategies, which also apply to parents supporting their child's development in the home, acknowledging, encouraging, providing feedback, demonstrating, challenging, questioning, and assisting the child in exploring, inquiring, and creating through play. Even in families whose culture does not value play, it is helpful to acknowledge that playfulness, exploration, and creativity expressed during daily life routines are play for the child. Known social barriers to supporting young children's play at home include family attitudes and cultural value towards play and non-parental caretakers interacting with the child instead of the parent (i.e., nanny) (Bundy, 2012; Sanderson & Preedy, 2016; Sterman, 2018; Williams & Lerner, 2019).

Supporting the child and family's social-emotional and social-cultural needs (see Table 5) aligns well with Vygotsky's (1976; 1978) emphasis on how these facets of the environment impact a child's learning through play. He introduced the concept that beliefs, values, and tools for cognitive development vary across cultures, thus laying an early foundation for culturally responsive pedagogy, teaching, and learning. Vygotsky's zones of proximal development (ZPD) provide an excellent framework to implement supports through guided play or scaffolding from parents, teachers, or more advanced peers to craft and optimize the child's environment for play, growth, and learning (Bodrova & Leong, 2004; Yogman et al., 2018).

Table 5

Characteristics, Supports, and Barriers of the Social-Emotional or Social-Cultural Home Environment

Supports	Barriers	Studies
Social: Observe and respond to child's play		Fabrizi et al., 2016; NAEYC, 2019; Yogman et al., 2018
Social: Scaffolding or guide play for success and growth		Bodrova & Leong, 2004; Wilson et al., 2017; Yogman et al., 2018
Social: Ask open-ended questions and comments.		Bodrova & Leong, 2004; Kiewra & Veselack, 2016; Knox, 2008; NAEYC, 2019; Yogman et al., 2018
Social: Parent physically and socially accessible, available, and engaged with the child		Kiewra & Veselack, 2016; Knox, 2008
Social: Encourage rather than praise		NAEYC, 2019
Social: Follow the child's lead		Kiewra & Veselack, 2016; Knox, 2008
	Social: Parent-led play	Medina & Sobel, 2020; Weisberg et al., 2013
	Social: Nonparental caretakers	Bundy, 2012; Sanderson & Preddy, 2016; Sterman, 2018; Williams et al., 2019
	Social: Difficulty securing needed information, emotional support, help from others	Law et al., 2013
Emotional: Develop a responsive and respectful parent-child relationship		Buchanan & Johnson, 2009; Center on the Developing Child, 2017; Greenspan & Wiedner, 2006

Emotional: Parent available, interested, and engaged emotionally with the child		Kiewra & Veselack, 2016; Knox, 2008; Medina & Sobel, 2020; Weisberg et al., 2013
Emotional: Demonstrate warmth, enthusiasm, playfulness, enjoyment		Barnes, Fitzgerald, 1986; Fabrizi, 2016; Fabrizi et al., 2016; Lemay et al., 2016
Emotional: Show compassion, sensitivity, and understanding of the child's frustrations		Barnes, Caiozzo et al., 2018; Fitzgerald, 1986; Fabrizi, 2016; Fabrizi et al., 2016; Kiewra & Veselack, 2016; Lemay et al., 2016
Cultural: Family beliefs, attitudes, cultural values, value of play	**Cultural:** Family beliefs, attitudes, cultural values, value of play	Bodrova & Leong, 2004; Bundy, 2012; Sanderson & Preddy, 2016; Skard & Bundy, 2008; Sterman, 2018; Williams et. al., 2019; Yogman et al., 2018; Vygotsky, 1976; 1978
Cultural: Acknowledge the playfulness, exploration, creativity expressed during daily life as play		NAEYC, 2019

Temporal Environment

The temporal play environment (see Table 6) includes daily routines that facilitate participation in play, along with the understanding that optimal playtime should be uninterrupted, unstructured, and child led (Biermeier, 2015; Kiewra & Veselack, 2016; NAEYC, 2019; Piller & Pfeiffer, 2016; Yogman et al., 2018). Designated playtime sends the child a clear message that play is important and valued by the parent (Edwards, 2000). Daily routines are an essential aspect of the temporal environment and minimize the impact of unexpected sensory stimuli (Piller & Pfeiffer, 2016). Knox (2008) suggested the duration of independent play for a 4-year-old child is 10-15 minutes with a single toy or activity, up to one hour for various play activities

when engaged in child-led play with a parent-partner. However, these play durations only occur when the child has their physical, social-emotional, and basic physiological needs of hunger, thirst, and sleep met (Knox, 2008; Rigby & Huggins, 2003; Rigby & Rodger, 2006). In addition to communicating importance by setting aside time for play, Leher (2014) found that the ability to choose their play activities at home predicted adaptive behaviors at school. Temporal barriers include basic needs (hunger, sleep, discomfort) precluding the child's ability to play (Knox, 2008; Rigby & Huggins, 2003; Rigby & Rodger, 2006) and parental resistance to altering routines and schedules (Bundy, 2012; Sanderson & Preedy, 2016; Sterman, 2018).

Table 6

Characteristics, Supports, and Barriers of the Temporal Home Environment

Supports	Barriers	Studies
Routine: Daily and consistent routines		Biermeier, 2015; Kiewra & Veselack, 2016; NAEYC, 2019
Routine: Uninterrupted playtime		Biermeier, 2015; Kiewra & Veselack, 2016; NAEYC, 2019
Routine: Sensory needs are met by incorporating sensory supports into the daily routine		Piller & Pfeiffer, 2016
Routine: Choice in activities		Leher (2014)
	Routine: Parental resistance to altering routines and schedules	Bundy, 2012; Sanderson & Preddy, 2016; Sterman, 2018
	Routine: Basic needs (sleep, food, safety, sensory overload) not considered in routine or schedule	Knox, 2008; Rigby & Huggins, 2003; Rigby & Rodger, 2006

Time: Unstructured playtime		Yogman et al., 2018
Time: Duration of Play for preschool-age children: 10-15 minutes solitary; up to 60 minutes supported		Knox, 2008; Rigby & Huggins, 2003; Rigby & Rodger, 2006
	Time: Parents of children with disabilities report increased difficulty in securing time as a resource.	Law et al., 2013

Parent-Implemented Interventions

Parent-implemented interventions allow parents to effect meaningful change for their child through evidence-based and research-supported practices. Professionals support parents through collaboration, coaching, and training so that parents can translate intervention to meaningful daily practice in the natural home environment and community (Amsbary & AFIRM Team, 2017; Dunst & Trivette, 2009). Parent-implemented interventions are well-documented in the literature as viable practices to improve language, communication, social communication, autism symptoms, behavior, and other developmental skills for young children (Adams & Tapia, 2013; Rust & Thanasiu., 2019; Case-Smith, 2013; Heidlage et al., 2019; Roberts & Kaiser, 2011; Oono et al., 2013; Rush et al., 2011; Webster-Stratton & Reid, 2009). Parents have been able to successfully deliver interventions to their young children with disabilities through playful interactions, but the focus has primarily been on improving the language, communication, and behavioral outcomes, not specifically to improve play skills (Barton, 2013; Fettig & Barton, 2014; Leffel & Suskind, 2013; Rieth et al., 2018; Nevill et al., 2018; Wilkes-Gillan et al., 2014).

Consequently, there is sparse research on parent-implemented play interventions, especially involving preschool-age children in the home environment (see Table 7). The studies that do focus on play interventions implemented by parents tend to focus almost exclusively on fostering pretend social play with other children or use play as the medium to improve language, communication, or behavior (Althoff et al., 2019; Fettig & Barton, 2014). In a 2019 systematic review, Althoff et al. explored the effectiveness of parent-mediated interventions for children with autism spectrum disorder. Among the 13 articles included in their final review assessing the efficacy of parent-mediated interventions on occupational performance, Althoff et al. (2019) found moderate evidence from three randomized controlled trial studies that parent-mediated interventions improved play skills, but results were mixed whether improvements were in functional or symbolic play (Kasari et al., 2010, 2014, 2015). Likewise, Wilkes-Gillian et al. (2014) found the use of parent-implemented interventions to improve the social play skills of young children with autism spectrum disorder promising (Wilkes-Gillan et al., 2014). Subsequently, additional research is needed to understand better the relationship between parent-implemented supports for constructive play and the active engagement of the child in constructive play in the home environment.

Table 7

Parent-Implemented Play Interventions

Author	Research Design	Number, age, and diagnosis of participants	Setting and duration	Target skill	Findings
Kasari et al. (2010)	RTC	N = 38 21-36 months	Home 8 weeks	Joint engagement Joint attention	ANCOVA and regression analysis revealed significantly more joint engagement ($F(3, 34) = 3.21$, $p < 0.05$).

		(average 30.8) Autism		Functional Play Symbolic Play	Functional play acts increased for the treatment group ($F(3,34) = 6.21$, $p < 0.05$); no significant differences were noted in the areas of symbolic play or joint attention.
Kasari et al. (2014)	RCT	N=112 2-5 years Autism	Home 12 weeks	Joint Engagement Initiating Joint Attention Functional Play Symbolic Play	Joint engagement improvement was significant, yielding a moderate treatment effect size (Cohen's $f = 0.21$) Initiating joint attention was significant with an interaction effect over time ($F[1,197] = 3.74$; $p = .05$) No significant differences were noted for functional play. Symbolic play improved significantly, yielding a moderate effect size (Cohen's $f = 0.30$), but this was not maintained at a 3-month follow-up.
Kasari et al. (2015)	RCT	N=86 22-26 months Autism	Clinic Ten weeks (20 sessions)	Play Skills	Joint engagement improvement was significant, yielding a large treatment effect size (Cohen's $f^2 = 0.69$) The treatment group demonstrated significantly greater improvements in functional play diversity and overall play level [0.45, 95% CI (0.06, 0.83), $F(1, 83) = 5/35$, $p = .02$] with a small effect size (Cohen's $f^2 = .06$) No significant differences were noted in symbolic play.
Wilkes-Gillan et	One group	N=5	Home & Clinic	Attention	Social play outcomes improved significantly from

al. (2014)	pretest-posttest	6-11 years ADHD	Seven weeks	Social Play	pretest to 1-month post-test (Z=2.02, p=0.04, d=1.0), with a large effect size of 1.0 Cohen's d as measured by pretest 69.0 (53.1-79.4) to posttest 78.6 (71.5-83.4)

Research Gaps

The literature presented in this chapter supports the profound importance that play and the home environment have on young children's pre-academic and social-emotional school-readiness skills. More specifically, this literature review emphasizes how hands-on constructive play lays the foundation for active engagement, curiosity, and creativity for life-long learning, enjoyment, and leisure. Also detailed are how the physical, social-emotional, and temporal home environment influences the child's emotional readiness to access and participate in play opportunities, especially when the parent prepares the home environment specifically to meet their child's unique cultural and developmental needs.

However, there are several gaps in the literature that this dissertation project addresses. Although it is well-documented that constructive play is foundational for later engineering, math, and creative arts, there is sparse research on constructive play compared to functional and pretend play. There is even less on the relationship of constructive play to active play engagement and emotional readiness skills. This is somewhat surprising since the building and designing aspects of constructive play facilitate creativity and ingenuity that requires emotional regulation to concentrate, explore, experiment, and create. Understanding these connections is significant since the creativity, intrinsic motivation, and self-determination that stems from constructive play in early childhood is foundational for artistic, musical, and leisure endeavors throughout the lifespan (Bowman & Moore, 2006; Drew & Rankin, 2004; Gray, 2017). Another

gap in the literature is parent-implemented environmental interventions to facilitate children's play. While parent-implemented interventions are considered evidence-based (Steinbrenner et al., 2020), much of this research looks at child outcomes in the areas of language, communication, symbolic or outdoor play, but not active engagement in constructive play, nor in the home environment. The focus of this dissertation study is to address the gaps in research and explore the impact of parents supporting their child's participation by increasing supports and reducing barriers in the physical, temporal, and social-emotional home environment to facilitate emotionally regulated active engagement in constructive play.

Chapter III: Methodology

Parental involvement, which is essential of supportive home environments for young children's learning and play, leads to significant child outcomes (Dunst & Trivette, 2009; Rush et al., 2011). It is also known that when children are not emotionally regulated, they are not able to be fully present, creative, or joyful, which limits their active engagement in play (Stress, 2017; Yogman et al., 2018). The purpose of this study is to explore the relationship between parent-implemented changes in the home environment and children's active engagement in creative, constructive play activities. This study attempts to answer the following research question:

> Do parent-implemented environmental support strategies improve the child's active engagement in constructive play in the home?

Pilot Study

Prior to implementation of this research study, I conducted a pilot study to test the feasibility of the instructional materials, intervention procedures, measurement and data collection system, communication modalities, and to affirm the social meaningfulness of the intervention for the parents and children. For the pilot study I trialed the proposed research study materials and processes using two parent-child dyads as participants. A nonconcurrent A-B design was utilized for this pilot study which helped inform the dissertation study utilizing a multiple baseline across-participants design. The pilot study affirmed the social validity of the study and provided efficacy of the parent education materials and process.

Research Design

I chose a single-subject multiple baseline across-participants design to examine the effects of the parent-implemented intervention on their child's active engagement in constructive play. Single-subject research design (SSD) was selected to address the research question of this dissertation study as SSD provides experimental rigor to trial a novel intervention with only a few participants (Horner et al., 2005) and allows for individualization and accommodation necessary for researching in non-clinical naturalistic settings (Kazdin, 2011). This design often functions as a preliminary type of research to establish a base of knowledge about the efficacy of the intervention before trialing with larger groups (Horner et al., 2005; Kazdin, 2011). Given the very limited research on constructive play and, more specifically, on parent-implemented play interventions at home settings, I selected SSD as a robust research design to begin my preliminary research. I used a multiple baseline across-participants design as it is a research design of choice in the social sciences used to evaluate an intervention's effectiveness to improve behavior (Gast & Ledford, 2014; Ledford et al., 2018; Horner et al., 2005; McMillon, 2016). The multiple baseline across-participants design was also selected as it provides ethical considerations participant needs, over the ABAB design, as there is no withdrawal or reversal of the treatment. A major benefit over the simple AB design is that the multiple concurrent baselines of the multiple baseline across-participants design allow for the confirmation of a functional relation between the treatment and the behavioral outcome (Gast & Ledford, 2014).

The quality indicators for single-subject research (Gast & Ledford, 2014; Horner et al., 2005) were adhered to throughout this dissertation study's research design and implementation (see Table 8). When these proposed standards are met, the rigor of the study design is established, and a functional relation between the intervention and the behavioral outcome can be

assessed to determine the effectiveness of the intervention (Ledford et al., 2018; What Works Clearinghouse, Institute of Education Sciences [WWC], 2017). Together the study design and fidelity to the quality indicators helped control for internal validity threats, accounting for extraneous uncontrolled variables such as participant attrition, experimenter effects, participant effects, and history.

Table 8

Quality Indicators for Single-Subject Design Research

Number	Description
1	A detailed description of participants and setting allows for replication.
2	The dependent variable (DV) is operationally defined, measured with quantifiable precision, repeated over time, and measured with interobserver agreement.
3	The independent variable (IV) is operationally defined with replicable precision, controlled by the researcher, and implemented with fidelity.
4	The baseline is operationally defined with replicable precision and provides repeated measures of the dependent variable.
5	Experimental control (internal validity) is provided by three or more demonstrations of experimental effect at three or more different points in time, the design controls for common threats to internal validity, and pattern of results indicates experimental control.
6	External validity is established by the replication of experimental effects across participants (or settings or materials).
7	Social validity is established, showing that the dependent variable is socially valued. The implementation of the independent variable is practical and cost-effective, and social validity is enhanced by implementing the independent variable over time in natural environments, social contexts, and by non-clinical intervention agents.

Note: Adapted from "Applied research in education and behavioral sciences" by D. Gast & J. Ledford (Eds.) 2014, in *Single Case Research Methodology: Applications in Special Education and Behavioral Sciences (2nd ed.).*

The quality indicators for culturally responsive research (CRR), as outlined by Bal and Trainor (2016), enhance the cultural responsivity of research from theory through design, implementation, analysis, and dissemination. Adherence to these culturally responsive quality

indicators is paramount to contextualizing research with historically underrepresented populations and ensures all aspects of the research process yield ecologically valid and sustainable interventions (Bal & Trainor, 2016). The culturally responsive quality indicators emphasized in this dissertation study align well with the quality indicators of single-subject design research. Of specific focus is a thorough description of the participants, discussion of ecological factors that impact data collection, and assurance that the intervention is both meaningful and culturally relevant to the participants. Additionally, practical benefits of this dissertation study will be shared locally to ensure participants' communities directly benefit from this research study.

Setting and Participants

Setting

This study was conducted in an urban mid-size mid-Atlantic city. The setting for data collection during play activities was the indoor home environment of each child and their participating parent.

Participants

Children and parents were recruited from local public and private community-based preschool centers serving low-income and at-risk children. I emailed preschool directors to inform them about the purpose the study and included a recruitment flyer to share with their teachers and prospective parents (see Appendices A and B). Children were recommended for participation based on teacher, director, or parent expressed concerns about the child's emotional regulation, sustained attention, or engagement in play. Recommended children also met the study's inclusion and exclusion criteria and were identified as at risk for disability. Five children were accepted and began the study, but only four completed the baseline data collection phase.

Inclusion and Exclusion Criteria

Inclusion criteria for participating children include the following:

1. Child participants will be 4-years old for the duration of the study.
2. Child participants attend a community-based inclusive preschool (i.e.: Head Start).
3. Teachers and/or parents express concern with the child's emotional regulation, sustained attention, or engagement in play.
4. Child is considered at risk for a developmental delay. Risk categories include one or more of the following:
    a. Suspected or documented disability of developmental delay, autism spectrum disorder, or attention deficit disorder.
    b. A history of economic hardship or insecurity (poverty).
    c. Impacted by today's lifestyle (hurried lifestyle, changes in family structure, overemphasis on enrichment or academic activities, or increased use of electronic screen time.
    d. Have experienced toxic stress (history of trauma, exposure to abuse or violence, caregiver substance abuse, caregiver mental health issues, physical or emotional abuse, or chronic neglect).

Exclusion criteria for child participants include orthopedic impairment that affects the upper extremities, such as cerebral palsy, and children participating in self-contained special education classrooms in public schools.

Parent participants are the custodial guardian with whom the child resides four or more days weekly. Inclusion criteria for parent participants require that the parent resides with the child, speaks English conversationally with the researcher, and participates in this home study.

Exclusion criteria for parent participants include parents who do not speak English and those who do not reside at a permanent residence.

Consent

After reviewing potential participants recommended by the preschool directors, I called parents to confirm their eligibility, review inclusion and exclusion criteria, discuss the purpose and timeline of the study, provide an overview of the parent consent form (see Appendix C), and answer any questions parents may have for the researcher. I then emailed consent forms to five eligible parents who signed electronically using DocuSign.

Family Context and Culture

Every family has a unique culture, background, and motivation for participating in this research study. For this reason, I interviewed parents to explore the cultural values of their family, their child's individual needs and preferences, and what play looks like in their home (see Appendix D). This pre-intervention interview helped me establish a relationship with individual parents, allowed me to better understand the contextual factors for each family, and facilitated an individualized and culturally responsive experience for the parent and their child. My respect for each family's unique culture, through my lens of cultural humility and culturally responsive pedagogy, allowed me to develop mutual trust and a deeper relationship with each family.

Antonio

Antonio[1] is a 4-year-old boy who lives in an apartment with his parents and baby sister. He is considered at risk for developmental delay due to the risk factors of poverty and economic hardship, and a current delay in speech and language. His mother reports he previously received early intervention services, and although she continues to worry and have significant concerns

[1] All names are pseudonyms to protect the confidentiality of the participants

about his play and overall general development, he is no longer eligible for more than speech IEP services at school. He attends an inclusive Head Start preschool close to his home.

Antonio's mother reports he knows his colors, alphabets, enjoys showing books to his baby sister, and enjoys playing with his toy cars, dancing, and playing music on his toy play piano and toy guitar. His mother reports that gospel music and modern dance were a big part of her own play as a child, and she sees Antonio following her love of music. She reports he doesn't have many toys to play with at home but recently her friend gifted him a few puzzles and toys her friend's child has outgrown. Socially he has few opportunities to play with friends at home, and at school his teacher describes him as very friendly but reluctant to play with toys or other children. His mother is concerned about his ability to ask for help and how he is easily frustrated when he makes what he perceives as a mistake, even when he is playing. Antonio's daily routine is as follows: he wakes up 6:30 am, gets dressed, eats breakfast, and prays with his mom before his mother drives him to school. After his mother picks him up from school, they review his day at school then he looks at books, watches TV, dances to music, and plays with his toys while his mother cooks dinner. He typically bathes before eating dinner and is in bed by 7:30pm.

Kiki

Kiki[2] is a 4-year-old girl living in a house with her mother, grandmother, twin brother, and two older brothers close in age, and stays with her father on weekends from Friday to Sunday. She is considered at risk for developmental delay due to the risk factors of poverty and economic hardship, history of trauma in the family, and a suspected diagnosis of autism. Her mother reports that although Kiki received early intervention services to address her general development and her speech, currently she does not receive services even though both her

[2] All names are pseudonyms to protect the confidentiality of the participants

mother and her teacher have concerns with her play, social, and communication skills. Kiki attends an inclusive Head Start preschool close to her home.

Kiki's mother describes her as very particular in that when she learns something, she does her best to do it correctly, and as an observant child who watches people and models off her social surroundings. She reports she enjoys playing with her musical light-up pony toy and that she plays with her baby doll alongside her brothers playing with their stuffed animals. Her mother is concerned, however, that Kiki primarily chooses to play electronic educational games on her tablet or to simply watch others play. This creates mother's concern about her social-emotional skills since Kiki does not typically initiate play, but depends on others to reach out to her, both at home with her brothers and at school with her friends. When reflecting on her own childhood Kiki's mother recalls her own mother was busy working and she was left to play on her own with her siblings. Her mother reports that Kiki and her brothers are very busy with multiple after school activities, which leaves little time during the weekdays for play at home. Kiki's daily routine is as follows: she wakes up, makes her bed, brush teeth, gets dressed. Mom drives her to school at 8:00 am, picks her up at 2:00 pm, mom brings the twins to play at the park or the library for 30 minutes then come home to play on the tablet or with toys for one hour. From 4:00 pm to 7pm Kiki and her siblings have cheerleading, gymnastics, swimming lessons, or church activities. Then they come home for dinner, a movie, and to sleep. Mother reports all of Kiki's siblings are equally busy with after school activities so if she doesn't have an activity herself, she is playing on her tablet while watching her siblings' activity.

Mateo

Mateo[3] is a 4-year-old boy who lives in a suburban neighborhood with his mother and

[3] All names are pseudonyms to protect the confidentiality of the participants

father. His parent both work full time, his mother as a public-school teacher and his father is self-employed. His mother is also a part-time student pursuing a doctoral degree, so there is a caregiver who works in the home to care for Mateo when his parents are working. His grandparents also live nearby and are involved. His home is bilingual English and Spanish. His father recently immigrated and purposefully only speaks Spanish to Mateo while his mother speaks to him in both Spanish and English. Mateo is considered at risk due to a genetic diagnosis of NSUN2 which results in a global developmental delay, ADHD, autism, a severe speech delay, cerebral palsy that affects his trunk and lower extremities. He is non-verbal and communicates using a dedicated augmentative and alternative communication (AAC) device. His mother also reports risk factors to include increased electronic screen time with his tablet, one of his preferred activities.

Mateo attends a private inclusive community preschool with half the class typically developing and the other half more with more significant developmental delays, like Mateo. Mateo receives applied behavior therapy (ABA), speech/language therapy, and occupational therapy consultation at his preschool, to address his developmental disabilities. He is followed by outpatient physical therapy on a consultative basis to address his motor delays due to his cerebral palsy. Mateo's parents and teachers are concerned with his play with toys since he tends play only with a limited variety of preferred toys and play activities (iPad tablet, stuffed animals to carry around, cause-effect toys, toy birthday cake, and in-out container play, and a small battery-operated candle). His parents are also concerned about his play engagement and attention, reporting he struggles to attend for more than one minute to new or non-preferred activities.

Jayce

Jayce[4] is a 4-year-old boy who lives with his mother in public housing. However, due to poor maintenance and unhealthy living conditions of the apartment, Jayce and his mother were temporarily staying with their extended family, a 40-minute drive from his inclusive community Head Start preschool. He is at risk for a developmental delay due to poverty and economic hardship, toxic stress of current living conditions, increased use of electronic screen-time, and a suspected diagnosis of ADHD.

Jayce's mother and teacher are concerned about his play with toys and with other children. Jayce's mother reports that his strength is his ability to play on his own independently. She reports his favorite toys and play activities are playing car crash with his toy cars and trains, playing on his electronic tablet or his mom's cell phone, or watching TV. His mother is concerned about his attentions span as she reports that although he has many available toys, he switches rapidly between activities, does not persist with his play, is quick to stop playing to watch TV, and that when he is with his cousins or family friends, he does not share his toys or plays only briefly with other children. Jayce's mother recalls she has fond memories of playing with barbie dolls, electronic games, and much outdoor play with children in her neighborhood. However, Jayce does not have an opportunity to play outdoors due to their neighborhood's lack of safety and her extremely busy work schedule.

Jayce's daily routine is as follows: Jayce struggles to wake up so his mother wakes him at 6:30 am and helps him get dressed. She then drives 40 minutes to bring him to school at 8:30 am. She drives 40 minutes to pick him up from school at 2:00 pm and another 40-minutes to drive him home. They have 20-30 minutes at home to play before his mother drives him to the babysitter in the late afternoon so she can go to work. She reports that most days Jayce eats

[4] All names are pseudonyms to protect the confidentiality of the participants

dinner with the babysitter and mom picks him up between 9:00 pm and 11:00 pm to return home. She struggles to find quality time to spend with her son, and time for him to play at home since he lives with his father on the weekends.

Materials

Materials for baseline play sessions were chosen by the parent and child. Play materials introduced during parent instruction of the intervention included toys, household objects, familial or cultural items, arts and craft materials, sensory mediums, or items from nature (see Appendix E). I brought novel construction play materials to each child to ensure families had access to materials, choices, and novel items to offer their child. These provided play materials were identical for each participant and included small domino-size colorful wooden blocks, multi-colored craft popsicle sticks, and homemade playdough. These materials supplemented the toys and play materials already in the child's home. Additional materials provided by the researcher include the use of an Apple iPad (5th generation) for videorecording, a digital copy of the intervention PowerPoint slides, and access to VCU's secure google drive to upload recordings and google forms for parents to report their fidelity of treatment implementation.

Measures and Data Collection

Dependent Variable

The primary dependent variable (DV) in this study is operationally defined as the child's active engagement in constructive play in the home environment, modified from the definition developed by DiCarlo et al. (2016). For purposes of this study, constructive play is defined as any hands-on activity with more than two toys, materials, or items from the household or from nature that the child combines to create, build, or construct (Drew et al., 2008; Harel & Papert, 1991; Smilansky, 1968). This definition of constructive play aligns with the general description

of play as a pleasurable and enjoyable interaction with toys, objects, or other people that is intrinsically motivated and does not serve to meet a basic need or achieve an externally defined goal (Huizinga, 1939; Piaget, 1945/1962). It also aligns with play as creative, meaningful, joyful, and engaging for the child, as evidenced by emotionally regulated active engagement. Active engagement in play requires the child's affective involvement and interest so that play is joyful (Godin, Freeman, & Rigby, 2017).

In this study, active engagement in constructive play is evidenced by two types of observable behaviors. First is the demonstration of interest in constructive play noted by the child's hands-on engagement with play materials to build, construct, or combine to create structures or designs. Alternatively, this behavior of interest in constructive play can be demonstrated socially by the child showing, telling, or asking the parent about their construction. The second behavior indicates that the child is in an emotionally regulated state, optimal for exploration, creativity, and engagement. For this study, expressions of pleasure, happiness, or playfulness is demonstrated by the child smiling or laughing. Positive emotional affect can also be demonstrated by the lack of emotional dysregulation such as lack of crying, fussing, yelling, or the expression of negative words such as "I hate this," or "I don't want to" (see Table 9).

Table 9

Active Engagement in Play

Interest is Demonstrated Through	Examples of Active Engagement in Constructive Play	Non-examples of Active Constructive Play Engagement
Interaction with play materials	Child builds, combines, or uses materials to create	Child does not touch play materials
	Child engages visually with the construction materials	Child does not look at play materials

Social communication	Child shows parent their play materials, structure, or design by pointing, gesturing, or bringing parent over to share their creation Child tells parent about their creation using words (i.e., "Look at this"), expressive sounds (i.e., "Hmmm!"), or facial expressions (i.e., smiles directly at parent as a communication intent). Child asks parent questions about their creation	Child does not interact with parent Child does not respond to parent's social gestures, statements, or questions Child does not ask questions
Expression of emotion	Child smiles, hums, or laughs while playing	Child cries, fusses, or scowls to self Child expresses negative words aloud to self (i.e., "No", "I hate this", or I don't want to")

The dependent variable was measured using partial interval recording every 20 seconds over a 5-minute period to document evidence of the child's engagement in constructive play. A score of 1 point was awarded when the child demonstrated an observable hands-on interaction with play materials or social sharing of the play materials or process with their parent, along with the demonstration of being emotionally regulated (see Appendix F). Measurement of the dependent variable was documented and a total score per play session was calculated and graphed. This score was determined reliable by calculating interobserver agreement (IOA) between the researcher and researcher assistant observing video-recorded play sessions during baseline, intervention, and maintenance phases.

Independent Variable

The independent variable (IV) in this study is operationally defined as the parent-implemented physical, temporal, and social-emotional supports and reduction of barriers the parent puts into practice at home to facilitate engaged constructive play for their child. I met with

each parent virtually for 60-minutes to teach the definition of play, benefits of constructive play, how to implement the intervention, provide visual examples, help parents set personal goals, and facilitate self-reflection about their child's current play and their current environmental supports.

Procedures

This study occurred over a period of approximately four months, twice as long as originally planned due to parents' limited availability and outside events (see Chapter V for details). I kept a detailed checklist and notes to document the integrity of the study protocol implementation, my consistency between participants, and to ensure each step was completed as planned. Before beginning, I secured approval from the Virginia Commonwealth University (VCU) Institutional Review Board (IRB) to ensure that the rights of all participating parents and children were sustained throughout the study. Please see Appendix M for the intervention protocol and Appendix O for details of the study's implementation timeline for replication.

Baseline Phase

The baseline phase, also known as the comparison condition, is a critical component of multiple baseline design research and is operationally defined so it can be easily replicated in future studies. The use of three or more baselines provides more substantial internal validity, signals when to introduce the intervention, and clarifies the effect of the intervention. In this study there were four participants in concurrent baseline conditions.

The baseline phase for all four participants began the same day, as it was essential that baseline data were collected concurrently to strengthen the experimental control of the study's design (Ledford et al., 2018). I instructed parents in the video recording protocol (see Appendix F) and asked parents to record their child's play in their home saying, "Please video-record your child playing for 10 minutes, as they typically play." No other guidance was provided as I was

interested in recording the child's play without a prompt to the parent to alter the home's physical, temporal, or social-emotional environment. I used a researcher-created data collection sheet (see Appendix G) to document the child's active engagement in constructive play activities, completing the form when viewing the recorded play session then graphing the scores.

Parent Instruction and Transition to Intervention Phase

The transition between baseline and intervention condition occurred spontaneously and sequentially across participants as they submitted baseline data that was stable and trending in a zero-celerating or decelerating direction. The order of participants moving from baseline to intervention phase was Antonio, Kiki, Mateo, then Jayce, based on the order they submitted baseline recordings and met criteria to move to the intervention phase. Following the multiple baseline design principles, readiness of the next participant to move into the intervention phase depended on the stability of the first three data points of the intervention phase of the prior participant (Gast & Ledford, 2014).

When criteria to transition out of baseline was fulfilled, I met with each parent virtually over zoom for a 30-minute parent interview and a 60-minute scripted PowerPoint presentation to teach parents about how to provide the intervention in their home for their child. To teach parents to facilitate constructive play I presented photos of play materials, shared photos of children engaging in building and designing, described the benefits of play, and discussed strategies to provide supports and reduce barriers in the home's physical, temporal, and social-emotional environment (see Appendices H and I).

A portion of this parent instruction included opportunities for parents to set personal goals for themselves related to strategies I taught to promote changes in their home temporal, physical, and social-emotional environment. Coaching, modeling, and opportunities for role-

playing, self-reflection, and performance feedback were provided to the parent during this instructional session, a follow-up 30-minute coaching session, and follow-up text conversations. During the active discussion sections of the presentation parents prioritized goals for themselves in each area. I reviewed these goals with parents in their follow-up coaching and text conversations, provided parents a copy of their goals for reference and reflection, and a copy of the PowerPoint slides. Once parents were instructed on the intervention protocol, and I confirmed their understanding and mastery of the content using a researcher-created quiz (see Appendix J) and they were instructed to begin intervention phase. This process of parent instruction was repeated consecutively with the remaining parents.

Intervention Phase

In the intervention phase of the study parents implemented the intervention, making changes in their home's physical, temporal, and social-emotional environment to facilitate their child's engagement in constructive play. They were instructed to record 10-minute play sessions three or more times weekly. I also asked parents to complete a parent self-assessment fidelity checklist after each recorded play session (see Appendix K), which functioned as a reminder checklist and a self-rating on their fidelity of implementation. During the intervention condition I texted parents photo examples of constructive play from the PowerPoint slides as well as these self-reflection questions:

Parent self-reflection questions to encourage & facilitate PLAY for your child:

1. Did I set aside time today for play?
2. Was the play space safe & inviting for my child?
3. Did I offer choices in play materials?
4. Was I emotionally available to my child?

5. Did I ask open-ended questions and offer encouragement?

Maintenance Phase

Maintenance data were solicited 3 weeks after the last intervention score was recorded, with parents taking a break in communication and participation for up to 10 weeks. During this time, parents were encouraged to continue promoting play at home for their child but did not complete daily play fidelity checklists as they did during the intervention phase. Like the baseline period, parents were prompted to record their child playing for 10 minutes as they typically play and to capture three or more recordings. No text reminders about constructive play were provided during this final maintenance phase.

Threats to Reliability

Interobserver agreement

The threat to the reliability of the collected data on the intervention outcome, the DV, is minimized through the practice of establishing interobserver agreement (IOA) between two observers collecting data simultaneously (Kazdin, 2011; WWC, 2016). In doing so, IOA ensures that the variations and inconsistencies in observation are minimized, individual observer biases are limited, and that the targeted behavioral outcome is well-defined (Kazdin, 2011). Best practice suggests that IOA be collected over all phases of the study, including baseline, treatment, and maintenance (Kazdin, 2011). Interobserver agreement of more than 80% assures the data collected is reliable, and thus the impact of the intervention is more believable (Ayers & Ledford, 2014; Ledford et al., 2018). Interobserver agreement collected in at least 20% of all sessions across all conditions further reinforces the reliability and is a requirement to meet the standard set by What Works Clearinghouse, Institute of Education Sciences for SSD (WWC, 2016).

For this study, a recent doctoral graduate in special education and experienced working in early childhood special education served as my research assistant to review and score play recordings using a researcher-created data collection tool (see Appendix G). As recommended by Ayers and Ledford (2014), IOA was assessed for at least 33% of sessions in each phase, and at least an 80% agreement level was achieved between the researcher and the graduate research assistant across all conditions. This IOA process continued throughout the study for all participants. The point-by-point method, recommended by Gast and Ledford (2014) and Kazdin (2011) was used to calculate the mean IOA percentage by dividing agreements by the sum of agreements plus disagreements, then multiplying by 100:

$$\frac{agreement}{agreement + disagreement} \times 100 = \%\, agreement$$

Treatment Fidelity

To ensure fidelity of implementation of the parent-implemented intervention in the home environment, I documented observed practices of the intervention protocol for each submitted play recording and coded these observations using a researcher-created fidelity of intervention sheet (see Appendix L). Parents were also asked to complete a survey after each recorded play session to guide their self-reflection and to document their fidelity of implementing the intervention (see Appendix K). Surveys were provided electronically using a Google Forms survey through a secure university server.

Threats to Validity

Internal Validity

Internal validity, also known as experimental control, ensures the intervention itself is responsible for changes in the dependent variable (Kazdin, 2014). In this study, the independent variable is the parent-implemented environmental support, and the dependent variable is the

behavioral change in the child's active engagement during constructive play. This study is designed to control common threats to internal validity by limiting extraneous variables such as history and maturation that could impact the dependent variable. This is achieved by providing a well-documented intervention protocol (see Appendix M), beginning the baseline phase simultaneously but staggering the introduction of the independent variable across time between multiple participants, and documenting stability in level and trend direction between phases. The design of multiple baseline across-participants studies helps to ensure experimental control to discern a functional relationship between the intervention and the behavioral change (Gast et al., 2014; Horner, 2005). Additional threats to experimental control that threaten interval validity in this study are the influence on children and parents knowing they were recorded, repeated exposure to the test conditions, potential withdrawal of participants from the study, and variability in their performance (Gast et al., 2014).

External Validity

In general, external validity looks at the applicability of the results outside of the context of the study. It addresses the question of whether the intervention, treatment conditions, and results can be replicated. Threats limiting the generalizability of results include generality across subjects; generality across responses, settings, and time; the generality of the behavior-change agent; reactivity of the experimental arrangement; reactivity of assessment; and multiple-treatment interference (Gast & Ledford, 2014; Kazdin, 2011). In this dissertation study, the multiple baseline design strengthens external validity through replication across four participants (Gast & Ledford, 2014; Horner et al., 2005; Kazdin, 2011). Threats to external validity were also limited by operationally defining characteristics of the participants, describing contextual factors, collecting baseline measurements of the dependent variable, and the collection of maintenance

data (Barlow, Nock, & Hersen, 2009; Horner et al., 2005). Threats specific to this study are examined and discussed in the results section (Chapter V).

Social Validity

Social validity looks at the meaningfulness and social impact of the intervention on the lives of those impacted (Horner et al., 2005). To ensure that the intended outcome and the intervention process were relevant to their family, I met with each parent prior to the intervention phase to discuss the family's unique culture, needs, and concerns. This preliminary interview allowed me to provide a more individualized and meaningful intervention experience that was mindful of each family's unique culture as well as their child's developmental needs and preferences. The social validity of the study was then assessed using a survey completed by the parent with limited input from the child (see Appendix N).

Data Collection and Visual Analysis

Data were collected using partial interval recording which is considered a preferred method of measuring the occurrence of a behavior (Ayers & Ledford, 2014; Cook & Snyder, 2020). Every 20 seconds over a 5-minute period of each play recording I looked for evidence indicating active engagement in constructive play. I granted one point if I observed evidence of behaviors indicating active engagement: positive emotional regulation and physical or social interest. There was a possible score of 15 total points which were then graphed.

For purposes of this study, the operational definition of active engagement in constructive play has been modified from the definition by DiCarlo et al. (2016) who defined active play engagement as the use of play materials in an intended manner, looking at, talking about, or interacting with the toy, and they also measured toy engagement using time duration. This dissertation study expands on DiCarlo et al.'s definition to include the definition of play as being

pleasurable (Huizinga, 1939; Piaget, 1945/1962). Active engagement in constructive play, for this study, is operationally defined as (1) hands-on building or designing with two or more play materials, or (2) socially sharing their construction process or creation, plus (3) positive emotional affect (see Appendix G).

The data were then transcribed onto a visual line graph with the dependent variable represented on the y-axis and time represented on the x-axis. Visual analysis of this graphing allowed me to assess the level, trend, and variability of the dependent variable within and between baseline, intervention, and maintenance conditions to discern a functional relation between the independent and dependent variables and to assess experimental control (Gast & Ledford, 2014; Horner et al., 2005; Kazdin, 2011).

Chapter IV: Results

The purpose of this dissertation research was to improve the active engagement in constructive play for preschool-aged children at-risk for developmental delays. The single-subject multiple baseline across-participants research design allowed me to closely examine the effects of an ecologically oriented parent-implemented intervention on child engagement and its social meaningfulness. Constructive play in this study was defined as an active, hands-on type of play where children build and combine objects to experiment and enjoy the creative process of construction (Drew et al., 2008; Harel & Papert, 1991). Parent-implemented intervention includes physical, temporal, and social-emotional supports for their children, and to minimize barriers. This intervention empowered parents to facilitate their child's active engagement in constructive play in their homes. The unique needs and cultural preferences of each family were considered as contextual factors. The following results address the research question guiding this study and assess the functional relation between the parent-implemented intervention and the change in children's engagement in constructive play activities.

Effects of Intervention

Visual Analysis

In accordance with the quality indicators of single subject design research, outcome data were measured systematically and presented for visual analysis to determine the effectiveness of the intervention (Gast & Ledford, 2014; Horner et al., 2005; Ledford et al., 2018). Through visual analysis, the level, trend, and stability of the data were assessed to discern the functional

relation between the intervention provided by the parents and the change in their child's play engagement.

Visual Analysis of Graphic Data

When assessing the changes in level between phases, there was a visible positive change in level between the baseline (condition 1) and the intervention (condition 2) for all four participants, and this change was visibly maintained after the intervention phase concluded (condition 3). When visually assessing for trend and stability, Mateo demonstrated accelerating and stable trendlines in the intervention phase while both Mateo and Antonio demonstrated accelerating and stable trendlines in the maintenance phase, further supporting the functional relation between the parent-implemented intervention and the child's engagement in constructive play (see Figure 2).

Variables Within and Between Conditions

Analysis of variables within and between the three conditions was utilized to augment line-graphed visual data (see Tables 10 and 11). Within condition calculations include the level length, range, mean, median, level absolute change, level relative change, trend strength and direction, and level and trend stability (see Table 10). R-squared (r^2 = 0.00 to 1.00) explains the strength of the relationship between the IV and the DV and was calculated to augment the visual analysis of the changes in strength and directionality of the trendlines in each condition. Of note, all four participants submitted at least one follow up maintenance phase recording 3 to 10 weeks after their final intervention phase submission, providing a true break in conditions between the intervention and maintenance phases.

Figure 2

Child Engagement in Constructive Play

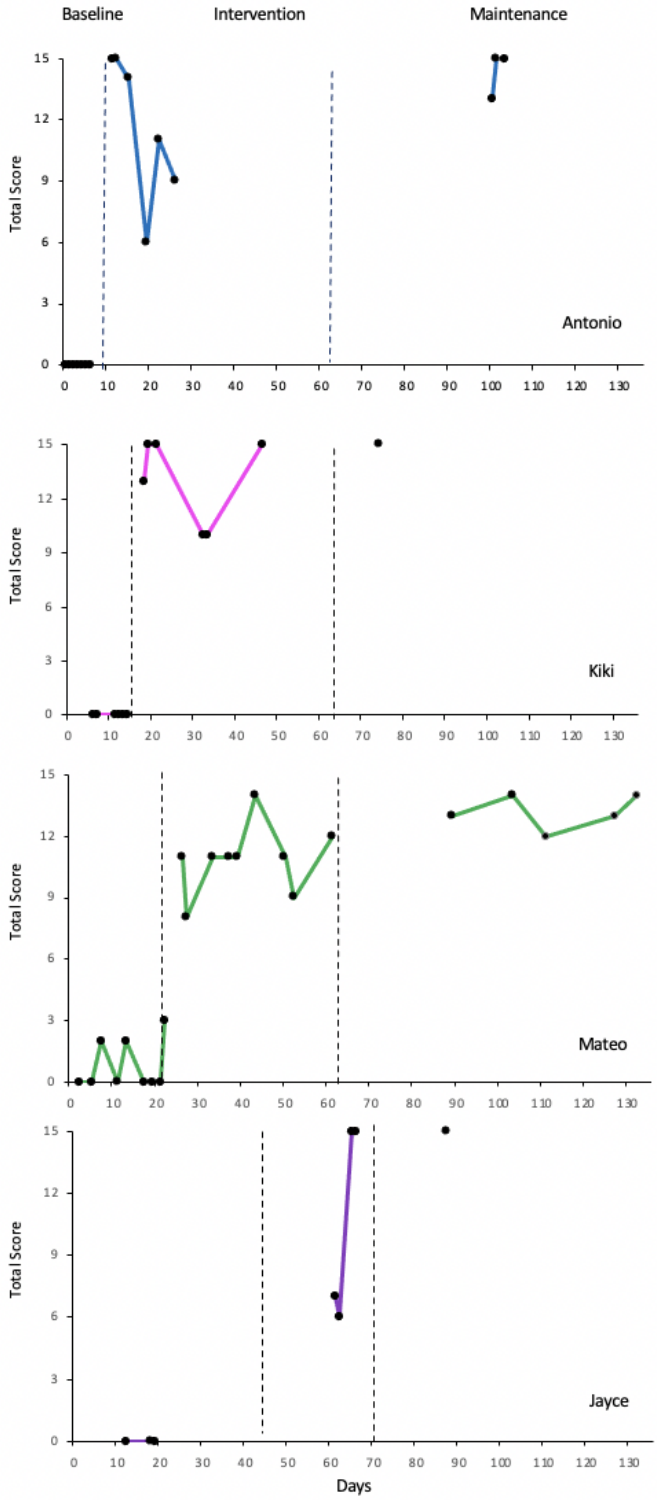


Table 10

Within Condition Analysis

Within Condition Measure	Antonio[a]	Kiki	Mateo	Jayce
Condition Length				
Baseline phase	7	6	9	3
Intervention phase	6	6	9	4
Maintenance phase	3	1	5	1
Level Mean				
Baseline phase	0	0	0.89	0
Intervention phase	11.33	13	10.89	10.75
Maintenance phase	14.33	15	13.2	15
Level Median:				
Baseline phase	0	0	0	0
Intervention phase	12.5	14	11	11
Maintenance phase	15	15	13	15
Level Absolute Change				
Baseline phase	0-0 =0 stable	0-0 =0 stable	3-0 = 3 improving	0-0 =0 stable
Intervention phase	15-9 = 6 deteriorating	15-13 = 2 improving	12-11 = 1 improving	15-7 = 8 improving
Maintenance phase	15-13 = 2 improving	n/a	14-13 = 1 improving	n/a
Level Relative Change				
Baseline phase	0-0 =0 stable	0-0 = 0 stable	0-0 = 0 stable	0-0 = 0 stable
Intervention phase	15-9 = 6	15-10 = 5	11.5-11= 0.5	15-6.5 = 9.1
Maintenance phase	15-13 = 2 improving	n/a	13.5-13.5= 0 stable	n/a

Level Range				
Baseline phase		0-0	0-3	0-0
Intervention phase	9-15	10-15	8-14	6-15
Maintenance phase	13-25	15	12-14	15
Level Stability				
Baseline phase	100% stable	100% stable	100% stable	100% stable
Intervention phase	66% variable	66% variable	89% stable	0% variable
Maintenance phase	100% stable	n/a	100% stable	n/a
Trend Strength and Direction				
Baseline phase r^2 = (0.00 – 1.00)	0.0 zero-celerating	0.0 zero-celerating	0.0461 accelerating	0.0 zero-celerating
Intervention phase r^2 = (0.00 – 1.00)	0.5478 decelerating	0.0296 decelerating	0.0828 accelerating	0.9074 accelerating
Maintenance phase r^2 = (0.00 – 1.00)	0.75 accelerating	n/a	0.0389 accelerating	n/a
Trend Stability				
Intervention phase stability envelope	10-15	11.2-16.8	8.8-13.2	8.8-13.2
Intervention Phase Percent data points within stability envelope (20% above and below median)	4/6 = 66% unstable	4/6 = 66% unstable	8/9 = 89% stable	0/4= 0% unstable
Maintenance phase range	6.5-15	15	12-14	15
Maintenance Phase Percent data points within stability envelope (20% above and below median)	3/3= 100% stable	n/a[b]	5/5 = 100% stable	n/a[b]
Direction of the first 3 data points of the intervention phase used to determine readiness for the next	0.058 accelerating	0.571 accelerating	0.563 accelerating	0.886 accelerating

participant to move from baseline to intervention phase

Note. [a] All names are pseudonyms to protect the confidentiality of the participants
Note. [b] Only one data point so unable to calculate a trend

Between condition calculations include comparisons between phases in level mean change, level median change, level absolute change, and level relative change. Additionally, the level stability, trend direction and effect, and percent of overlapping (POD) and nonoverlapping (PND) data between all phases was assessed to determine the magnitude of the effect and the impact of the intervention (see Table 11). When assessing level changes between phases, all four participants demonstrated an immediacy of effect when calculating at the absolute change between the last data point of the baseline phase and the first data point of the intervention phase. The median difference, mean difference, and relative level change between the baseline and intervention phases also support what we see through visual analysis of the graphic data, and suggests a functional relation between the intervention and the observed outcome for all participants. The relatively small change in median, mean, absolute, and relative levels between the intervention and the maintenance conditions further supports the effectiveness of the intervention. The PND for all participants is 100%, demonstrating no overlapping data points between the baseline and the intervention conditions, and a PND of 0%, illustrating full overlap of data scores between the intervention and maintenance phases, supporting the strong magnitude of the effect of the intervention.

Table 11

Between Condition Analysis

Between Condition Measure	Antonio[a]	Kiki	Mateo	Jayce
Number of variables changed	1: Parent education	1: Parent education	1: Parent education	1: Parent education

Range of baseline phase data points	0	0	0 to 3	0
Range of intervention phase data points	6 to 15	10 to 15	8 to 14	6 to 15
Range of maintenance phase data points	13 to 15	15	12 to 14	15
Percentage of Non-overlapping Data (PND) between baseline and intervention phases	100%	100%	100%	100%
Percentage of Non-overlapping Data (PND) between intervention and maintenance phases	0%	0%	0%	0%
Percentage of Overlapping Data (POD) between baseline and intervention phases	0%	0%	0%	0%
Percentage of Overlapping Data (POD) between intervention and maintenance phases	100%	100%	100%	100%
Mean Level Change between baseline and intervention phases	11.66 Improving	13 Improving	10.013 Improving	10.75 Improving
Mean Level Change between intervention and maintenance phases	2.67 Improving	2 Improving	2.31 Improving	4.25 Improving
Median Level Change between baseline and intervention phases	12.5 Improving	14 Improving	11 Improving	11 Improving
Median Level Change between intervention and maintenance phases	2.5 Improving	1 Improving	2 Improving	4 Improving

Absolute Level Change between baseline and intervention	15 Improving	13 Improving	8 Improving	7 Improving
Absolute Level Change between intervention and maintenance phases	4 Improving	0 Stable	1 Improving	0 Stable
Relative Level Change between the median of the 2nd half of the baseline and the median of the 1st half of intervention phases	14 Improving	15 Improving	10 Improving	6.5 Improving
Relative Level Change between the median of 2nd half of the intervention and median of the first half of maintenance phases	5 Improving	1 Improving	2 Improving	4 Improving
Trend Direction Change (Intervention/Baseline)	Decelerating/ Zerocelerating	Decelerating/ Zerocelerating	Accelerating/ Accelerating	Accelerating/ Zerocelerating
Trend Direction Change (Maintenance/Intervention)	Accelerating/ Decelerating	n/a[b] Decelerating	Accelerating/ Accelerating	n/a[b] Accelerating
Trend Effect on Dependent Variable	Improving	Improving	Improving	Improving

Note. [a] All names are pseudonyms to protect the confidentiality of the participants
Note. [b] Only one data point so unable to calculate a trend

Participant Performance

This study included four parent/child dyads: Antonio, Kiki, Mateo, and Jayce (all names are pseudonyms to protect the confidentiality of the participants). The baseline phase began simultaneously for all four participants with instructions to provide three 10-minute play recordings of "your child playing as usual in your home with their toys or whatever they usually play with". No additional guidance was provided to the parents during baseline other than to text reminders to upload the video recordings to the provided secure VCU google drive and to continue 3 baseline recordings weekly.

Antonio

Antonio's mother proceeded to record and upload 7 videos daily for the first week. The child's baseline trend and level were stable at $r^2 = 0$, so Antonio's mother was instructed in the intervention and began the intervention phase of data collection on day 12. Antonio demonstrated an immediacy of effect when looking at the absolute level change between the last data point of 0 in the baseline phase to the first data point of 13 in the intervention phase. This agrees with our finding using visual analysis of the graphic data that the change in level for Antonio between baseline and intervention conditions indicates a functional relation between the parent-implemented intervention and the change in the child's engagement in constructive play in the home environment.

Antonio's engagement in constructive play scores sharply decreased after the first three intervention recordings, but this was primarily due to the parent encouraging and leading her child in dress-up and imaginary play, not constructive play. This parent abruptly stopped submitting recordings and ceased all contact with me (text, email, phone) a little over two weeks into their intervention phase. It is unclear but this family may have been in crisis as Antonio returned ten weeks (74 days) later to participate in maintenance data collection and to complete the post study parent survey. After this ten-week pause Antonio submitted three play recordings that demonstrate the fidelity of the parent intervention, and the subsequent child outcome was maintained. The effect and generalization of the independent variable, the parent-initiated play intervention, was supported by calculations of the improved level mean, median, absolute, and relative changes. Additionally, 0% percent non-overlapping data (PND) and 100% percent overlapping data (POD) between the intervention and the maintenance conditions reveals support that comparison of condition levels indicates the intervention as the root cause of the change in

child play engagement. Analysis of trendline direction and stability, however, does not support this finding (see Tables 10 and 11).

Kiki

Kiki's mother submitted 6 baseline recordings with a baseline trend and level stable at r = 0. The first three data points of Antonio's intervention phase demonstrated an upward trend of r^2 = +0.571, so Kiki's mother was instructed in the intervention and began the intervention phase of her data collection on day 19. There was an immediacy of effect when looking at the absolute change between the last data point of 0 in the baseline phase to the first data point of 13 in the intervention phase. Kiki's engagement in constructive play scores were high for the first three intervention recordings but then drop, possibly impacted by the environmental stressors of a sick family member and the need to relocate their residence.

There was a consecutive four week (28 day) pause between Kiki's intervention phase and the collection of follow up maintenance data. A single play recording was submitted by this participant for the maintenance phase, so trend in the maintenance condition could not be calculated. The single score of 15/15 suggests generalization of the intervention carried forward as evidenced by the improved level mean, level median, and relative change in levels, a stable absolute level change, 0% PND, and 100% POD between the intervention and follow up conditions. Like Antonio, Kiki's visual and statistical analysis of the level changes suggests a functional relation between the intervention and the outcome, while analysis of trend and stability suggest otherwise (see Tables 10 and 11).

Mateo

Mateo's mother submitted 9 baseline recordings with low variability scores ranging between 0 to 3 with the baseline trend at r^2 =0.01. It should be noted that originally this last data score of 3

was coded as a 2 but recoded as a 3 upon review. The minimally variable nature of this baseline trendline allowed the researcher to determine the readiness of this participant to move into the intervention phase. To further assess readiness to transition Mateo to the intervention phase, the first 3 data points of the previous participant, Kiki, were calculated at +0.571, indicating a strong upward trendline. Mateo's parent was instructed in the intervention and began the intervention phase of data collection on day 27. Mateo demonstrated an immediacy of effect when looking at the absolute change between the last data point of 3 in the baseline phase to the first data point of 11 in the intervention phase.

After a four week (29 day) pause, Mateo submitted five play recordings over at 5-week span for the maintenance condition. The effect and generalization of the independent variable, the parent-initiated play intervention, was supported by improved level mean change, level median change, absolute level change, relative level change, 0% PND, and 100% POD between the intervention and the maintenance conditions (see Tables 10 and 11).

Jayce

Although instructed to record her child's play along with the other participants, Jayce collected only 3 baseline data points. This was due to a crisis with her housing and her need to relocate with her child to stay with family, leaving minimal time and privacy for her child to play and for her to record. These 3 baseline recordings demonstrated a baseline trend and level that were stable at 0. After requesting but not receiving additional baseline recordings and confirming the stability of the first 3 data points in intervention at 0.563, by the previous participant, Mateo, I elected to move Jayce into the intervention phase. Jayce demonstrated an immediacy of effect in his engagement in constructive play when looking at the absolute change between the last data point of 0 in the baseline phase to the first data point of 7 in the intervention phase. This

immediacy of effect may have been lessened by the parent waiting 23 days between parent training and when intervention phase play recordings were produced. Additionally, this parent reported that her child was struggling to transition back to her home from weekend visitation with his father when the first two intervention phase recordings were produced, possibly contributing to these initial lower intervention phase data points.

After a three week (20 day) pause in communication with me, Jayce submitted one play recording that I coded at 15/15, suggesting that the effects of the intervention continued. Although the trend in the maintenance condition could not be calculated using a single data point, the generalization of the intervention is supported by the improved level mean, level median, and relative change in levels, a stable absolute level change, PND, and POD between the intervention and the maintenance conditions (see Tables 10 and 11).

Inter-observer Agreement Results

Inter-observer agreement (IOA) increases the reliability of the measured outcome (Kazdin, 2011; WWC, 2016) and was documented on at least 33% of video recordings for each participant during baseline, intervention, and maintenance phases (see Table 12). Recordings were randomly selected across participants and phases for the research assistant to observe and code. The research assistant utilized to establish IOA for this study has over 25 years' experience working with young children with developmental disabilities and recently graduated with a Ph.D. in special education. Prior to collecting IOA she was trained to observe and discern constructive play and instructed to code using the data collection sheet with specific behaviors operationally defined (see Appendix G). Interobserver agreement was established across 15 time slots for three 5-minute recordings at 100% before coding additional recordings independently. IOA was determined to be acceptable, above 80% per Horner and colleagues (2005), with 87%-100% IOA

in the baseline phase, 87%-100% IOA in the intervention phase, and 100% IOA in the maintenance phase across all participants (see Table 12).

Table 12

Interobserver Agreement

	Number of baseline phase videos reviewed	IOA	Number of intervention phase videos reviewed	IOA	Number of maintenance phase videos reviewed	IOA
Antonio[a]	3/7 = 43%	100%	2/6 = 33%	87-100%	1/3 = 33%	100%
Kiki	2/6 = 33%	100%	2/6 = 33%	100%	1/1 = 100%	100%
Mateo	3/9 = 33%	87-100%	4/9 = 44%	93-100%	1/3 = 33%	100%
Jayce	1/3 = 33%	100%	3/5 = 60%	87-100%	1/1 = 100%	100%

Note. [a] All names are pseudonyms to protect the confidentiality of the participants

Fidelity of Intervention

If the intervention is to be effective, it needs to be implemented as recommended with fidelity. Treatment fidelity is one of the quality indicators of single-subject design research (Gast & Ledford, 2014; Horner et al., 2005). In this study the intervention is the strategies the parent implement to provide supports and reduce barriers in the home's temporal, physical, and social-emotional environment.

Parents were instructed in the purpose and strategies of this ecological intervention through dialogue with the researcher and presentation of PowerPoint slides. After initial instruction parents' knowledge was assessed using an online quiz and with follow up discussion with this researcher. All parent participants were able to demonstrate an 88% pass rate on their own, with errors then discussed and retaught by the researcher to achieve an overall 100% understanding of the intervention content (see Table 13).

Table 13

Fidelity of Intervention

	Antonio	Kiki	Mateo	Jayce
Learning Checkpoint pass rate	88%	100%	100%	100%
Number of intervention sessions	6	6	9	4
Range of Scores	27-30/30	23-30/30	27-30/30	17-23/30*
Average Percentage	93%	87%	96%	67%*

Note. [a] Parent off camera so no credit given for fidelity of observed social-emotional supports.

During the intervention phase, parents were asked to provide self-assessment of how they implemented each component of the intervention. This parent self-assessment (see Appendix K) was presented in the form of a checklist on a secure VCU Google Forms platform that they could access using the provided iPad, their cell phone, or their home computer. Parents were also provided the opportunity to provide a description of how successful they felt in supporting their child's constructive play each session, either by providing a narrative within the google form checklist or by texting their feedback. Antonio's mother completed 6/6, Kiki' mother completed 1/6, Mateo's mother completed 9/9, and Jayce' mother completed 0/4 of the requested online self-assessment checklists. Additionally, all parents shared some form of self-assessment as they all independently elected to text the researcher after each play session to express their observations about their implementation process, to share changes in their child's play, and to confirm they had uploaded a new play video.

I viewed and coded each video for fidelity of intervention implementation by the parents using the Fidelity of Intervention coding sheet (see Appendix L). Antonio, Kiki, and Mateo's parents demonstrated high fidelity of implementing the temporal, physical environment, and social-emotional supports of the intervention, including asking open-ended questions, making

open-ended comments, being emotionally available to their children, prioritizing play and creating time for play in their daily schedules, and creating a child-friendly non-distracting play area with choices of play materials. It should be noted that many of the recordings that received lower scores in intervention phase had good fidelity of implementations, but scores were reduced when the play pivoted from constructive play to imaginary social play between child and parent.

Jayce's parent did not complete an online fidelity of intervention self-assessment and was not seen on camera for me to assess her fidelity of temporal and social-emotional supports. She did, however, text to report that the intervention was working, how difficult it was to get young children to "play with toys", and that she was still struggling to find time in their daily schedule to set aside for play since she works evenings opposite when her son is in school, and her son spends weekends at his dad's house. These texts demonstrate her intent to establish a regular time for play (temporal environment).

Antonio

Antonio's mother was observed in all 7 intervention videos to provide 93% fidelity of intervention across 30 items assessing the temporal, physical, and social-emotional supports in the intervention procedure. She provided temporal supports by letting her son know he had time set aside to play each day and could choose his play materials. She altered her home's physical environment to create a less distracting more child centered play area in the living room, turning off the TV and playing child-friendly music instead. She enriched social-emotional supports by asking her son open-ended questions such as "What are you going to make today?' and "I like you robot, what is his special power?", and making emotionally-supportive comments such as "It's ok, sometimes your mistakes can bring out the best in your creativity". These changes in the home environment aligned well with the assigned intervention protocol and significantly altered

how her child played, scaffolding him from playing functionally with toys while watching TV (spinning wheels on truck, waving a ribbon, moving beads on bead-maze toy) to hands-on creative constructive play (making ice cream cones from playdough and popsicle stick, building robots from soft building blocks, designing "rainbow" roads for the animals to walk across). A primary change in this mother's behavior between the baseline and the intervention phase was in how she modified the home environment to turn off the TV and visually distracting TV screen and replace it with background music appealing to her child. The other very meaningful change was the change in her social-emotional availability to her son, and how she learned to foster his creativity by asking him open-ended question to help her son scaffold his design to the next level.

Kiki

Kiki's mother was observed in all 7 intervention videos to provide 92% fidelity of intervention across the 30 items assessing the temporal, physical, and social-emotional supports in the intervention procedure. She provided temporal support by setting aside clear time for play. The environment was child-friendly and distraction-free to meet her daughter's sensory needs. This mother learned to join in to play with her child, following her daughter's lead, asking her open-ended questions to promote deeper discussion, and learned to provide open-ended encouragement. The primary change for this mother between baseline and intervention phases was her social-emotional availability, her sharing in the play activity with her daughter, and her emotional availability to meet her daughter's needs.

Mateo

Mateo's mother was observed in all 7 intervention videos to provide a 96% fidelity of intervention across the 30 items assessing the temporal, physical, and social-emotional supports

in the intervention procedure. The greatest change she made to support her son's physical play environment was to put away the very many toy choices in his playroom and to offer him fewer choices. For example, instead of offering him all the Duplo or Marble Race building supplies, she put a smaller quantity of each in a large clear baggie for him to use. This allowed her son to better focus on the construction he was making without being distracted by too many toy pieces or other available choices visible in his play area. Socially and emotionally Mateo's mother learned to provide encouragement such as "I like what you are building" rather than praise that is rating in nature such as "good boy".

Jayce

Jayce's mother was observed in all 7 intervention videos to provide 93% fidelity of intervention across 30 items assessing the temporal, physical, and social-emotional supports in the intervention procedure. This mother talked openly about her struggle to juggle her son's school, her working evenings after he came home from school, his participation in organized activities such as Awanas, plus visiting his father on weekends left very little time each day to set aside for him to just play with his toys and be creative. Jayce's mother discovered that simply altering the physical environment by turning off the TV and limiting his choices to a few toys to play with allowed her son to create with Duplo blocks and share with his mom saying "Look, I made a tall tower house!". Unfortunately, this mother did not record herself interacting with her son on camera, so her fidelity of intervention score was significantly lowered as all 12/30 social-emotional support items could not be coded, depressing her fidelity scores.

Social Validity

Social validity in single subject design addresses the meaningfulness of the intervention and the resulting outcome for the participants in the study. Social validity for this study was

assessed formally through a post-study survey (see Appendix N and Tables 14 and 15) and informally through the compilation of parent communications through texts or coaching phone calls.

Table 14

Child Feedback on the Intervention

	Responded "Yes"
I liked participating in the play study	100%
I know where I can play at my house	100%
I like to choose the toys I play with	100%
I like to build and create	100%
I discovered new things I can build and play	100%
I like having playtime every day	100%
I like talking to my grown-up when I play	100%
like to build and play with my grown-up	100%

Table 15

Parent Feedback on the Intervention

	Responded "Very Much"
I'm glad I participated in this study	100%
I learned about my child	100%
I learned to make physical changes in my home to better support my child's play	100%
My child has benefited from the physical changes I have made in my home much	100%

I learned to make changes in my family's routine, schedule, or time set aside for play to support my child's play	100%
My child has benefited from changes to time and routines set aside for my child to play	100%
I learned new ways to interact socially and to support my child better emotionally during play	100%
My child has benefited from new social and emotional strategies to support my child during play	100%
My family's culture, values, and beliefs were supported throughout this study	100%
My child's play has improved since before the intervention	100%
My child is better able to handle frustrations after the intervention	100%

Below are parent comments that support the value of participation in this study for parents and children. These parent reflections demonstrate the impact and meaningfulness of the parent-implemented intervention process (IV) and the child outcome (DV) of increased engagement in constructive play.

> "He is less distracted by having selected choices of items to play with, he is learning to be more independent in his creations during play, and he is playing for longer periods of time."

> "I understand now how important play time is. I understand how important it is to set a scene and participate and communicate when my children are playing."

> "I really enjoyed this experience and learning more ways to help my child learn and explore."

> "This study has really taught us both to do things more together."

> "She's able to play by herself without getting bored. She's able to communicate with me more effectively."

> "Thank you for encouraging us to find more ways to inspire him to be more constructive and creative. Also, for me as the parent to uplift him more in his process."

> "My son's constructive play skills are carrying over to his school."

“At first he used to just play with cars and trucks and now he’s able to make better ideas on what he wants to play with and what play he wants to do that day, and if he needs help.”

“I allow him to make his choices every day and I support them every time he makes a decision on what is comfortable during his play time. I try not to make the decisions for him.”

“His creativity has totally amazed me on what he came up with especially with the popsicle sticks and playdough pretending he was making ice cream cones or flavor popsicles. And the wooden blocks he formed them as if they were a family and described to me each block and who they were and how each color signified each person.”

“I’m glad that you taught me this because I felt like we have been stuck in functional play for quite some time and I just needed to learn a way to shift it toward construction play and show us more of what’s going on in his mind.”

“Me focusing on helping her play is also helping her learn self-advocacy through making choices.”

“Turning off TV really does make a big difference in how he plays and what he plays with.”

“I think her play has improved a lot, conversation-wise and imaginative-wise as well. She also talks more around the house too.”

“He is not initiating constructive play on his own! He’s the one who was interested in opening the bag with the sticks and the playdough.”

“At first he used to shut down and not able to explain his frustration or difficulty but now he can in a simple detailed way without getting upset or shutting down.”

“I have seen that he is more willing to try something again if it doesn’t work the way he wanted it to the first time.”

“She now tells me what is wrong versus throwing a tantrum.”

“I learned how to better support my child and facilitate constructive play during this study.”

“Once we determined play times and how to do it like Michelle taught me (scaffold supports, reduce barriers), we both enjoyed play time and I really was amazed at our improvement.”

“This has taught not only him but myself as a parent to help create and enhance my child’s ability to construct, play, and enjoy doing it and learning. Also, for me to assist when needed and ways to boost his esteem when having difficulty playing.”

> "The picture I sent you was from grandma's house. He doesn't go many other places, but he does now share his new building skills with his grandma and his babysitter."

Generalization

While collection of maintenance data confirms the effectiveness of the intervention after the intervention period has stopped, generalization data informs us about the ability to continue the outcome in different settings and with different people (Kazdin, 2011). Although this study did not formally collect generalization data, parent-provided anecdotal descriptions of how the effects of the intervention were generalized for their child. Kiki and Jayce's mothers did not respond to my follow up texts asking about generalization, but Antonio's mother reported generalization of her son's constructive play skills across people, and Mateo's mother reported generalization across both settings and people. Antonio's mother shared that he is now building and creating with his father, saying "He's more able to include his father and sister in his play and talk about his plan of action as he plays as well." Mateo's mother shared that her son's caregiver noticed an increase in his building and construction skills, commenting, "Mateo's new caregiver told me last week that he built a huge tower with his jumbo blocks and was really interested in making it wide and tall. He normally only makes towers tall with me, so to hear that he wanted it wide was cool!" This caregiver was in the child's home without prior knowledge of the child's participation in this study or the parent's new focus on facilitating constructive play. Another day she reported, "His new caregiver shared with me yesterday that he was so engaged with building with his marble run activity and that she was impressed with what he was making!". Mateo demonstrated generalization across both people and setting as anecdotally reported that his grandmother was impressed with his new ability to focus and play independently building marble race towers at the grandmother's home without the mother present. This parent clarified saying, "He doesn't go many other places, but he does demonstrate

his new skills across people while in those places." Additionally, Mateo's mother shared that her son's preschool teacher reported his new skill in grouping toys together to build and design and reports she received a text from her son's teacher with a photo of her son building captioned "Your little builder- so creative and so cute!", demonstrating Mateo's generalization of his engagement in constructive play across people and across settings. Generalization is again described by Mateo's mother on her post-study survey response, "The process of this study from beginning to end allowed me to learn more about my child, his abilities, and the ways I can continue to support him in play both inside and outside of the house. Thank you!".

Chapter V: Discussion

Play is critical to the lives of young children as it is their process for learning about their world and developing competence. It is through play that young children learn to explore their environment, expand their imagination, emotionally respond, and adapt. Play stimulates curiosity, creativity, and focused attention; all important school readiness skills (Head Start's Early Childhood Learning and Knowledge Center, 2019; Ginsburg, 2007; Williams & Lerner, 2019). However, young children who are at risk for developmental delay or disability often have reduced opportunities to play, practice emotional readiness, and develop critical thinking and problem-solving skills through play (Bierman et al., 2015; Hatcher & Page, 2019; Raver et al., 2011). We also know that young children learn best in their natural environment, from daily life activities and play that is child-led and parent supported (DEC/NAYCE, 2009). Although there is much research supporting the benefits of pretend and social play in early childhood, relatively few studies have focused on constructive play in general or enhancing child engagement through constructive play. Additional gaps in the literature, as reported by Fettig and Barton (2014), include the impact of parent-implemented interventions to enhance children's play, and parent-implemented interventions in home settings (Rieth et al., 2018).

Therefore, the purpose of this dissertation study was to examine the impact of a parent-implemented intervention on children's active engagement in constructive play in the home setting. Results reveal a functional relation between the physical, temporal, and social-emotional environmental supports provided in the home by the parents and the noted increase in the

children's active engagement with non-electronic play materials. Findings also suggest that when parents are empowered to facilitate their child's active engagement in play through environmental supports, children increase their engagement in constructive play. This is demonstrated by the observed large change in absolute level between the baseline and the intervention phases for all four participants, indicating an immediacy of effect due to the intervention. The 100% percent non-overlapping data (PND) for all four participants further confirms that the change in child engagement in constructive play can be attributed to the parent-implemented intervention.

To facilitate children's' active engagement, parents modified their home's physical, temporal, and social-emotional environment by providing supports and removing barriers. Aligning with the findings from DiCarlo et al. (2016), parents were guided to modify the physical environment by turning off distractions such as electronic screens, provide limited familiar and novel choices of play materials, and ensured the physical play space as safe and comfortable to meet their child's unique sensitivities. As recommended by research from Kiewra & Veselack (2016) and Knox (2008), parents supported the temporal environment by ensuring their child's basic needs were met and time for play was in their child's daily routine and schedule; further communicating play as valued by the family as recommended by Edwards (2000) and Skard & Bundy (2008). Finally, to modify the social-emotional environment, parents supported child-led play by being present, playful, and available (Fabrizi, 2016), being emotionally responsive to their child frustrations, asking open-ended questions, and inviting their child to socially share their creations (Kiewra & Veselack, 2016).

Children's' improved engagement in constructive play was evidenced by their hands-on interaction with play materials to build structures or create designs and/or their social sharing of

their creations as demonstrated through positive social behaviors such as showing, telling, asking, or answering questions about their constructive process. Paired with hands-on creating or social sharing, the children also communicated their emotional interest in their play through a positive emotional affect such as smiling, or the absence of a negative emotion such as fussing or the expression of negative words such as “I don’t want to”.

These results honor the role of the parent to teach and support their child and to scaffold their home environment to meet their family and child’s unique culture, interests, and needs. This parent-implemented intervention aligns with the Division on Early Childhood’s recommended practices (DEC, 2014) that guide us to support and nurture families of young children. I incorporated the DEC recommended practices of family-centered care by empowering parents through opportunities for participation, choice-making, and self-reflection embedded in this study. I promoted capacity-building and autonomy for parents to plan, make decisions, and prioritize parent learning goals that reflect their family’s unique needs and their child’s personality and interests. I also addressed the DEC recommended practice of recognizing the value of an accessible safe natural environment as optimal for young children’s learning and development by guiding parents to set up and scaffold their home’s physical, temporal, and social-emotional environment to best meet the needs of their child. These practices not only align with DEC’s recommended family and environment practices, but also with the practice of cultural humility and with Bal and Trainor’s (2016) quality indicators of culturally responsive research that recognize the importance of meaningful and culturally responsive research.

Theoretical Alignment

This study aligns with the constructivism theory, emphasizing the importance of the child’s natural environment to support knowledge construction through hands-on self-directed

exploration and curiosity; culminating in engaged play and creativity (Dewey, 1929; Piaget, 1962; Vygotsky, 1976). Results of this study reveal that when parents demonstrate that they value their child's play, by prioritizing their time, materials, and themselves, children are better able to engage, create, and play. This supports my conceptual framework (see Figure 1) which emphasizes a relationship between the child and their physical, temporal, and sociocultural-emotional environment, including their parent, and how this interaction fosters the necessary curiosity, creativity, and attention to actively engage in constructive play. In the words of Antonio's mother, "This has taught not only him but myself as a parent to help create and enhance my child's ability to construct, play, and enjoy doing it and learning. Also, for me to assist when needed and ways to boost his esteem when having difficulty playing".

This study aligns with existing literature regarding the importance of the natural home environment for play engagement (Law et al., 1996; Ziviani & Rodger, 2006), and how families are best at supporting children's play development (Kuhaneck & Kelleher, 2015; Miller & Kuhaneck, 2008; Xu, 2010), and confirm the importance of the home's physical, temporal, and social-emotional environment on young children's creation of knowledge through hands-on constructive play. In this study, the children learned to expand their creativity and knowledge through building and designing play activities. This is evidenced in the words of Antonio's mother who, excited to share her son's growth in the creative process through constructive play, writes, "His creativity has totally amazed me on what he came up with especially with the popsicle sticks and playdough pretending he was making ice cream cones or flavor popsicles. And the wooden blocks he formed them as if they were a family and described to me each block and who they were and how each color signified each person." Mateo's mother explains that the modifications she made in their home enabled her son to better engage and attend, and create,

saying, “He is less distracted by having selected choices of items to play with, he is learning to be more independent in his creations during play, and he is playing for longer periods of time.” While Jayce’s mother describes the change, “At first he used to just play with cars and trucks and now he’s able to make better ideas on what he wants to play with and what play he wants to do that day, and if he needs help.” These parent voices describe the critical interactive relationship between their child’s learning and their home’s physical, temporal, and social-emotional environment. Therefore, this study not only aligns with the constructivism theory but confirms the importance of the child’s natural environment on knowledge creation through hands-on self-directed constructive play.

Meaningfulness of this Research

Social Validity

The social validity of this study is strong, with parents confirming the intervention strategies as valued and meaningful to their daily lives. Kiki’s mother described the value of the intervention to her family in this way, “I understand now how important play time is. I understand how important it is to set a scene and participate and communicate when my children are playing.” All parents reported gratitude for the positive changes in their child’s play. Prior to the intervention, Antonio, Kiki, Mateo, and Jayce’s play consisted of holding a toy (action figure, truck, ribbon) while watching TV or engaging in rote functional play (pressing buttons to activate cause-effect musical or light-up toy). This often did not even meet the definition of play as joyful, intrinsically motivated, iterative, and not for an outside goal or purpose. Parents had been rightfully concerned about their children’s difficulty playing, which is why they agreed to participate in this study. The constructive play intervention implemented by the mothers led to Antonio building a “rainbow bridge”, Kiki designing and creating an “octopus” out of

playdough, Mateo designing and building "birthday cakes" using playdough and popsicle sticks for candles, and Jayce building "big, tall house" structures with Duplo blocks. The children not only expanded their building and designing skills but demonstrated obvious pride in their creative creations play process.

While the purpose of this study was to improve young children's active engagement in constructive play, parents reported their participation changed how they interact with their child, how they arrange their home environment to best support their child's individual needs, and how they learned the critical importance of play for their child's development and emotional well-being. Additional benefits families reported included improved confidence, communication, self-advocacy, persistence, and relationship with their child. In the words of Jayce's mother, "This study has really taught us both to do things more together". Kiki's mother explained, "Me focusing on helping her play is also helping her learn self-advocacy through making choices". Antonio's mother described the benefit of her son learning emotional regulation through the changes she made at home sharing, "At first he used to shut down and not able to explain his frustration or difficulty but now he can in a simple detailed way without getting upset or shutting down". Additionally, parents' ability to implement the intervention in 10-minute play sessions with readily available inexpensive materials ensures the intervention can be maintained with relatively little cost in time or money, which further supports the social validity and practical meaningfulness of this dissertation study.

Parent-Researcher Relationship

This study was designed to provide a 60-minute virtual PowerPoint training session for the parent, followed by two virtual coaching sessions and ongoing informal support over text conversations. Due to the parents' busy schedules, only the first 30-minute coaching session was

completed with parents preferring a phone call to an online video meeting. Parents either did not schedule or cancelled the second coaching session, opting instead to talk informally via text messaging. This reflects the busy lives of the participants and the importance of the researcher being available, flexible, and accessible to support parents. In fact, the informal and frequent texting strengthened my relationship with parents, suggesting that relationship development is meaningful to parents and a critical component of gaining the parents' trust and providing authentic support. This relationship-building component may have contributed to the parents' appreciation of their participation in this study.

Practical Significance

The meaningfulness of this intervention is further confirmed and expanded by the generalization of constructive play engagement across people and settings. Measuring the practical significance of this intervention was not in the scope of this study, but I envision this intervention as beneficial to a wider group of parents, early childhood teachers, and childcare professionals.

Limitations

There are a few limitations worth noting. These include a small sample size, treatment fidelity, and threats to experimental control that include variability of the data and outside events (history) including a global COVID-19 pandemic.

Small Sample Size

According to What Works Clearinghouse (2016), single subject multiple baseline across-participants design research relies on multiple replications between phases with at least three participants with concurrent baseline conditions. Although this study had four participants, only the first three began baseline data collection concurrently. Additionally, to meet What Works

Clearinghouse single-case standards without reservations, each phase must have at least five data points (WWC, 2016). While three of the participants met the criteria (Antonio, Kiki, and Mateo), the fourth participant, Jayce, only produced three data points for the baseline and the intervention condition, meeting this criteria "with reservations". A larger sample size would better accommodate participant attrition or inconsistent participation.

Treatment Fidelity

Parents' fidelity to implement the treatment as prescribed was a limitation. The parent-implemented treatment was a multi-component intervention that required parents to assess physical, temporal, and social-emotional needs then simultaneously provide multiple supports and reduce multiple barriers for their child's success. Although parents were asked to self-report their fidelity of providing the intervention after each recording, only two parents provided this information with consistency. This poses a threat to the parents' fidelity of treatment implementation. Although I observed and coded the parents' fidelity, I could only document what I saw and heard on the parent-provided recordings. As noted with Jayce's mother, she did not record herself interacting with her son, so I was unable to assess her social-emotional interactions. It was unclear if she implemented this portion of the treatment at all. Additionally, although parents were asked to self-report their fidelity of providing the intervention after each recording, only two parents provided this information with consistency.

Experimental Control

This study demonstrated fidelity to the quality indicators for single subject research as outlined by Horner, Carr, Halle, McGee, Odom, and Wolery (2005). Adherence to these indicators helped me control for internal validity threats, otherwise known as experimental control. In addition to adherence to the quality indicators, threats to experimental control were

addressed by the multiple baseline study design, a shorter-duration study limiting natural maturation in young children, and a thorough description of external events or history.

However, there were threats to this study's internal validity that I was not able to control. Although visual analysis of the level was strong both within and between conditions, the trend and variability in the performance of Antonio, Kiki, and Jayce during the intervention phase did not indicate experimental control (Gast et al., 2014). Another threat to experimental control is the possible influence on parent and child behaviors knowing they were being recorded. Antonio, Kiki, and Mateo's mothers were observed intermittently glancing at the recording device, which may indicate their self-consciousness about being recorded, limiting more natural interactions with their children. It is not clear why Jayce's mother was not visibly or audibly present during any of his recordings, but this did impact her ability to be present and supportive during her son's play, and greatly impacted her observed fidelity of intervention score.

Over the short course of the study there were several major international, national, local, and individual events personal to each family which impacted the participants' lives and their level of participation in different ways. The most impactful world-wide event was the COVID-19 pandemic which produced global sickness, death, fear, and social isolation, especially in lower income and minority communities like our study participants. In fact, precaution to prevent the transmission of the highly contagious COVID-19 virus was the sole reason this study was designed and implemented virtually rather than in-person.

National external events impacting participant families included Halloween, Election Day, Thanksgiving, Christmas, and Kwanza holidays. Parents indicated these holidays as either stressful or limiting of their time to implement the constructive play intervention over the holiday and days surrounding the holiday. Valentine's Day was a holiday event that occurred during the

maintenance phase, although no family reported this holiday as a stressor as they did the other holidays. Another major national environmental event was the current and residual racial tension and unrest in the United States stemming from the George Floyd killing, the 2020 Presidential election, and in Virginia leading up to Election Day 2021.

Individually each family experienced their own unique challenges and contextual factors that impacted their daily lives, their mental health and well-being, and subsequently affected the parent's implementation of the home play intervention. Antonio lives in an apartment with his parents and baby sister. This mother started off strong, turning in a play recording daily for the baseline phase. She implemented the first three intervention sessions with high fidelity and was in daily contact with me over text. However, her communications significantly reduced, Antonio's engagement in constructive play scores dropped, then there were no responses to my emails, phone calls, or text messages for over two months. It is unclear why this occurred, but it appears the family was in crisis. Antonio's mother resumed text communications with me and submitted play recordings for the maintenance phase.

Kiki lives with her mother, three brothers, and her grandmother. During the intervention phase her grandmother was hospitalized for over a week and month later the family moved homes. These events were extremely stressful for Kiki's mother. In fact, she texted me letting me know she would not be able to set aside time to play or record for a few weeks, but that she would resume after the move. Unique stressors for Mateo's family during this study include a change in his home caregiver, his father's busy word schedule, and his mother finishing a doctoral degree while working full time. Over the course of this study Mateo receive an additional medical diagnosis of autism spectrum disorder, which his mother reported as both a stressor and a relief for the parents. Jayce lives in public housing but due to poor maintenance

and hazardous living conditions he and his mother were temporarily staying with family 40-minutes away. The need to accommodate transportation time into their daily schedule significantly limited the time Jayce had to play at home. Jayce's time at home was already limited since he was only home less than an hour before and after school before his mother dropped him off at daycare while she worked from 3 pm to 9-11 pm every weekday, getting home very late. On weekends he stayed at his father's house where father reported he had no toys.

Implications for Research

The findings of this dissertation study establish initial evidence that with training, coaching, and support, parents can successfully facilitate children's engagement in creative constructive play activities in their homes. The limitations described above suggest possible modifications for future research. To address the limitation of treatment fidelity, future researchers could add in vivo coaching sessions for parents in their homes, something not possible in this study due to the COVID-19 pandemic. In vivo coaching would allow the researcher to better see and understand what the parent does leading up to the start of the recording, get a deeper understanding of how the parent implements the intervention, and provide performance feedback in real time. The limitation due to outside events, such as the pandemic, racial unrest in the country, and even individual personal crisis is difficult to anticipate or prevent, however, stretching the length of the intervention and maintenance phases of the study would allow families to rebound from external events to collect a more accurate picture of both treatment fidelity and the children's change in outcome.

This dissertation study is single subject multiple baseline across-participants design, which planned for the continuous measurement of pre-intervention data in the baseline phase.

This expectation relied on parents setting aside three weekly 10-minute periods to provide the play intervention and record their child's play. However, with the reality of busy home lives, individual and collective stressors, and limited time at home due to work and shared custody arrangements, regularly scheduled data collection was not feasible. In retrospect, a single subject multiple probe across participants design is more representative of how the data was collected. Future researchers could use the multiple probe design to allow for the busy lives of families and unexpected external events.

Future studies that replicate and expand this research should include teachers, childcare professionals, and other direct service providers as the personnel instructing parents in the intervention and providing the coaching supports. Researchers should also explore instructing teachers and childcare professionals, in lieu of parents, to implement the intervention at preschool, daycare, and other naturalistic community-based settings. I would also like to see if this play engagement protocol would be equally efficacious presented to small groups of parents, perhaps tested using a group design rather than a single subject design.

Knowing that constructive play is often the springboard for imaginary play, future research should expand the current intervention to facilitate the pairing of constructive and imaginary play, as well as explore the use of constructive play to enhance associative and cooperative social play for children with disabilities. Additionally, another research focus would be the relationship of constructive play and emotional regulation, especially needed today with the many young children facing toxic stress with resulting emotional and behavioral difficulties. Finally, I would like to explore creative constructive play as a transition and life-long leisure skill, or possibly leading to a future vocational identity as a disabled artist.

This intervention protocol was successful. It included virtually teaching parents the intervention, collecting data via parent recordings at their convenience in their homes, and coaching parents through phone or text conversations. Future research could explore using this coaching protocol to improve child engagement in other areas of child development. Additionally, the lens of cultural humility was utilized but not directly explored. Future researchers could explore how this concept of researcher or practitioner vulnerability paves the way for relationship-building, culturally responsive research and intervention, and ultimately contributes to building family capacity and centering parents.

Implications for Policy

Multiple current federal policies and institutional practices were created with the understanding that family engagement fosters improved developmental and educational outcomes for children, and, according to Head Start in 2015, that families must be centered in early childhood systems.

The following policies have mechanisms and processes in place for family engagement, parent education, and a home-school partnership. The findings of this dissertation study demonstrate a practical protocol that agencies can utilize to center parents and to help parents positively influence their children's development and engagement in creative constructive play. This protocol is family-centered, builds parent capacity, and cultivates family-professional collaboration while improving child outcomes. In fact, this protocol could be modified to enhance developmental and educational outcomes beyond the scope of this study, but within the purview and focus of these family-focused policies. 1) The Improving Head Start for School Readiness Act of 2007 (updated in 2015) recognizes the important role of families in young children's development and learning, supports parent involvement in the classroom, parent education, community resources, and home visits for families. 2) The Child Care and

Development Block Grants' (CCDBG, 2022) primary purpose is to promote meaningful family engagement and education to help parents become partners with childcare professionals to support their young child's development. 3) The U.S. Department of Health and Human Services and Education (HHS/ED, 2016) issued a policy statement on family engagement which recommends family engagement to promote children's learning and healthy development and supports parent engagement and education. 4) The Every Student Succeeds Act (ESSA, 2015) is a federal policy that addresses parent engagement and education at eligible public schools to directly support family engagement for the goal of improved student performance. 5) Finally, the Individuals with Disabilities Education Act (IDEA, 2004) promotes and collects data on parent engagement and provides parent education for students with disabilities or developmental delays through Community Parent Resource Centers. These public policies each honor and value the essential role parents have related to their child's learning and development. Findings from this dissertation study support these policy implications for centering and empowering parents leading to positive outcomes for children. Findings also demonstrate a practical protocol that agencies can utilize to center parents and to help parents positively influence their children's development and engagement in creative constructive play. This protocol is family-centered, builds parent capacity, and cultivates family-professional collaboration while improving child outcomes. In fact, this protocol could be modified to enhance developmental and educational outcomes beyond the scope of this study, but within the purview and focus of these family-focused policies., and

Implications for Practice

The results of this study confirm the importance of constructive play for children and their families and provide a protocol for parents to facilitate active play engagement at home.

These implications extend the need for targeted professional development for pre-service and in-service teachers, and other direct service providers working with young children, to develop these same skills to facilitate constructive play in preschool and childcare settings. For example, in the study parents facilitated their child's constructive play engagement by setting aside time each day for play, by turning off visual distractions such as TV and tablet screens, providing their child choices in play materials to enhance their creativity, being physically present but allowing their child to lead, being emotionally responsive to their child's needs, and asking open-ended questions to stimulate their child's ideas and social sharing. These adult-facilitated play activities can be generalized to different naturalistic settings.

As previously discussed, there are multiple federal policies already in place that support parent engagement; charging teachers to engage and educate families to further enhance child learning and development. To further expand parent engagement and education, I would like to use this play protocol to help teachers empower parents about the benefits of constructive play, how to provide contextual home supports, and how to facilitate their child's active play engagement. The protocol used in this study can be modified for use in early childhood teacher preparation programs and in-service teacher professional development to prepare teachers to modify their classrooms for constructive play and to engage and support parents.

Conclusion

Parents, play, and home life are essential components of early childhood. This study confirms that this parent-implemented play intervention not only increases young children's play engagement but is meaningful to the participants' daily lives. These results establish initial evidence of a functional relation between parent-implemented changes and increased engagement in constructive play for their children, a skill that leads to future growth and school-

readiness. Findings also suggest that when parents understand the impact of constructive play on their children's learning and development play becomes more meaningful and valued. Through a relationship with a coach who practiced cultural humility and a culturally responsive pedagogy, parents were empowered to make the necessary changes in their family life to promote creative constructive play. It is hoped that these finding can be utilized to expand research, and to support changes in policy and practice that emphasize the important role of parents as key facilitators in their child's play and learning, especially for children with or at risk for developmental disabilities.

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Appendix A

Recruitment Letter with Inclusion Criteria

Dear Preschool Director and Teachers,

Do you have students who struggle to actively participate in constructive play? Research shows that active engagement in play lays the foundation for young children's school-readiness skills. However, many children at risk for developmental disabilities struggle to play.

I am a doctoral candidate at Virginia Commonwealth University's School of Education conducting my dissertation research on play engagement. My study is titled "Effects of a Parent-Implemented Intervention on Preschool Children's Engagement in Constructive Play in Home Settings". I examine the impact of teaching parents to support their child's engagement with play materials by enhancing home environmental supports (physical, temporal, social). I am interested in recruiting preschool-age children who have or are at risk for a disability and who teachers perceive as having difficulty sustaining engagement during constructive play with toys. This study will be completed with the child and their parent virtually in their home.

Participant criteria:

- Child will be 4-5 years old for the duration of this study
- Parent or teacher have expressed concerns regarding this child's engagement in play
- Child lives with the participating parent/guardian at least 4 days per week.
- Participating parent/guardian speaks English
- Child is:

  1) At risk for a developmental delay due to one or more of the following risk factors

a) Economic hardship/insecurity (poverty).

b) Toxic stress (history of trauma; exposure to abuse/violence; caregiver mental health issues or substance abuse; physical or emotional abuse; chronic neglect).

c) Impacts of today's lifestyle (hurried lifestyle; changes in family structure; increased emphasis on enrichment or academic activities; increased use of electronic screen time).

2) Or has a has a diagnosed or suspected disability of autism, ADHD, or Developmental Delay.

If you identify a child who meets these inclusion criteria, please share the opportunity to participate in this study with the parent/guardian by sharing the attached Play to Learn Study parent recruitment flyer so they may learn more about this study. Also attached for your review and to share with the parent/guardian is the Parent Consent, which explains this study in greater detail (study design, timeframe, compensation, risks, and benefits). You can share these documents with the parent electronically. Please let me know if you prefer paper copies to share with your parents.

Interested parents may contact me directly or, after obtaining the parent/guardian's verbal permission to share their contact information with the research team, you can email the parent's name, email, and phone number to boulangerml@vcu.edu. I will then contact parents to further explain the study and confirm their eligibility to participate.

Thank you for your time and interest! Please contact me with any questions.

Appendix B

Recruitment Flyer

Play To Learn Study

VIRGINIA COMMONWEALTH UNIVERSITY

Play is very important for development, learning, and school success!

Does your 4-5 year old child struggle to play with toys?
Many children at risk for developmental delays have difficulty remaining engaged in play activities. This study looks at how parents can support their child's hands-on play with toys using strategies to improve their active engagement in play. As a parent, you are asked to contribute approximately 8 hours of your time over 4-10 weeks to record your child's play (10-minutes 1 to 3 times weekly) and to meet virtually with the researcher for instruction, guidance, and coaching.

Your family's privacy, culture, and preferences will be respected.

WHO IS ELIGIBLE?

Families of all cultural backgrounds welcome!

Child at risk for developmental delay

CHILDREN

4-5 years old

Difficulty sustaining attention to play with non-electronic toys

PARENTS

Speak English

Child lives in home 4+ days/week

BENEFITS

For my child:
Time to play!

Play materials

For my family:
Learn about play

Strategies to support my child

Coaching support

$50 gift card

Keep provided recording device

HOW DO I LEARN MORE OR SIGN UP?

Email, call, or text:
Michelle Thompson
Doctoral Candidate
boulangerml@vcu.edu

(804) 221-5041

IRB#HM20021218

Appendix C

Parent Consent to Participate and Description of Study

Study's Title

"Effects of a Parent-Implemented Intervention on Preschool Children's Engagement in Constructive Play in Home Settings"

Description of the Study

This is a dissertation study at Virginia Commonwealth University's School of Education. You are invited to participate in this study because you are a parent of a child with a disability, at-risk for a disability, or struggling in preschool with play engagement readiness skills. If you decide you would like to participate in this research study, consent will be requested. Prior to your written consent, any questions or concerns with this project will be addressed. Participation in this study is completely voluntary and will look at how changes you make in your home environment can improve your child's active engagement in play. We expect 4 parents and their preschool-aged children to participate in this study.

Purpose of the Study

This study aims to examine the impact of a parent-implemented intervention on your child's active engagement in play in your home. Active engagement in play can improve children's school-readiness skills but can be negatively impacted by 1) changes in today's lifestyle (increased screen time, focus on academic or enrichment activities, hurried lifestyle), 2) toxic stress (economic hardship, caregiver substance abuse or mental illness, neglect, or abuse),

and/or 3) identified or suspected disabilities (i.e., developmental delay, autism spectrum disorders).

Description of Parent Involvement

The first visit will be a 30-minute interview with the researcher over a FERPA-secure video conferencing platform. This will provide an opportunity for you to meet your researcher, to confirm inclusion criteria, to review the study's timeline, and for your researcher to better understand your family culture, your perception of your child's needs and strengths, and anything else you would like the researcher to know about your child's play, your child, or your family. At this time the researcher will review the timeline for the study with you in detail. This study is anticipated to last between 8-16 weeks to include three phases of data collection: baseline, intervention, and maintenance phases.

Throughout this study you will be asked to video-record your child's play in your home for 10-minute periods for an average of three recordings per week as instructed by your researcher. Some weeks you may not have any recordings, other weeks you may have up to five recordings to complete. You will also be provided with the use of a tablet for video recordings and asked to upload these videos to the Virginia Commonwealth University using a FERPA-secure video storage site on Google Docs.

Between the baseline and intervention phases you will meet with the researcher individually for 60-90 minutes over a secure video conferencing platform for an interview about your child's play and your unique family culture, and where you will be instructed and coached in the play intervention. Note that this intervention is experimental and is not well studied. During the intervention phase you will implement this play intervention and will receive support and one to two 20-minutes coaching sessions. This support and coaching will occur over a

FERPA-secure video conferencing platform. Less formal technical support communications may occur over the phone or text. For the intervention and follow-up phases you will complete an online checklist using your cell phone or email. These checklists will allow the researcher to know, from your perspective, how you are supporting your child's play. The researcher will also complete a similar checklist when viewing all play videos, which will allow us to measure how well you implement the intervention. Overall, you will be asked to contribute roughly12 hours of your time over 8-12 weeks to participate in this study.

Risks and Discomforts

It is not likely you will experience any risks for your participation, but talking about highly personal subjects, like your home environment and your child and family struggles, can be uncomfortable. Although all precautions will be taken to maintain your confidentiality and privacy, there is a chance this could be breached. As this study is voluntary, you may omit questions that make you uncomfortable, or stop the interviews, observations, or videotaping at any time.

Benefits to You and Others

You may benefit from learning about play and the impact of the home environment on your child's development. The researcher will share articles and ideas to promote and expand play at home with your child. Starter play materials will be provided to you for your child and to keep (playdough, large colored popsicle sticks, and wooden building blocks). You will receive compensation of $50 for your time upon completion of this study and will be able to keep the play materials and the iPad provided to you by the researcher. Benefits to your child include an increased focus on play in your home, access to new play materials and ideas, and time set aside for play with you.

Confidentiality

The goal of this research is to trial a parent-implemented play intervention so that professionals, schools, and community agencies may have an additional evidence-based intervention to improve active engagement in play for young children who are at-risk.

Data collected is for research purposes only. Your confidentiality throughout this research study is of utmost importance. Personal information will be kept confidential and video recordings will be encrypted to limit access to the researcher and research team. Signed consent forms with identifying information will be secured in the office of the researcher. The findings of this study will be utilized to inform and direct future research studies, presented at professional conferences, and published in professional research journals.

During every video-recorded observation of your child's play and the play home environment, your researcher will be respectful of your family's privacy. After sharing the videos with the researcher, you will have access to view these videos and review them with the researcher. Videos will be kept confidential, and they will be stored in a secure location on Virginia Commonwealth University's Google Drive with no outwardly identifying information about you, your child, or your family.

For future teaching or professional purposes, portions of the video may be utilized, but faces and any other identifying details will be blocked out. Video recordings and collected information/data will be maintained for 5 years post the data collection portion of the study to allow for coding and analysis as well as future research studies. At 5 years all collected data and videos will be destroyed and no longer available for research or any other purpose. In the future, identifiers will be removed from the information and video recordings you provide in this study,

and after that removal, the information/videos could be used for other research studies by this study team or another researcher without asking you for additional consent.

If the recordings reveal or your child tells us that someone is hurting her or him, or that she might hurt herself or someone else, the law says that we must let people in authority know so they can protect your child.

Costs

There are no costs for your participation in this study, other than the time you will spend with your researcher, play sessions with your child, and responding to the post-intervention questionnaire.

Voluntary Participation and Withdrawal

Participation in this research study is voluntary, and you may elect to stop at any time without consequence. If you do participate, you may withdraw from the study at any time. Your decision not to take part or to withdraw will involve no penalty or loss of benefits to which you are otherwise entitled.

Questions

If you have any questions or concerns about this research, now or in the future contact:
Doctoral Candidate: Michelle Boulanger Thompson boulangerml@vcu.edu
Faculty Advisor: Yaoying Xu, Ph.D. yxu2@vcu.edu

If you have general questions about your rights as a participant in this or any other research, or if you wish to discuss problems, concerns, or questions, to obtain information, or to offer input about research, you may contact:

Virginia Commonwealth University Office of Research

800 East Leigh Street, Suite 3000, Box 980568, Richmond, VA 23298

(804) 827-2157; https://research.vcu.edu/human-research/

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to your questions.

Consent

- I have read this consent and understand the nature and inquiry of this study. I have been given the opportunity to ask any questions, and my questions have been answered to my satisfaction.
- I understand my personal information will remain confidential, and I will be provided the opportunity to review my responses in written format to affirm my responses and allow me to make revisions or provide additional information.
- I provide my consent, as indicated by my signature, to confirm my willingness to participate in this study. I will receive a copy of this consent form prior to my participation, as well as a copy of your individual results as well as full study results upon completion of this study.

Signature Block for Enrolling Adult Participants	
_____	
Adult Participant Name (Printed)	
_____	_____
Adult Participant's Signature	Date
_____	
Name of Person Conducting Consent Discussion (Printed)	
_____	_____

Signature of Person Conducting Consent Discussion Date

_____ _____

Principal Investigator Signature (if different from above) Date

Signature Block for Enrolling Child Participants - Parent/Guardian Permission

_____

Name of Child/Youth Participant

_____

Name of First Parent/Legal Guardian (Printed)

Study team – verify that this individual is the child's parent or legal guardian.

_____ _____

Required First Parent/Legal Guardian Signature Date

Appendix D

Family Interview

Script

Researcher: **“**Each family has a unique culture and background. I would like to talk with you to explore the unique cultural values of your family, your child’s individual needs and preferences, and what play looks like in your home. This will help me guide you to provide a more individualized and culturally responsive experience for you and your child throughout this research study.”

1. Tell me about your child’s play. What are your child’s favorite toys and play activities?
2. Do you have concerns about your child’s play, their social-emotional skills, or their emotional regulation? Does this affect your child’s play?
3. When thinking about play, what are some of the benefits you and your family attribute to play?
4. When thinking about play, what are some of the barriers you have come across?
5. How does your family perceive play? Is there anything from your cultural background that influences this view?
6. Can you think of any toys or household items that your child could play with to best represent your family’s cultural identity? For example, toys or memorabilia from your childhood or cultural heritage.

7. Are you aware of any culturally communicated expectations that may influence the toys and play items you offer your child? For example, some family cultures have gender-specific expectations while others do not. Other family cultures expect children to play only with manufactured toys, while other value household materials as play items.
8. Is there anything else you would like me to know about you, your child, or your family?

Appendix E

Materials

Materials for the constructive play sessions will be individually selected materials chosen by the parent and child with initial guidance from the researcher. Cultural relevance of materials will be assessed and reviewed with the parent during parent instruction of the intervention. An assortment of construction play materials will be provided to each family by the researcher to ensure the family has access to materials, choices, and novel items to offer to their child. Items to be provided include playdough, large colored popsicle sticks, and wooden building blocks. These items will be supplemented by play objects selected by the family and child that are culturally or personally meaningful and of interest to the child.

Directions

Every day, help your child select up to four types of play materials for constructive play. Make sure you offer your child choices of familiar and novel items to select.

Type of material	**Example**
Toys	blocks, Legos
Household objects	spoons, containers
Household materials	recycled boxes
Familial cultural items	scarves, chopsticks, memorabilia
Art & craft materials	tape, string, craft paper, popsicle sticks, pipe cleaners
Sensory mediums	playdough, clay, sand

Items from nature	small rocks, twigs, shells

Appendix F

Video Recording Protocol

Parents were provided an iPad device to video-record their child's play.

Preparation for Recording

- Ensure the recording device is fully charged
- Ensure the device's camera is turned on and clean to record a clear image
- Ensure the device is recording sound
- Set the device on a stable surface
- Ensure the camera captures a wide-angle of the play area, including the child
- Try to record from an angle that records the child's face (it is understood your child may move around quite a bit while playing and this is ok)

Uploading Videos

- Upload videos the same day you record, if possible, so your coach can view them prior to talking to you
- Upload videos to the FERPA-compliant secure video storage site on Google Docs at Virginia Commonwealth University (confidential link provided to you)

Appendix G

Observation Data Collection Sheet

Video Title & Date: _____

Time Stamp: 2 minutes 30 seconds to 7 minutes 30 seconds

Please note start/stop times if another 5-minute period was coded: _____

Name of observer: _____

Total points: __/15

For purposes of this study, the operational definition of active engagement in constructive play has been modified from the definition utilized by DiCarlo et al. (2016). Data will be collected using partial interval recording to document evidence of the behavior (DV). Active engagement in constructive play, for this study, is operationally defined as:

- Hands-on constructive play with materials as observed by the child combining or making designs, patterns, or structures using more than 2 play items/materials. (key = **H**)

  AND/OR

- The child's interest in construction activity is demonstrated through observable positive social behavior such as showing, telling, asking, or answering questions about their construction. (key = **S**)

  AND

- The child's interest in their construction activity is demonstrated through an observable positive emotional affect such as smiling, humming, laughing or the absence of a

negative emotional affect such as crying, fussing, or scowling or the expression of negative words such as “no”, “I hate this” or “I don’t want to”. (key = **E**)

Directions

Please mark the type of active engagement noted (**H, S, E**) or the lack of engagement in constructive play behavior “**0**” (see description above).

Set a timer and document the child’s play engagement within each 20-seconds interval over a 5-minute play period (partial interval recording). Begin coding at the 2-minute 30-second mark in each video and stop at the 7-minute 30-seconds mark.

Note type of play or activity observed (i.e.: functional in/out container play; imaginary play with toy car but not constructive; exploration of environment (learning but not play)

Scoring Key

1= Hands-on (H) constructive play or social sharing (S) of construction with parent along with positive emotional affect (E) or lack of negative emotional affect observed

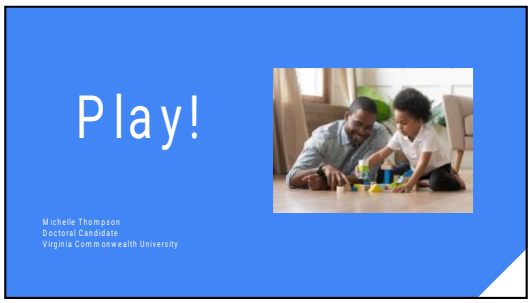
0 = No constructive play or social sharing about constructive play observed

	1-20 Seconds	20-40 Seconds	40-60 Seconds
Minute 1 2:30-3:30			
Minute 2 3:30-4:30			

Minute 3 4:30-5:30			
Minute 4 5:30-6:30			
Minute 5 6:30-7:30			

Additional Notes:

Appendix H
Instruction of Intervention PowerPoint Slides



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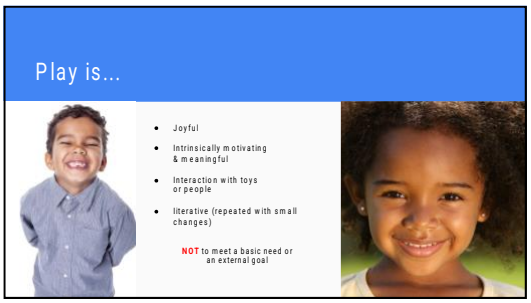

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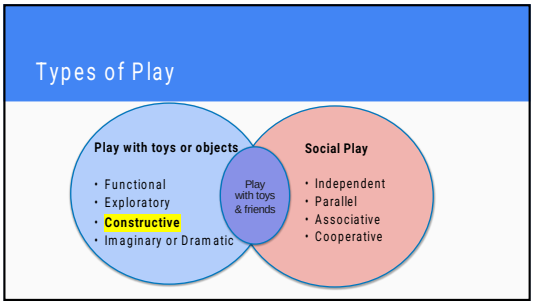

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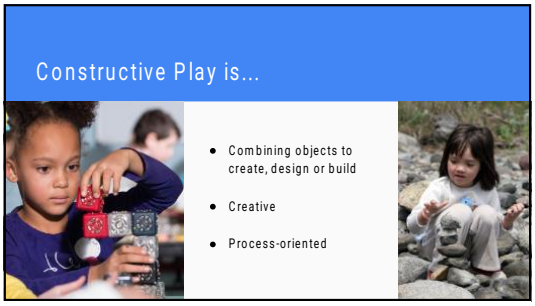

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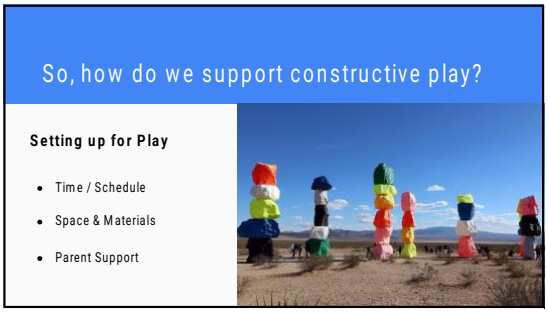

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Creating Time for Play

- Prioritize play
- Include play in daily routines
- Set aside time on family schedule for play
- Meet child's basic needs first

7

Prepare Accessible Play Space

- Safe space
- Space to move
- Comfortable to senses
- Distractions limited
- Accessible play materials

8

Choosing Play Materials

Offer choices of play materials that are:

- Open-ended
- Familiar & preferred
- Novel
- align with your family's culture & values

9

Types of Play Materials

Guide your child to select up to 4 play materials

- Toys
- Household objects
- Familial cultural items
- Art & craft materials
- Sensory mediums
- Items from nature

10

Build:

with Blocks, Boxes, & Books

11

Create:

using Recycled Items

12

Design:

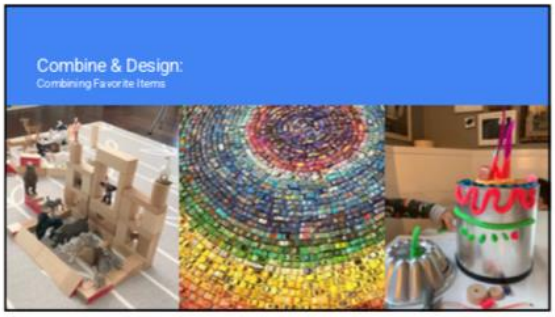
using Craft Materials

13

Build & Design:

with Items from Nature

14



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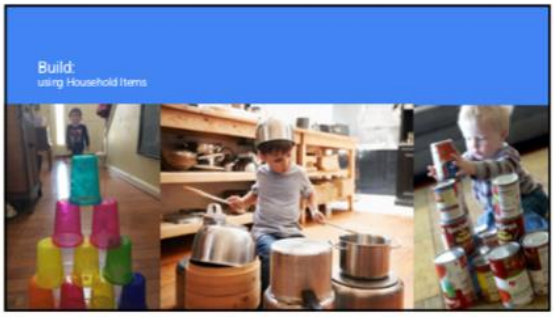

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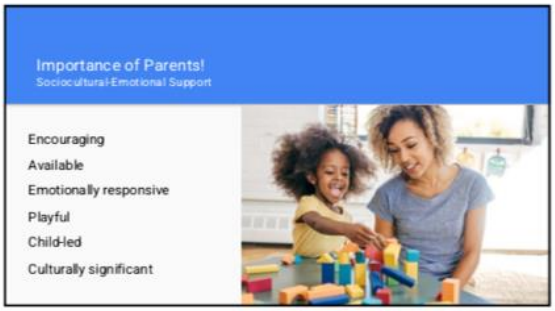

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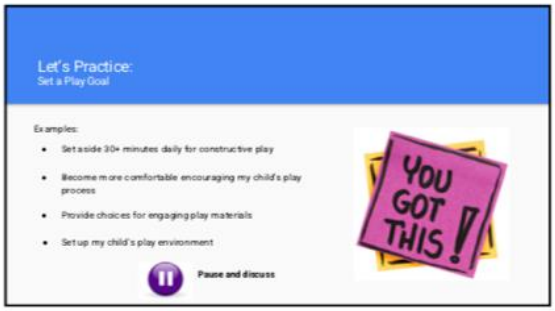

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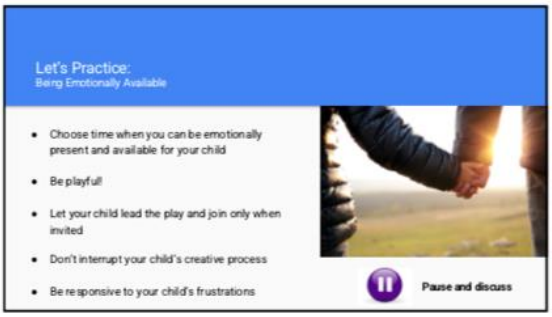

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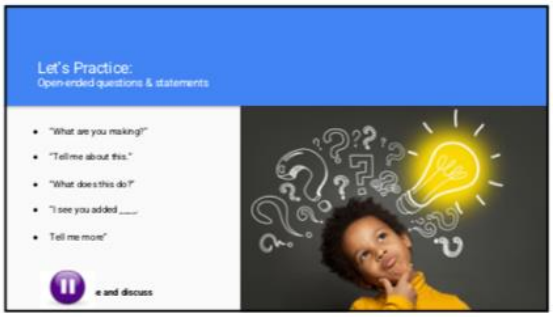

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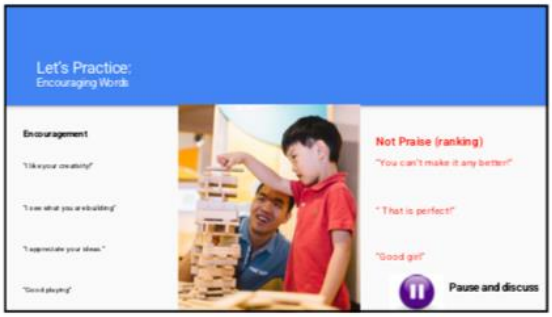

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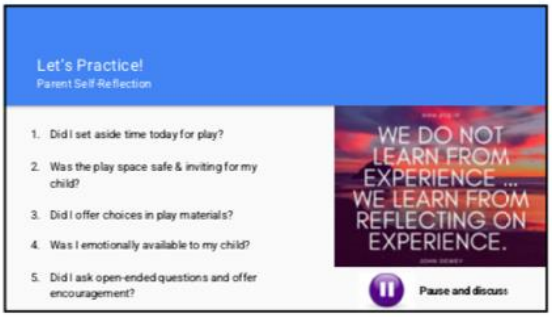

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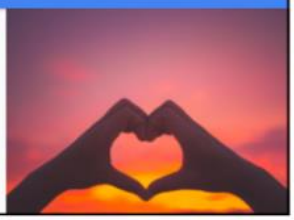
Setting the Scene for Play
Parent Checklist

- A reminder "To Do" list to support your child's constructive play
- Document changes in daily routine that might impact play (child is tired...)
- Opportunity for self-reflection



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Tips for Video Recording Play

- iPad charged
- Adequate lighting
- Stabilize the iPad
- Wide camera angle to capture movements of your child
- Upload play videos same day using the google drive app to

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Test your Knowledge!

Click here for a short quiz
we will go through together!

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Questions?

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Contact Information

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Appendix I

Instruction of Intervention PowerPoint Script

Slide 1: Play

Hi, I'm Michelle Thompson, a doctoral candidate at Virginia Commonwealth University in the School of Education Special Education and Disability Policy track. Thank you for participating in my dissertation study to learn to better support your child in play in your home.

Slide 2: Play is…

Play is foundational to childhood, learning, and happiness. It is through play that children learn about themselves, the physical world, and other people. It is also how children explore and practice new skills, learn to adapt to their environment, and cultivate a positive self-concept. Play is distinct from other activities. Play is a joyful, intrinsically motivating, and meaningful interaction with toys, objects, or other people. It is not intended to meet a basic need or achieve an external goal. In fact, play is so important to child development and quality of life that in 1959 the United Nations Convention on the Rights of the Child created an international policy acknowledging children's "right to play".

Slide 3: Types of Play

There are 2 major categories of play, play with toys and social play. Children grow and develop in both kinds of play, and they interact and overlap. For example, young children can engage in imaginary play by themselves, or with their friends. This VCU play study focuses on young children's constructive play with toys and play materials, not social play.

Slide 4: Constructive Play Is…

Constructive play is an active, hands-on, creative, and process-oriented type of play where children combine objects to create, build, or design to experiment and enjoy the creative process.

Slide 5: Why is Constructive Play Important?

40% of young children's play is constructive play with toys and play materials. It bridges the gap between functional play (using an object as it is intended such as drive the car, roll the ball…) and imaginary play (dramatic make-believe). Constructive play also lays an important foundation for math, problem-solving, creativity, art & design, and emotional regulation to manage emotions.

Slide 6: So How do We Support Constructive Play?

Today you will learn how to best promote constructive play in your home for your child. We will talk about setting aside time for play, the home environment including space and materials, and the important role parents have in supporting their child's engagement and creativity in play.

Slide 7: Creating Time for Play

Creating time for play. Prepare your child and yourself in advance by scheduling time into your daily home routine, and that you have communicated this to your child (use of a visual schedule works well for many children). Ensure that your child has their basic needs met prior to playtime so they are not too hungry, thirsty, tired, need to use the restroom, or in pain.

Slide 8: Prepare Accessible Play Space

Preparing a play space that is accessible for your child. Each new play session you will prepare the physical play environment for your child, ensuring it is physically safe, provides your child sufficient space to move and play, is comfortable and inviting to your child's unique

sensory needs and preferences. This means that the lighting, the surrounding sounds, smells, and room temperature is not uncomfortable or distracting to your child. Also consider the way play surfaces such as rugs and flooring feel to your child and ensure that other environmental distractions are limited. You can do this by turning off the TV and other electronic devices that may distract your child. Music without an accompanying screen to watch is fine, if the volume and type of music does not bother your child.

Slide 9: Choosing Play Materials

Choosing play materials. Choices are very important to support your child's creativity and engagement in their constructive play. Each play session, guide your child to select up to four different play materials, making sure you are offering your child choices that include play materials that are preferred or of interest and materials that are novel which will help your child expand their play experience. And of course, your will off your child play materials that align with your values and are culturally meaningful to your child and family.

Slide 10: Types of Play Materials

Types of play materials. Let's talk about choosing materials for constructive play. We know giving young children choices facilitates creativity and engagement. Research suggests that too many choices can be overwhelming, so for this study we are limiting choices to 4 play materials. These materials can be toys such as blocks or Legos; household objects such as spoons, plastic cups, or recycled boxes; objects important to your family's culture such as scarves, mahjong tiles, or important memorabilia; arts and craft materials such as tape, string popsicle sticks, and pipe cleaners; sensory mediums to bind other items together such as playdough; and items from nature such as small twigs, shells, or small rocks. Your child can choose up to 4 play materials, in any category. So, it's ok for your child to choose up to 4 types

of toy materials or 4 types of household objects to play with.

Slide 11: Build with Blocks, Boxes, & Books

Here we have young children building with single types of building objects such as blocks and Legos, but also building with more unique found items such as books and wooden spools.

Slide 12: Create Using Recycled Items

Here we see young children using recycled materials found in the home to build and create structures. As you see, the young girl on the left is using tape to reinforce her structure.

Slide 13: Design Using Craft Materials

Constructive play also includes combining arts and craft materials to build, design, or construct for the process, not the product. Here we see combinations of clay and toothpicks, plastic cups and popsicle sticks, pipe cleaners, beads, plastic straws, and macaroni creations stabilized in a base of playdough. On the left we see the creative design combining messy gak with found pieces of toys and shredded paper.

Slide 14: Design & Build with Items from Nature

Don't forget to use items from nature such as small rocks, twigs, pinecones, and shells to build, design, and combine with other building materials.

Slide 15: Combine & Design Combining favorite items

Constructive play also includes building and combining objects for the design and pattern, and how constructive play overlaps with both imaginary play and art.

Slide 16: Build using Household Items

Lastly, don't underestimate found items in your home. Plastic cups, pans, and soup can make excellent building and constructing materials.

Slide 17: Importance of Parents! Sociocultural-Emotional Support

The importance of parents. Parents are very important. You not only set up your home's physical environment for your child's play, but you are also part of that environment providing social, emotional, and cultural support and guidance for your child. Before you begin, be aware of your child's emotions, and your own emotions too. Parents who are physically, socially, and emotionally available to their child during play communicate to their child that play is important and valued.

So how do you do this? Encourage your child to lead the constructive play activity by giving them choices of play materials. Encourage your child to express pleasure, happiness, and playfulness while playing by smiling, laughing, and enjoying the play experience yourself, but don't take over the activity, follow your child's lead. Be socially and emotionally responsive and respectful by staying close by, maintaining a spirit of playfulness, and being available for conversation and hands-on play with your child. Children share their interest by showing and telling their parents about what they are making, and they enjoy answering questions about their play.

- Encourage your child's creativity by asking open-ended questions such as "What are you making?" or "What does this do?".
- Encourage your child in building, constructing, creating structures or designs by providing encouragement rather than praise. Do not rate their work as "good or bad". Do not say "That's the best", instead say open-ended words of encouragement such as "I see you are building" or "I like what you are creating".
- Also, be understanding and responsive to your child's frustrations.

Slide 18: Let's Practice! Set a Play Goal

Let's practice and start by setting a play goal. What is something you would like to get better at through your participation in this study? Examples are setting aside 30 minutes each day for constructive play, becoming more comfortable encouraging your child's play process, providing choices for engaging play materials, or setting up your child's play environment. *Pause the presentation and discuss in real time with parent what they would like to learn.*

Slide 19: Let's Practice! Being Emotionally Available

Let's practice and talk about being present, emotionally available, responsive to your child during constructive play. Think back to one of your child's recent play times. What did you do or say that communicated you were there to support your child? Let's pause and discuss ways to be emotionally present.

Slide 20: Let's Practice! Open-Ended Questions & Statements

Let's practice and talk about asking open-ended questions and making open-ended statements to support your child during constructive play. Think back to one of your child's recent play times. What did you say that communicated you supported your child's creative process rather than commenting on the end-product? Let's pause, discuss, and practice making open-ended questions and statements.

Slide 21: Let's Practice! Encouraging Words

Let's practice and talk about using words of encouragement rather than praise that indicate ranking your child during constructive play. Think back to one of your child's recent play times. What did you do or say to communicate encouragement? Let's pause, discuss, and practice using encouraging words.

Slide 22: Let's Practice! Parent Self-Reflection

Let's practice. Think back to one of your recent baseline play sessions you recorded and reflect on these questions. Did I set aside time today for play? Was the play space safe & inviting for my child? Did I offer choices in play materials? Was I emotionally available to my child? Did I ask open-ended questions and offer encouragement? Think back to what we just learned about play. When you reflect, what is something you did well? Can you think of anything you might consider changing?

Slide 23: Setting the Scene for Play Parent Checklist

You will be provided a link to a google sheet you can use as a reminder "To Do" list to set up and support your child's constructive play in your home. On this link will be space for you to document anything you feel may have impacted your child's play (for example, my child was very tired today). You can also use this checklist as a reminder and opportunity for self-reflection.

Slide 24: Tips for Video Recording Play

And finally, just a few tips for video recording your child playing. Make sure the iPad is charged and that there is adequate lighting. Stabilize the iPad and ensure you are capturing a wide angle to capture your child at play. And remember to upload play videos the same day if possible.

Slide 25: Test Your Knowledge

Click here for a short quiz (link to Parent Assessment document)

Slide 26: Questions?

Appendix J

Parent Post Instruction Quiz

Play is…

a. Joyful
b. Intrinsically motivating and meaningful
c. Not to meet a basic need or external goal
d. All the above

2. Constructive play is…
    a. Dancing in the rain!
    b. Playing on playground equipment
    c. Making music
    d. Combining objects to create, design, or build
3. What does NOT prepare the home for play?
    a. Ensuring the play space is safe
    b. Making sure the play area is comfortable for my child
    c. Bringing out ALL my child's toys for lots of choices
    d. Limiting external distractions (turn of TVs)
4. When helping my child select play materials I should NOT…
    a. Offer choices
    b. Make all the choices for my child since I'm the adult
    c. Offer play materials that align with my culture and values
    d. Offer playdough or tape as a choice
5. Constructive play materials are NOT:
    a. Blocks
    b. Electronic games
    c. Popsicle sticks

    d. Small rocks & twigs

6. Which of these important supports for constructive play should parents provide?
    a. Encouragement
    b. Time for play
    c. Choices
    d. All the above
7. All of these are suggested to support your child EXCEPT:
    a. Be playful!
    b. Be responsive to your child's frustrations
    c. Make choices for your child
    d. Don't interrupt my child's creative process
8. Open-ended questions and words of encouragement support your child's creativity. What is NOT supportive?
    a. "I like your creativity."
    b. What are you making?"
    c. "Good girl."
    d. "Good playing."

Appendix K
Parent Self-Assessed Fidelity of Intervention Checklist

1. Your email
2. Your assigned color (to keep your name confidential)
3. Date of play recording
4. My child knew play was in their daily routine/schedule today

Mark only one from 1 to 5

Ooops, I forgot to let my child know

- 1
- 2
- 3
- 4
- 5

Yes, my child knew and looked forward to playtime today!

5. Play today was child-directed

Mark only one from 1 to 5

My child did not want to play, and I had to suggest what to do

- 1
- 2
- 3
- 4
- 5

My child created and directed their own play, and I followed my child's lead

6. My child's play space has limited distractions and is comfortable to my child's unique sensory needs (check all that apply)

Check all that apply.

- Play surfaces (floor, rug, furniture) are comfortable for my child
- Room temperature is just right for my child
- Lighting is not too dim or bright for my child
- Background noise is not too loud for my child
- Air quality (smell) does not distract my child
- Screens are off (TV, electronic toys, and devices)

7. The play materials I offered to my child today to were open-ended to encourage creative constructive play today *

Mark only one from 1 to 5

No, I didn't have open-ended play materials available

- 1

- 2
- 3
- 4
- 5

Yes! I offered play materials that work well for building, designing, and creating

8. I helped my child select up to 4 non-electronic play items (check all that apply)

Check all that apply.

- Toys (i.e.: blocks, Legos)
- Household objects (i.e.: spoons, containers)
- Familial cultural items (i.e.: scarves, Mahjong tiles, memorabilia)
- Arts & craft materials (tape, string, craft paper, popsicle sticks, pipe cleaners)
- Sensory mediums (playdough, clay, sand)
- Items from nature (small rocks, twigs, shells)

9. During play today my child (check all that apply)

Check all that apply.

- Expressed pleasure, happiness, and/or playfulness while playing
- Was actively engaged in making constructions from the play materials (building, constructing, creating structures or designs)
- Led the play activity (made choices, decided how to play...)

10. Today I was understanding of my child's frustrations and offered encouragement rather than praise (such as "I like your creativity" or "I see what you are building" rather than "Good girl" or "You are the best".

Mark only one from 1 to 5

I either didn't offer encouragement or I went overboard with the praise....

- 1
- 2
- 3
- 4
- 5

I encouraged my child by commenting and complementing their creative process

11. Today I asked open-ended questions such as "What are you making?" and open-ended statements such as "Tell me about this."

Mark only one from 1 to 5

I need to remember to ask open-ended questions

- 1
- 2
- 3
- 4
- 5

I did great asking open-ended questions and statement today!

12.Today I was present for my child

Mark only one from 1 to 5

Today I was otherwise occupied or not really “present” (life happens)

- 1
- 2
- 3
- 4
- 5

Today I was emotionally, physically, and socially available for my child during play, providing emotional support and encouragement by paying attention, smiling, and offering words of support like "That's ok" "I see you are frustrated", and "Tell me more"

13. Thinking about your child's play today, what worked well?

14. Thinking about your child's play today, what could improve?

Thank you!

Appendix L
Observed Fidelity of Intervention Checklist

Video Title:

Date of Video:

Name of observer:

Directions: After watching each play video (baseline and intervention phase) please note each of the following conditions as Yes, No, or Not Clear

	Yes, No, Not Clear
Temporal Environment: Time	
Play is lightly structured and/or child-led (i.e.: not adult-directed)	
Parent offers child choices in types of play activities	
Child's basic needs appear to be met prior to playtime as child doesn't show overt signs of hunger, thirst, tiredness, pain (i.e.: asking for food, drink, putting head down to nap, crying)	
Play appears to be welcomed by the child (i.e.: child isn't trying to get out of play time do other activities)	
Physical Environment: Space	
Play space appears to be physically safe (ie: no visible dangers noted)	
Play space appears to have sufficient space to move around to play	
Environmental distractions are limited and play space appears comfortable to the child's sensory needs as evidenced by the child's behavior and observer's visual/auditory inspection:	
• Screens off (i.e.: no TV, electronic toys, and devices with screen in child's view)	

● Comfortable play surfaces (i.e.: not constantly shifting around attempting to find a comfortable surface to play on)	
● Temperature not too hot or cold (i.e.: not folding arms to indicate feeling cold)	
● Lighting not too bright but well-lit (i.e.: not squinting eyes to limit bright lighting)	
● Background noise not too loud, or quiet (i.e.: not holding hands over ears to limit sounds)	
● Air quality / smell (i.e.: not making "stinky face" to indicate unpleasant odor)	
Physical Environment: Materials	
Materials appear to be:	
● Open-ended to encourage creativity (i.e.: not single-use toy like a musical keyboard)	
● Choices are offered and available	
● Familiar, meaningful, or preferred play materials are offered (i.e.: as noted by child's acceptance of toys)	
● Novel play materials are offered (i.e.: as noted by parent)	
● Note which categories of play materials are offered ○ Toys (i.e.: blocks, Legos…) ○ Household objects (i.e.: spoons, containers…) ○ Familial cultural items (i.e.: memorabilia…) ○ Art & craft materials (tape, string, craft paper, popsicle sticks…) ○ Sensory mediums (playdough, clay, sand) ○ Items from nature (small rocks, twigs, shells)	
● Child selects up to 4 non-electronic play items (can be from the same category, set of blocks are considered a single item)	
Sociocultural- Emotional Environment: Child	
Child:	

• expresses pleasure, happiness, playfulness while playing (i.e.: as noted by child smiling, laughing, humming)	
• is actively engaged in making constructions from the play materials (building, constructing, creating structures or designs	
• leads play activity (i.e.: child plays independently or contributes ideas in play with parent)	
Sociocultural-Emotional Environment: Parent	
Parent is:	
• Available to the child "as needed" (i.e.: comes when called, notices when child is frustrated or unhappy; in proximity)	
• Engaged in child-led play activity	
• NOT Otherwise occupied (i.e.: not in room, not available when child call)	
• Emotionally responsive and respectful	
• Encourages rather than praises (rates)	
• Asks open-ended questions	
• Demonstrates playfulness and enjoyment (i.e.: via smiling, laughter)	
• Understanding of child's frustrations (i.e.: parent responds calmly and/or redirects child)	
• Parent communicates play is valued (ie: through their physical and/or social interest and/or participation)	

Appendix M

Intervention Protocol

The researcher will instruct parents individually in this intervention protocol, assisting parents to identify changes in their physical, temporal, and social home environment that will increase supports and decrease barriers to facilitate their child's active engagement in constructive play. Changes will be individualized and culturally relevant for each family. The researcher will use a researcher-created PowerPoint presentation to review with the parents and for parents to reference. Paper copies of this protocol will also be provided.

During this 60-minute virtual session, the researcher will instruct the parent utilizing the principles of parent coaching to include joint goal setting, modeling, and opportunities for role-playing, self-reflection, and performance feedback. Intervention components will be reviewed and practiced with the parent until mastery of the intervention is measured using the parent post instruction quiz (see appendix J).

Researcher will instruct the parent in implementing the following home environment supports and reducing environmental barriers:

Temporal (Time) Environment

Each new play session, prepare your child and yourself in advance by scheduling time into your daily home routine, and that you have communicated this to your child (use of a visual schedule works well for many children). Ensure that your child has their basic needs met prior to playtime (hunger, thirst, sleep, pain).

- 10-60 minutes is set aside for play each day

- Child's basic needs are met prior to playtime (not hungry, tired, or in pain)
- Play is anticipated in the child's daily routine/schedule
- Unstructured or lightly structured; child-led
- Child provided choices in types of play activities

Physical Environment

Space

Each new play session, prepare the physical play environment for your child, ensuring it is physically safe, provides your child sufficient space to move and play, is comfortable and inviting to your child's unique sensory preferences (sight, sound, smell, touch, temperature), and that distractions are limited (screens off, no electronic toys, music volume low).

- Physically safe
- Sufficient physical space to move around to play
- An inviting area that promotes play
- Area comfortable to the child's senses (sight, sound, smell, touch, temperature)
- Distractions limited and space comfortable
    a. Screens off (TV, electronic toys and devices)
    b. Comfortable play surfaces
    c. Temperature (comfortable)
    d. Lighting (not too bright but well-lit)
    e. Background noise (not too loud, or quiet)
    f. Air quality (smell)

Materials

Each new play session, guide your child to select up to four different play materials, making sure you are offering your child choices that include play materials that are preferred or of interest, novel, and culturally meaningful to your child and family.

- Open-ended to encourage creativity
- Choices provided
    a. Familiar or preferred
    b. Novel
- Child selects 4 non-electronic play items (can be from the same category)
    a. Toys (i.e.: blocks, Legos)
    b. Household objects (i.e.: spoons, containers)
    c. Familial cultural items (i.e.: scarves, chopsticks, memorabilia)
    d. Art & craft materials

       (tape, string, craft paper, popsicle sticks, pipe cleaners)
    e. Sensory mediums (playdough, clay, sand)
    f. Items from nature (small rocks, twigs, shells)
- Familiar, preferred and novel
- Meaningful to my child or family

Sociocultural-Emotional Environment

Each new play session be aware of your child's emotions, and your own emotions too. Children share their interest by showing, telling, and they enjoy answering questions about their play. Parents who remain available and interested in the child's constructive play are emotionally accessible to their child and communicate to their child that play is valued.

Here are several strategies that promote social-emotional supports and reduce barriers:

- Encourage your child to lead the constructive play activity by giving them choices in the play materials
- Encourage your child to express pleasure, happiness, playfulness while playing by smiling, laughing, and enjoying the play experience yourself
- Encourage your child in building, constructing, creating structures or designs by:
    a. following their lead in what they are constructing
    b. Providing encouragement rather than praise. Do not rate their work as "good or bad". Do not say "That's good", instead say open-ended words of encouragement such as "I see you are building" or "I like what you are creating.")
    c. Ask your child open-ended questions such as, "What is this?' or "What does this do")
- Be socially and emotionally responsive and respectful by staying close by:
    a. maintaining a spirit of playfulness
    b. being available for conversation and hands-on play with your child
- Be Understanding of your child's frustrations

Appendix N

Parent and Child Social Validity Survey

This post-study parent questionnaire will be generated electronically using a university secure google Forms survey and delivered via email and text for parents to utilize their computer or cell phone to answer survey questions. A paper format will also be available upon request, delivered to the parent through the US mail, and parents will be provided a pre-addressed and stamped envelope to return the survey.

Child

Directions

Parents, please read the following survey questions to your child. Your child can respond verbally and/or gesturally (head nod) or by pointing to or marking on the green-colored happy-face "yes" icon and not the red-colored sad-face "no" icon.

I liked participating in the play study  Yes  No

I know where I can play at my house  Yes  No

I like to choose the toys I play with  Yes  No

I like to build and create  Yes  No

I discovered new things I can build and play  Yes  No

I like having playtime every day  Yes  No

I like talking to my mom/dad when I play  Yes  No

I like to build and play with my mom/dad  Yes  No

I play more with my mom/dad now  Yes  No

Is there anything else you (child) would like to tell me?

Parents

When answering these questions, please consider the impact this intervention had on you, your child, and your family. Please consider the following scale when answering each question:

1 (not at all), 2 (very little), 3 (somewhat), 4 (a fair amount), 5 (very much)

1. I'm glad I participated in this study: 1 2 3 4 5
2. I learned about my child: 1 2 3 4 5
3. I learned to make physical changes in my home to better support my child's play: 1 2 3 4 5
4. My child has benefited from the physical changes I have implemented: 1 2 3 4 5
5. I learned to make temporal (routines, schedules, time) changes in my home to support my child's play: 1 2 3 4 5

6. My child has benefited from changes to time and routines set aside for my child to play: 1 2 3 4 5
7. I learned new ways to interact socially and to support my child better emotionally during play: 1 2 3 4 5
8. My child has benefited from new social and emotional strategies to support my child during play: 1 2 3 4 5
9. My family's culture, values, & beliefs were supported throughout this study: 1 2 3 4 5

   Please explain:
10. I benefited from this study: 1 2 3 4 5

    Please explain:
11. My child's play has improved: 1 2 3 4 5

    Please explain:
12. My child is better able to handle frustrations after completing this study: 1 2 3 4 5

    Please explain

Appendix O

Implementation Timeline

Step 1 Recruitment

- Preschool directors are to be notified about this study via email, provided a description of the study including child and family inclusion and exclusion criteria (see Appendix A) and provided a recruitment flyer (See Appendix B) to give to potential participants' parents
- Description of this study parent consent (see Appendix C), and study flyer are to be emailed to parents of children identified as meeting inclusion criteria and whose parents express an interest in participating in the study.
- The researcher will contact potential participants by phone to review confirm inclusion and exclusion criteria, review the purpose of the study, discuss the anticipated timeline, and to answer any questions.
- Parent consent was secured electronically using DocuSign software.

Step 2 Baseline Phase

- Baseline data collection will begin concurrently for all four parent-child dyads.
- Parents will be instructed on the video recording protocol (see Appendix F) and provided an iPad to use as a recording device.
- Parents will be instructed to record three weekly 10-minute sessions of their child's play for the duration of their baseline phase.

- Parents will be given the following directions, “Please video-record your child playing for 10 minutes, as they typically play.”
- Baseline phase will conclude for the first parent-child dyad when five or more data points have been collected and their data level and trend line is stable or moving in a contra-therapeutic decelerating direction upon visual analysis.
- Baseline phase will continue for the remaining participants who will be instructed to continue in baseline phase
- Baseline phase will conclude sequentially for each of the remaining participants when 3-5+ data points have been collected and their data level and trend line is stable or moving in a downward trajectory upon visual analysis.
- Participants will be moved out of baseline phase in the order they meet baseline criteria, and when they dyad preceding them demonstrates a stable or accelerating trend for the first 3 data points of their intervention phase.

Step 4: Parent Instruction of the Intervention

- Researcher will meet virtually with each parent for a 30-minute interview to assess the family and child’s individual and cultural needs and strengths
- Researcher will meet virtually for 60 minutes to instruct parent #1 on the importance of play, provide and review materials, and coach the parent to set up their home’s physical, temporal, and social-emotional environment to best facilitate their child’s constructive play. Instruction was provided through a narrated PowerPoint slide show (see Appendix H) that the researcher presented individually to each parent along and engaged in individualized discussion as noted on the script (see Appendix I).

- Parents' knowledge will be measured using the Parent Post Instruction Quiz (J) at the end of the instructional session to ensure parents understand the material. Material will be reviewed to reinstruct missed items.

Step 5: Intervention Phase

- Intervention phase of data collection for first participant begins.
- Parents will video-record 10-minute sessions of their child's play for 3+ times weekly over the course of their intervention phase.
- Researcher will meet with parent #1 for ongoing coaching over a secure video conferencing platform twice during the intervention phase.
- The parent will implement treatment and rate their fidelity of intervention by completing the Parent Self-Reflection on Fidelity of Intervntion (see Appendix K) on google Sheets over a university-secure server accessed through their cell phone or email.
- Researcher will complete the Researcher Fidelity of Intervention Checklist (L) and code the intervention videos using the data collection sheet (see Appendix G).
- Intervention Phase will conclude for the participant when five or more data points have been collected and their data level and trend line is stable or moving in an upward trajectory upon visual analysis.
- During this time participants 2-4 will continue in baseline phase and sequentially move into intervention phase as they meet criteria.

Step 7 Break

- Researcher will stop providing informal support or coaching for a period of 3+ weeks.

Step 8 Maintenance Phase

- Conditions will be identical to the baseline phase so parents will be instructed to collect 3+ 10-miute recordings of their child.
- Parents will be given the following directions, “Please video-record your child playing for 10 minutes, as they typically play.”
- During this phase there will be no coaching or support from the researcher.
- Parent will not complete the intervention fidelity checklist, although they will still be able to reference this checklist in their intervention package.
- Maintenance phase will conclude for participant when three or more data points have been collected.

Step 8

- After the intervention phase concludes, the researcher will gather social validity

Visual Timeline

	Participant #1	**Participant #2**	**Participant #3**	**Participant #4**
Step 1 Recruitment	Recruitment	Recruitment	Recruitment	Recruitment
Step 2 Baseline Phase	Baseline data collection	Baseline data collection	Baseline data collection	Baseline data collection
Step 3 Parent Instruction begins	Family interview & Parent instruction on intervention	Baseline data collection	Baseline data collection	Baseline data collection
Step 4 Intervention Phase begins	Intervention data collection	Family interview & Parent instruction on intervention	Baseline data collection	Baseline data collection

Step 5 Process continues	Intervention data collection	Intervention data collection	Family interview & Parent instruction on intervention	Baseline data collection
Step 6 Process continues	Intervention data collection	Intervention data collection	Intervention data collection	Family interview & Parent instruction on intervention
Step 7 Process continues	Intervention data collection	Intervention data collection	Intervention data collection	Intervention data collection
Step 8 Pause	Pause between intervention and maintenance phases	Pause between intervention and maintenance phases	Pause between intervention and maintenance phases	Pause between intervention and maintenance phases
Step 9 Social Validity	Social validity questionnaire for parent and child	Social validity questionnaire for parent and child	Social validity questionnaire for parent and child	Social validity questionnaire for parent and child
Step 9 Maintenance Phase	Maintenance data collection	Maintenance data collection	Maintenance data collection	Maintenance data collection

Vita

Michelle Lynn Boulanger Thompson is an American citizen born on October 29, 1964, in Harrisburg, Pennsylvania. She graduated from Palatine High School, Palatine, Illinois in 1982 and received a Bachelor of Arts in Spanish Language and Literature, with a minor in Psychology, from Indiana University, Bloomington, Indiana in 1986. She received a Master of Science in Occupational Therapy in 1988, a post-baccalaureate Certificate in Autism Spectrum Disorders in 2011, and Leadership in Neurodevelopmental and Related Disabilities (LEND) certification in 2016, all from Virginia Commonwealth University, Richmond, Virginia. Mrs. Thompson has worked as an occupational therapist for 33 years, working with individuals with disabilities across the lifespan, in early intervention (birth to three), public schools, and adult home health. She is currently the lead occupational therapist and assistive technology team member in Richmond Public Schools in Richmond, Virginia. She serves on the Board of Directors for Mosaic, a national organization supporting community living needs for adults with IDD, serves in a leadership and research role for the American Association on Intellectual and Developmental Disabilities' (AAIDD) Creative Arts special interest group, and serves on the Virginia Division on Early Childhood's (VA-DEC) leadership board. Mrs. Thompson's research interests include the importance of play and creativity, caregiver coaching, and the importance of belonging and community for individuals with disabilities and their families.