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## In what ways can play-based learning in preschool and kindergarten classrooms support healthy development?

Angela Bjelde  
bjelde@csp.edu

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In what ways can play-based learning in preschool and kindergarten classrooms support healthy development?

Angela Bjelde

Concordia University, St. Paul

MA in Education: Early Childhood

ED 590 Course Instructor: Dr. Kelly Sadlovsky

Second Reader: Professor Elisabeth Amirahmadi

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### Abstract

Play-based learning was identified as a developmentally appropriate practice (DAP) within early childhood education (ECE) (NAEYC, 2009). This paper examined current research to determine the impact of play-based learning on the development of preschool and kindergarten children. According to research, play offers effective, innovative approaches to pedagogy that meets children's diverse needs as a whole learner. Although research has underlined the importance of play for the future of ECE, a number of diverse challenges have created difficulty with implementing play-based learning in preschool and kindergarten classrooms. Most early childhood educators have faced increasing difficulty with advocating for play given the pressure to focus on academic achievement and standardized testing. Other challenges have included the stigma of play within society, difficulty defining play, lack of time, inadequate play spaces, and inappropriate expectations (Belknap & Hazler, 2014; Mainella, Agate, & Clark, 2011; Nilsson, Ferholt, & Lecusay, 2018). Studies in this paper examined research on these issues within ECE, effects of lack of play experiences, as well as benefits of play for young children's holistic development. Supporting the development of children's full social, emotional, physical, and cognitive capacities was found to most effectively be addressed through inclusion of play in preschool and kindergarten curriculum.

*Keywords:* play-based learning, developmentally appropriate practices (DAP), early childhood education (ECE), child development, pedagogy

## **Chapter One: Introduction**

Schools have a choice between implementing play and academics as separate mechanisms or integrating play and academics together. With an academic system influenced by assessments and a standard driven curriculum stems considerable pressure on preschool and kindergarten educators to focus solely on quantifiable learning outcomes at the expense of play (Nilsson, Ferholt, & Lecusay, 2018). Preschool and kindergarten children are faced with inappropriate expectations that were previously reserved for first grade. Along with pressure to meet high academic standards, children are being denied the many benefits of play (Miller & Almon, 2009). Many teachers have cut down or removed playtime in attempt to achieve higher learning. However, a lack of play has the opposite effect on learning and development (Miller & Almon, 2009). Classrooms do not have to choose between academic success and play, but rather, can find a parallel between both. Play and learning can be implemented within teaching and pedagogy, as quality play allows children to engage in meaningful learning (Nilsson, Ferholt, & Lecusay, 2018). Early childhood classrooms should be a place where children's natural inclination to play is valued and nurtured. Just as Friedrich Froebel believed, children should experiment and learn within a child-centered context (Pyle, Prioletta, & Poliszczuk, 2018). Froebel's view supports the growth of children's cognitive, social, and emotional development. This developmental perspective allows young children to develop sophisticated thinking skills, creating foundations for growth. Play-based learning should be prioritized in preschool and kindergarten teaching and pedagogy to promote comprehensive development.

### **History of Play**

Play has long been a central ingredient to educational practice and learning. Friedrich Froebel created the first kindergarten in 1873, often referred to as a "garden for children" (Taylor

& Boyer, 2020). For Froebel, play was at the heart of childhood and Froebel was deeply committed to help children develop an understanding of the world. Rudolf Steiner influenced play by recognizing the value of connecting content with an activity to meet children's needs and help propel growth. Maria Montessori further contributed to the role of play in education. Montessori emphasized children's freedom of choice to engage in learning processes (Taylor & Boyer, 2020). Continued research over the years has shown how play is the work of children. Jean Piaget and Lev Vygotsky also contributed to an emphasis of play-based learning. Piaget and Vygotsky regarded play as an essential vehicle for exploration, creativity, experimentation, socialization, and both imaginative and realistic thinking (Nilsson, Ferholt, & Lecusay, 2018). With findings from these theorists and support from the public, local, state, and federal agencies, kindergarten was firmly secured as part of the United States public school system by the 1950's. During that time, kindergarten bridged children's early learning experiences from home, preschool or child care centers, with more academically-focused environments of first grade (Repko-Erwin, 2017).

Changes regarding kindergarten have caused kindergarten to be viewed as the new first grade. The No Child Left Behind Act (NCLB), became a federal law in 2002, resulting in an emphasis on high-stakes accountability and standards-based instruction (Repko-Erwin, 2017). The goal of NCLB was to standardize instruction, raise achievement levels, and hold schools accountable for student outcomes. Research showed that the goals often came at the expense of play (Repko-Erwin, 2017). Although push-down of academics has largely been attributed to NCLB, kindergarten as an institution has struggled since the 1920's to become defined as a separate entity. Kindergarten has struggled to become separate from primary grades and related, but separate from other forms of early childhood (Repko-Erwin, 2017). Kindergarteners spend

far less time engaged in play and far more time receiving formal academic instruction (Repko-Erwin, 2017). Many schools have lessened amounts of time for play or even completely pushed play out of preschool and kindergarten classrooms in an effort to meet demands of curriculum, standardized testing, and high academic demands.

### **Defining Play**

Many schools view play and learning as separate mechanisms. The stigma of play is a contributing factor to this misconception. In today's society, there is a lack of understanding regarding the value of play and essential learning that takes place when children engage in play. Quality play is not a free-for-all that deteriorates into chaos. Play is also not so tightly structured that children are deprived of opportunities to explore initiatives (Miller & Almon, 2009). Play has purpose and balance. Educators need to understand how to define play and explain the vital role of play in children's development (Miller & Almon, 2009).

In general, research defined play as an activity that is self-chosen, self-directed, intrinsically motivated, pleasurable, guided by mental rules, imaginative, and actively engaged by players (Gray, as cited in Belknap & Hazler, 2014). However, there are many types of play, ranging from free to guided play. Free play can be defined as activities that are voluntary, active, flexible, fun, and not affiliated with extrinsic goals. Guided play, on the other hand, still remains child-directed, but also integrates scaffolded learning objectives by an adult (Cavanaugh, Clemence, Teale, Rule, & Montgomery, 2017). Many forms of play fall in between free and guided play, such as pretend, sociodramatic, thematic, fantastic, rough and tumble, etc. Pairing different types of play with academic skills can yield dynamic learning results. Research demonstrated that young children need these child-initiated experiences, with the presence of

engaged teachers that creates balance and allows for guidance toward more focused, purposeful experiential learning (Roskos & Christie, 2013).

### **Understanding Play Deprivation**

Play deprivation, on the other hand, is the term characterized by outcomes faced by children who experience a reduction in both access as well as opportunities for play (Belknap & Hazler, 2014). Play experiences are not a luxury. When experiencing play deprivation, children are deprived of experiences that are essential to holistic growth and development. When play deprived, children are not provided with adequate opportunities to acquire new skills and learning. Lack of play hinders children's abilities to achieve and grow to the highest potential. Students have less experience practicing social skills, self-regulation, and problem-solving. Play deprivation has also been found to increase anger, stress, aggression, mental illness, risk for obesity and risk for health conditions (Belknap & Hazler, 2014).

Play deprivation stems from numerous societal and educational changes, advancements, and expectations. A major obstacle faced within schools is time restraints caused by push-down of curriculum. Today's educational climate is often shaped by high-stakes testing scores, accountability concerns, and inappropriate expectations (Belknap & Hazler, 2014; Nilsson, Ferholt, & Lecusay, 2018). Early academics have been found to push play out of kindergarten and even preschools because there isn't enough time, curriculum does not always incorporate play, and play is not valued by all administration. Not only has this reduced the amount of time available for play within the classroom, but also outside the classroom. Current research has shown that in an effort to make time for curriculum, instruction, and testing, appropriately 40 percent of school districts in the United States have eliminated or significantly reduced the amount of time for recess (Mainella, Agate, & Clark, 2011). Specifically in kindergarten,



research showed that children spend four to six times as much time in direct instruction and testing as in play (Gray, 2017; Miller & Almon, 2009). Didactic drills, standardized tests, and scripted teaching are decreasing opportunities for children to engage in meaningful experiences during play. Play, on the other hand, provides an opportunity to make use of more appropriate observational and curriculum-embedded performance assessments instead.

Other contributors to children's lack of play include children being overscheduled, engaging in increased amount of time using technology, and having inadequate or unsafe outdoor spaces. Many children today are referred to as the hurried child or overscheduled child (Belknap & Hazler, 2014; Gray, 2017; Mainella, Agate, & Clark, 2011). Children have busy, structured schedules that often include rushing off to soccer practice or piano lessons during free time. Although structured activities provide a beneficial context for children, structured activities should not take place of free play that children need. Increasing amounts of screen time and media exposure create even less time for children to actively engage in free play. Even when children do find time to play, adults sometimes fear safety of outdoor spaces and equipment. Parental figures and caretakers may worry about strangers or liability issues. This can further prohibit play (Belknap & Hazler, 2014; Gray, 2017; Mainella, Agate, & Clark, 2011). With challenges faced both at home and at school to engage in play, children have fewer opportunities for valuable play experiences. In addition, many visitors within classrooms, such as parents and administrators, question the value of play or don't understand how children are learning. Educators are, increasingly, having to dedicate time explaining how intentional integration of activities, like play and hands-on experiences, meet the needs of children's diverse learning styles and expose students to academic rigor (Brown, Feger, & Mowry, 2015).

### **Developmentally Appropriate Practices**

Within the field of early childhood education (ECE), educators are expected to appropriately implement developmentally appropriate practices (DAP) for young children, as suggested by the National Association for the Education of Young Children (NAEYC) (NAEYC, 2009). Providing DAP allows educators to advance equity and embrace diversity by nurturing children's social, emotional, physical, and cognitive abilities. Research found that, DAP holds educators accountable for treating children fairly and implementing an anti-bias education so that all children can thrive within high-quality early childhood classrooms (NAEYC, 2009).

Play reflects core values of early childhood education and serves to nurture and protect children. Children are often vulnerable and powerless. Since early childhood educators are responsible for children, educators have a duty to implement practices that are right, just and fair (Feeney & Freeman, 2018). DAP, along with The Code of Ethics, provides guidelines for professional conduct and commitment to high-quality education for all children. DAP and the code helps educators understand principles and responsibilities for children, families, colleagues and employers, and the community and society. By adhering to the code and DAP, educators are better equipped to maintain high standards of ethical behavior and make fair, ethical decisions (Feeney & Freeman, 2018). These guidelines help to yield what this professional conduct looks like within early childhood settings based on evidence from research, theory, and practice. Play is frequently noted as a DAP for young children, as play ensures high-quality and equitable education (NAEYC, 2009).

### **Conclusion**

Implementing play-based learning within preschool and kindergarten classrooms supports healthy development of young children. Play is aligned with DAP guidelines as play provides a

platform for educators to meet the needs of diverse learners and support children in all areas of development (NAEYC, 2009). This paper synthesized published research on play and focused on the following question, “In what ways can play-based learning in preschool and kindergarten classrooms support healthy development?” Research supported the implementation of play within preschool and kindergarten classrooms. Research in this paper addressed the following domains of development: social, emotional, physical, and cognitive. Each category was broken down and organized by subtopics to further refine each domain and addressed study participants, purpose, methods, findings, limitations, and recommendations to provide comprehensive data on play-based learning. The following literature review used research to address how play can be used to support preschool and kindergarten children’s learning and development.

## **Chapter Two: Literature Review**

Children develop and learn from play in a way that simply cannot be taught. Research showed how play is the work of children (Miller & Almon, 2009). Research showed that many schools have continued to reduce or eliminate the appearance of play within classrooms. Not only do children need play, but also need sufficient time to play (Miller & Almon, 2009). Children need time for enabling new skills to fully develop and time to think, adding more complexity to play scenarios (Brown, Burriss, Snead, & Burriss, 2020). At a minimum, educators should implement 30 to 40 minutes of daily uninterrupted play (Brown et al., 2020; Heidemann & Hewitt, 2010). Research concluded that educators need innovative strategies to teach young learners effectively. Early childhood educators need to be able to teach the whole learner, helping students to achieve social, emotional, physical, and academic growth (NAEYC, 2009). Through this review, benefits of play-based learning within the domains of social, emotional, physical, and cognitive development were addressed. Quantitative, qualitative, mixed-method, and case studies were used to research how play-based learning environments foster healthy development for preschool and kindergarten children.

### **Social Development**

Children's play nurtures children's social development, including relationship management and social skills. During play, children are provided with an avenue to practice speech, body language, and facial expressions (Mainella, Agate, & Clark, 2011). Through feedback from others, children learn societal rules. Children learn skills such as cooperation, turn taking, empathy, group management, and negotiation (Mainella, Agate, & Clark, 2011; Miller & Almon, 2009). When children do not have these vital experiences to practice social skills, children may find difficulty achieving developmentally appropriate growth. Children may

struggle to behave and follow rules in social situations. Maintaining positive relationships and understanding how others feel can be difficult. Children may lack attention and concentration, prefer to play alone, and have difficulty maintaining friendships. In addition, children who are play deprived may not understand the give-and-take nature of conversations (Mainella, Agate, & Clark, 2011). Instead, of taking turns listening and talking, children may talk at others and struggle to engage in two way conversation. This can impact children throughout an entire lifetime, as social skills are an important piece of engaging with others in the community, at school, and in professional careers. Children need to be able to practice and develop these skills to play and work with others (Mainella, Agate, & Clark, 2011).

### **Social Skills**

Social skills are verbal and nonverbal skills used daily to communicate and interact with others (Mainella, Agate, & Clark, 2011; Miller & Almon, 2009). Having knowledge of how to behave in social situations is important for developing strong social skills or social competence. Research has shown that social interactions during play present rich learning opportunities for young children to hone and master social skills (Veiga et al., 2017). A qualitative study examined whether one form of play was more important for development of social competence or if aspects of the playground, such as number and duration of interactions, was more important. Researchers differentiated four types of play: pretend (fantasy and role play) and physical (exercise and rough and tumble play). Participants included 44 male and 29 female preschool children. All students were between four-to-six years old and came from, primarily, middle-class families. Of the total 73 children, 86 percent were of Portuguese descent. Other children were of European, African, and Brazilian descent (Veiga et al., 2017). Parents received consent forms and questionnaires to provide background information. Play observations were conducted and

videotaped by researchers during recess at the preschool for five weeks. Recess began after lunch and lasted for 30 minutes. Researchers familiarized children with the presence of researchers and cameras by visiting the preschool before formal observations began. Children wore proximity-sensing radio-frequency identification device (RFID) badges during recess to collect data regarding social interactions. After five weeks, a total of 145 videos were collected with approximately six observations per child. Teachers also filled out questionnaires about behaviors of each child to compare social competence at the beginning and end of the school year (Veiga et al., 2017).

Results from the study showed that children engaged mostly in rough and tumble play. Exercise play, such as running and climbing, positively correlated most to children's social skills development. Findings displayed that children who engaged with smaller groups of peers for longer interactions, were rated as more socially competent by teachers. Rather than a certain type of play, results showed that quality interactions during play fostered social competence. Children that sustained relationships and engaged in more intimate reciprocal exchanges with peers were more socially competent (Veiga et al., 2017). Results indicated that play environments have an important effect on the nature of children's play. The nature of play, including length of interactions and amount of play partners, was found to impact development of social skills. Therefore, having adequate time to play was an important component of social competence (Veiga et al., 2017).

Limitations of this study include that researchers did not share a comparison of results from teacher questionnaires. Only results from the end of the year were shared. Including data from the beginning of the year would have been beneficial to monitor growth of each specific child over the course of a full school year. Another limitation was with RFID usage. By using a

sensor technique, researchers found difficulty determining if children were just spatially close to one another or actually engaged in social interactions (Veiga et al., 2017). A different method may be better to explore in further studies. Future research should investigate play and social skill development. Observing children more often throughout the school year would also better determine growth.

### **Language and Communication**

When engaging in play, children take on roles of characters and create new situations. Experimenting with roles encourages children to think and act like different characters, allowing children to use skills not even mastered yet. Role playing challenges children to use communicative skills and experiment with new vocabulary, resulting in higher level play (Belinda, 2012). Play provides a sense of comfort, where children are less pressured to try out new skills. If children do not have these experiences to experiment with language in an informal setting, children are less likely to take risks or embrace challenges in more formal contexts.

Effective play environments incorporate loose parts: materials children can use in a variety of ways. Loose parts encourage children to use imaginative thinking to develop authenticity and complexity to play episodes (Flannigan & Dietze, 2017). Presenting loose parts to children positively impacts social skill and language development. Flannigan and Dietze (2017) conducted a qualitative study to examine children's play themes, patterns, and behaviors when using familiar loose parts, or objects and materials that are open-ended and able to be manipulated, in a natural play environment. This study was guided by the ecological theory, which proposed a connection between the environment and children's development. To gain a better understanding on how loose parts in early learning environments benefit the play and development of children, researchers used observations of preschool children in a rural

environment. Flannigan and Dietze (2017) used a sample of 27 preschool children between the ages of four and five as well as four early childhood educators. Of the 27 children, 11 were female and 16 were male. To conduct the study, researchers used three observations and video recorded each one for future analysis. Observations took place outside in a play green space in front of the childcare building. Along with video recordings, field notes were taken to collect information about weather conditions, verbal languages, and notes about specific play episodes. Loose parts available to students included both natural and synthetic materials. On the first observation, students had access to the following loose parts: a rope, garbage can, plastic pipes, plywood, buckets, buoys, tires, crates, dishes, clay trays, nets. Loose parts included during the second observation were shovels, trays, tires, driftwood, rope, plastic tub, crate, and rocks. On the third day of the observation, students had access to tires, buoys, wood, rope, crate, hoola hoop, fishing net, buckets, pipes, tubes, and dishes.

Common play themes that emerged from the results included: weapon/gun play, family roles, and dramatic play that included good versus bad roles. Both boys and girls were observed playing together and engaging in these various types of play themes. Play patterns observed included play episodes that were goal oriented and involved shared activities. When loose parts were available, children not only perceived the functional use of materials, but also as having imaginary qualities. Children did not view materials as having one sole use. Rather, children viewed materials as having countless ways to be used. Many positive social behaviors were observed including: turn taking, cooperating, assigning roles, decision making, leadership, problem solving, inclusion, and curiosity (Flannigan & Dietze, 2017). Research found that children demonstrated engagement in risk-taking behaviors that allowed more exploration, danger, and adventure within play activities. At the same time, children were able to develop



confidence and self-regulation, while assessing personal tolerance for risk (Flannigan & Dietze, 2017). Results showed that increasing young children's opportunities to use loose parts in learning environments supported positive development, such as positive social behaviors and usage of complex verbal and nonverbal interactions (Flannigan & Dietze, 2017). Loose parts in play environments provided children with rich opportunities to expand vocabularies, experiment with language, and engage socially with peers. Research validated the value of open-ended materials in play environments and hands-on exploration as effective ways to support growth and development (Flannigan & Dietze, 2017).

This study had a couple of limitations to be noted. The sample size was fairly small and only represented one classroom. In addition, observations only took place during three separate occasions. Using a larger sample size and increasing the amount of observations would provide more sufficient data. Flannigan and Dietze (2017) suggested that there should be more research on natural outdoor environments as well as loose parts for development of young children. Researchers also recommended professional development for early childhood educators regarding the importance of loose parts for play experiences.

### **Relationship Management**

Being able to communicate, form relationships, work collaboratively, and engage in both negotiations and conflict management are all a part of relationship management (Kirk & MacCallum, 2017). Research showed that unstructured play allows children to create, maneuver social situation, make decisions, and experience consequences based on those decisions. Children feel more comfortable to make mistakes, take risks, problem solve, and adapt play. Children are more confident in dealing with uncomfortable feelings and solutions to come up with an agreed upon solution. Children even use persuasive language to present ideas and

reasons to support ideas in hope of receiving desires without upsetting peers (Kirk & MacCallum, 2017).

Through a qualitative research study, a researcher investigated strategies teachers should use to support kindergarten children's social and emotional development (Kirk & MacCallum, 2017). A purposive sample was used for this research. Eight teachers and 130 kindergarten children gave consent for participation in the study. All of the teachers and children were from eight different Catholic private primary schools. The researcher did not describe demographics of participants in sufficient detail. However, all teachers involved in the study were identified as having between nine to 30 years of early childhood teaching experiences. Specifically, teachers had between one and 14 years of experience teaching kindergarten. Five participants were actually reported within the study. The main teacher referred to in the study, Kyra, had 14 years of experiences, ten of which were in kindergarten (Kirk & MacCallum, 2017). Kyra taught at St. Katherine's primary, located in the Perth metropolitan area. There were 25 children in the kindergarten class and Kyra was supported by an education assistant that had worked in the classroom for seven years. The study used observations and interviews to collect data over the course of eight months. Observations were guided by the Classroom Assessment Scoring System (CLASS) (Kirk & MacCallum, 2017). The study used the CLASS instrument to gauge quality of classroom environments in regards to supporting children's relationships.

Through the study, the researcher was able to examine classrooms in order to gain a better understanding of classroom dynamics, teacher strategies to promote learning, and student responses (Kirk & MacCallum, 2017). The study showed the value of play-based learning experiences on social and emotional development of young children. Meeting social and emotional needs sets the foundation for future academic learning and meets children's needs as a

whole learner. Results indicated that classrooms should synergistically use relationships, play situations, and environments to support and further develop both social and emotional competencies of young children. Data indicated that play helped to develop relationships and provided rich social opportunities. Results also displayed how, over the eight months, children's play grew more complex and sophisticated. Relationships were strengthened and children demonstrated creative play themes (Kirk & MacCallum, 2017).

The researcher noted limitations by sharing that observations were made one time each month over the course of eight months. As a result, data collected was only regarding a small portion of interactions and activities that occurred with children. The researcher acknowledged that even the presence of a researcher may have had an impact on classroom and child interactions. In addition, researchers explained that a standardized measure was not used to determine children's social and emotional development. Data was, instead, collected through observable behaviors as well as from reports during formal and informal interviews with the teacher (Kirk & MacCallum, 2017).

### **Emotional Development**

Complexity of play allows children to develop sophisticated social and emotional repertoires (Kirk & MacCallum, 2017). Through play, children learn to self-regulate, manage emotions, develop empathy, cooperate, etc. Students are able to reflect on behaviors and interactions to practice responsibility with decision making. Students learn to be respectful during social interactions in order to meet safety needs and social norms. Play also reduces stress, anxiety, depression, and challenging behaviors (Belknap & Hazler, 2014). Research found that this helps children to feel happier, calmer, and have a sense of control. Children need extended periods of time interacting with peers in order to become socially and emotionally

competent (Copple, & Bredekamp, 2013). Since play is an outlet for children, play experiences allow children to express feelings in a risk-free and emotionally safe place (Brown et al., 2020). Play-based learning provides students with ample time, space, and rich materials to have interactions, conversations, and discussions that benefit emotional development.

### **Mental Health and Well-Being**

Play has often been used as a sign of health for children. Adults can recognize if a child is ill because play ceases until the child is feeling better. Since play is such a strong indicator of children's well-being, many researchers have questioned what happens when children do not receive adequate opportunities to play. Research has found that play deprivation can affect children's immediate and long-term physical and mental health (Miller & Almon, 2009). With increased levels of stress and aggression, many mental illnesses have also risen. Researchers have found negative correlations between a lack of physical play and anxiety, depression, phobias, obsessive-compulsive disorders, bipolar disorders, schizophrenia, psychotic disorders, and attention-deficit hyperactivity disorder (Belknap & Hazler, 2014; Brown et al., 2020). Given that play strengthens children's social and emotional development and relieves stress, decreased play opportunities are a factor in decreased mental health. Without opportunities to play, children do not always have an outlet for stressors. This can harm mental wellbeing throughout children's lives and cause difficulty with impulsivity, emotion control, and getting along with others (Mainella, Agate, & Clark, 2011). A survey in the United Kingdom found that nearly ten percent of children between the ages of five and 16 had a clinically diagnosed mental disorder (Howard & McInnes, 2013). In some cases, play deprivation has been found to lead to children being wrongly labeled as having misbehavior or learning disabilities, especially when paired with

previous abuse and neglect. Impacts of mislabeling can cause long-term harm to children's self-image as well as taint how adults and peers view the child (Miller & Almon, 2009).

On the other hand research has shown that children who have plentiful opportunities to play are more social, physically engaged, understanding, playful, and joyous (Belknap & Hazler, 2014). Further research has shown that children who play display significantly higher levels of self-esteem and significantly lower levels of anxiety, depression, and attention issues (Mainella, Agate, & Clark, 2011). To investigate links between children's emotional well-being and play, Howard and McInnes (2013), conducted a qualitative study involving 129 children between the ages of three and five. Researchers found that previous research focused on adult perspectives. This study focused on what characteristics children associated with play. Children were from three different educational settings and consisted of 56 males and 73 females. Researchers designed the experiment to compare signs of emotional well-being by creating two groups of children, based on an alphabetical class roster. One group participated in an activity with conditions designed to be viewed as 'like play'. The second group participated in the same activity, but with conditions designed to be viewed as 'not like play' (Howard & McInnes, 2013). In the 'like play' group, adults were proximal, the activity took place on the floor, and children had the choice to participate. In the 'not like play' group, adults were directly present, the activity took place at a table, and children were asked to participate. In both groups, children engaged in bead threading and a jigsaw puzzle. To assess emotional well-being of the children, the Leuven Involvement Scale was used. The scale identified the following signals: "concentration, energy, complexity/creativity, facial expressions, posture, persistence, precision, reaction time, language and satisfaction" (Howard & McInnes, 2013, p. 739). In addition, every activity session was video-recorded for further analysis.

Results from the study demonstrated that children in the ‘like play’ group displayed behaviors associated with increased emotional well-being. These children were more likely to rate the activity as play than children in the ‘not like play’ group. Children in the ‘like play’ group were more deeply engaged, more focused, smiled more, and moved freely. Alternatively, children in the ‘not like play’ group were easily distracted, displayed more negative vocalization, and tended to stay still in chairs. This research indicated that play leads to superior development because children are able to engage with minimal risk of failure. When children approached an activity as play, children had more autonomy, independence, increased confidence, and increased self-esteem (Howard & McInnes, 2013). Children in the ‘like play’ group displayed characteristics of well-being including: feeling happy, secure, and having choice. Children reported that being able to play contributed to overall well-being and feelings of happiness (Howard & McInnes, 2013).

Limitations of the study include that only one type of activity was observed. More research is needed to expand and support results from this study. Howard and McInnes (2013) noted that research linking play and development is sparse and, therefore, felt more research was needed in this area. Researchers also identified that a clear definition of play is needed for future studies. Play training was also recommended to emphasize the process of play as well as the important role educators have in implementing and facilitating a playful environment. Future research should also analyze the connections of adult presence, location of activities, and choice to participate with play.

### **Affective Social Competence**

Affective social competence (ASC) has been found to be a tool for understanding children’s emotional processes. ASC includes sending and receiving emotional messages as well

as experiencing and managing emotions (Lindsey & Colwell, 2013). Lindsey and Colwell (2013) conducted a qualitative study to determine if different types of pretend and physical play could serve as predictors of the affective social competence of preschool children. To identify correlations more precisely between play and social competence, research narrowed in on two forms of pretend play (fantasy and sociodramatic) as well as two forms of physical play (exercise and rough and tumble). Data was collected from 122 preschool children, from a child center in a Midwest town, over the course of two years. Of the 122 children, 57 were boys and 65 were girls. Demographics of children were as follows: 86 European American, nine African American, 17 Hispanic, and ten other ethnic origin. Children came from mostly middle-class and upper-class families.

Researchers engaged children in interviews, mothers rated children's emotion regulation skills, and observations were conducted. At the beginning of the school year, a packet was sent home with children, including a Preschool Characteristics Questionnaire (PCQ), consent form, and demographic survey. The PCQ assessed children's adaptability, emotional intensity, moods, and consistency in routines (Lindsey & Colwell, 2013). In October, Peabody Picture Vocabulary Tests (PPVTs) and emotional knowledge interviews were implemented. Interviews lasted approximately 20 minutes and were used to assess children's ability to recognize facial expressions and emotional situation knowledge. Then, in November through April, researchers videotaped children's behavior in the child care setting. Researchers spent one week in the classroom before actual filming began to acclimate children to the presence of researchers (Lindsey & Colwell, 2013).

Results focused on the areas of emotional expressiveness, emotion knowledge, and emotion regulation. Researchers found that affective social competence linked to play

experiences, particularly in sociodramatic, exercise, and rough and tumble play of preschool children. Overall findings suggested that pretend play contributed to all dimensions of ASC in young children. Specifically, sociodramatic play advanced children's ASC (Lindsey & Colwell, 2013). Sociodramatic play involves acting out different play themes and adapting different social roles. Researchers noted that sociodramatic play allows children to engage in perspective taking, emotional regulation, and emotional expressiveness. Children who engaged in more sociodramatic play were rated as expressing more positive emotions, scored higher on interviews, and were rated by mothers as having stronger emotional regulation skills (Lindsey & Colwell, 2013).

Researchers noted some limitations of the study, including that data came from a single child care setting. Therefore, all children had access to the same types of toys, number of teachers, and play experiences. This could have suppressed or inflated children's play and development. Future studies should collect data from a larger variety of settings (Lindsey & Colwell, 2013). Future studies should assess a greater variety of play forms to determine which types of play provide the most effective context for ASC development. In addition, future research should examine gender differences between different types of play.

### **Self-Regulation**

Self-regulatory skills, such as focusing, ignoring distractions, delaying gratification, and controlling emotions can be significantly improved through play. Being able to self-regulate helps improve the well-being of children as well as academic, social, and emotional development (Gibson, Cornell, & Gill, 2017). During play, children exercise cognitive processes of self-control in regards to thinking and actions. This is fundamental in leading to further skills of creativity, flexibility, self-control, and discipline. By acquiring these skills, students are set up



for success as people engage with others both during school as well as social situations later in life. Giving children time to practice these fundamental skills during a natural play environment gives students authentic, real-world opportunities to develop in unique and authentic ways. Due to the relatable nature of the context, this allows students to make connections. During play, children adapt to situations, use trial-and-error strategies, and think about alternative answers and solutions. Play also strengthens mental abilities, such as attention, logical reasoning, understanding emotions, reflecting, controlling behavior, and understanding someone's point of view (Sezgin & Demiriz, 2019). Understanding these social dynamics during play, allows children to practice and strengthen self-regulation skills. In addition, by meeting students where each child is at, all children receive appropriate time and space to practice and develop these skills. Therefore, play and game-based activities support behavior and self-regulation, as children associate prior knowledge with new situations and create images in the mind (Sezgin & Demiriz, 2019).

Research showed prominent connections between play and self-regulation development. To research effects of a play-based training program on self-regulation, a quantitative, experimental study was conducted. The study included a random sample of 54 preschool children between the ages of 40 and 61 months. A pre-test—post-test model was used for this study, along with a control group. A performance-based assessment, called Head Toes Knees Shoulders (HTKS) was the assessment tool used. HTKS used games that focused on skills of listening, remembering, and paying attention (Sezgin & Demiriz, 2019). The study lasted for eight weeks and the training program was given three days a week. Components of the program included working independently and collaboratively, decision making, flexibility to changing rules, waiting turns, raising hands during activities, following instruction, and engaging in

attention-directed games. According to pre-test results, children in experimental and control groups had similar characteristics in terms of self-regulation at the beginning of training. After the post-test was given, the change observed before and after the eight weeks was higher in the experimental group than control group. Research data indicated that the play-based training program was effective in supporting development of children's self-regulation skills (Sezgin & Demiriz, 2019). The program was child-centered and maintained children's interest. Games played during the program supported attention, working memory, and preventive control skills which help to improve self-regulation skills.

Some limitations of this study included that the sample size was small. Researchers noted that due to the small sample size, demographic characteristics, such as family education and income were not statistically analyzed (Sezgin & Demiriz, 2019). In order to better determine factors relating to self-regulation skills, researchers recommended gaining more information about participants, such as number of children in a family, maternal education, and family income. Researchers suggested working with larger sample sizes as well as using longitudinal studies in future research to better monitor changes in children at various intervals. Another suggestion to increase validity of future studies was to include observation-based methods along with the tests and measurement tools already used (Sezgin & Demiriz, 2019).

### **Physical Development**

Physical activity has been defined as any type of movement that causes muscles to contract beyond what muscles would at rest (Brown et al., 2020). Ensuring physical activity and quality play is integral for children's physical development. The Office of Disease Prevention and Health Promotion recommended that children engage in sixty minutes of physical activity per day (Office of Disease Prevention and Health Promotion, as cited in Brown et al., 2020).

Physical activity, during play, is a natural way for a child's body to stimulate, support, and change body functions. Play and physical activity positively impact children's fitness and overall health. Along with physical health benefits, play increases the ability to fully develop children's bodies. Physical activity and movement during play does more than just help children maintain a healthy weight. Physical play allows the brain to think and perform at higher levels and helps the body function properly (Reeves, Miller, & Chavez, 2016). Research concluded that since children spend more than one thousand hours in a classroom during a school year, appropriate physical activity is needed to nurture children's long-term health, wellness, and development (Brown et al., 2020).

### **Gross Motor**

Play activities provide children with effective stimulation to enhance development of motor skills. Gross motor skills involve the large muscles, allowing for functions such as maintaining balance, jumping walking, pushing, pulling, climbing, and ball skills. These skills are the building blocks for the development of fine motor skills (Lestari & Ratnaningsih, 2016; Reeves, Miller, & Chavez, 2016). Creative games are a type of play activity that enrich children's reacting ability, hands-eyes-and-feet coordinate, dexterity, as well as awareness to body balance. A quantitative study researched effects of modified games on the development of gross motor skills. A purposive sample of 180 children in the district of Gedeg-Mojokerto was used. Participants included 94 female and 86 male students. All students were between the ages of five and six years old (Lestari & Ratnaningsih, 2016). The research method was pre-experimental and included a pretest-posttest design, along with observations. Children were scored on gross motor skill development in one of four ways: not yet developed, began to develop, developed as expected, or developed beyond expectation. Interventions included

providing modified games for one month to all children. Data was, then, analyzed using the Wilcoxon sign rank test (Lestari & Ratnaningsih, 2016).

Prior to the modified games intervention, 14 children had not developed, 101 began to develop, 65 developed as expected, and zero developed beyond expectation. After the intervention, zero children had not developed, 14 began to develop, 130 developed as expected, and 36 developed beyond expectation (Lestari & Ratnaningsih, 2016). Results displayed a significant increase regarding gross motor skill development after children engaged in the intervention. This study found play-based games support children's motor development in the areas of coordinating eyes and hands or eyes and feet, locomotor movement skills, and body control. Some body management areas that creative games supported included: understanding of children's body, function, rhythm, balance, executing orders, and the ability to follow through or stop movements accurately (Lestari & Ratnaningsih, 2016). In addition, some other positive activities observed to trigger gross motor development included: swimming, jumping, sliding, swinging, climbing, walking, and frog jumping (Lestari & Ratnaningsih, 2016). Physical play activities were shown to strengthen children's motor skills.

This study could have benefited from adding a control group to compare results with the children in the intervention group. Allowing for a control group would have provided researchers with data to better analyze children's gross motor development without support of the modified game intervention. Another limitation of this study was that researchers did not provide demographic information in regards to race, ethnicity, and socioeconomic status.

Recommendations for future research include studies analyzing how teacher interactions, play materials, equipment, and structure of play environments impact children's gross motor skill development.

**Fine Motor**

Along with gross motor skill development, play provides a platform for fine motor skill development. Fine motor skills have been defined as small muscle movements that require delicate hand-eye coordination (Suggate, Stoeger, & Pufke, 2017). Small movements include actions such as picking up objects with tweezers, inserting pegs on a peg board, bead threading, or working with clay. If children's fine motor skills do not fully develop, children will struggle to perform precise actions that require coordination and muscle strength (Reeves, Miller, & Chavez, 2016). Therefore, play activities and environments should be purposeful and include a variety of opportunities for children to develop strong fine motor skills.

A qualitative study was conducted to determine the role of the play environment and activities in supporting fine motor development. Participants included 225 children who attended 13 preschools in a small city in Germany. Of 225 children, 109 were males and 116 were female. From a demographics questionnaire, researchers identified that 50 children spoke a second language and six children were born outside of the country (Suggate, Stoeger, & Pufke, 2017). Parents received a Motor Activities Questionnaire (MAQ). The MAQ focused on activities that placed demands on children's fine motor skills. The questionnaire included either fine motor activities including: playing with small toys, playing with middle-sized toys, crafting, drawing or painting, writing, using a fork and knife, building towers, and tying knots or beading country (Suggate, Stoeger, & Pufke, 2017). Items were ranked using a five-point Likert scale, where parents could select how frequently children engaged in activities. The study also included measures of children's gross motor activities, vocabulary, and home literacy environment to test for differential relations. After questionnaires were completed, the Movement-ABC was used to measure children's fine motor skills. The Movement-ABC test was conducted at preschools and

had children complete three fine motor tasks, with two trials each. For the test, children placed coins in a slot with the dominant hand, non-dominant hand, and engaged in bead threading (Suggate, Stoeger, & Pufke, 2017).

During play, children had the opportunity to explore and manipulative the environment. Results from the study indicated that children who engaged in more play-based, fine motor activities had greater fine motor skills (Suggate, Stoeger, & Pufke, 2017). Data suggested that specific play experiences have more impact on fine motor skills than others. Particularly, crafts that involved using scissors, drawing, and weaving significantly related to strong fine motor skills. Playing with small toys also displayed strong connections for fine motor skill development. Findings suggested that children should be exposed to a wide variety of activities in the play environment to support holistic development (Suggate, Stoeger, & Pufke, 2017).

Limitations of this study included that researchers did not observe children in the home play environment. Parents who filled out questionnaires might have had different beliefs about how often children engaged in certain activities. Data would have been more concrete and objective if researchers conducted observations instead. Researchers drew attention to the lack of research on fine motor skills development. More research is needed to provide more conclusive data on connections between play and fine motor skills. Future research should consider different types of play materials and activities that best support fine motor development. In addition researchers suggested that future research should explore links between increased television and electronics with decreased fine motor skills.

### **Physical Health**

Play deprivation can be detrimental to children's physical health and development. With a lack of play both indoors and outdoors, children do not engage in as much physical activity.

Lack of play can have major impacts on children's health, often contributing to an increase in obesity. Research has shown that one-third of children, ages 10-to-17 are categorized as overweight or obese (Brown et al., 2020). Inactivity decreases cardiovascular fitness and, therefore increases the risk to develop health conditions. Not only can this lead to obesity, but can also lead to other health concerns such as type two diabetes, asthma, high blood pressure, cardiovascular disease, colon cancer, and arthritis (Brown et al., 2020; Miller & Almon, 2009; Mainella, Agate, & Clark, 2011). Without materials, activities, and time to play, children are less likely to develop a healthy attitude toward exercise. This erosion of recess and play fuel the deficits in physical activity of society today. Due to these health-related problems, doctors predict that today's generation of children will likely be the first in 200 years with shorter lifespans than parents (Miller & Almon, 2009).

Due to the likelihood of poor health conditions and even premature death due to play deprivation, researchers have analyzed the frequency of physical play activities and barriers for including these opportunities during school (Brown et al., 2020). Through a mixed-methods study, researchers surveyed teachers regarding different types of play and physical activities implemented during the school day (Brown et al., 2020). Researchers also surveyed the time teachers provided for each activity, needed software, and trainings associated with play and physical activity. Teachers came from three different school districts, including 23 schools within an urban area in Southeastern United States. Teachers included both male and female, ranging between the ages of 21 to over 53. The survey incorporated 13 items as well as open-ended responses (Brown et al., 2020).

From the data, teachers expressed that physical activity occurred 67.9 percent of the time in classrooms. However, play was only found to occur 1.1 percent of the time (Brown et al.,

2020). Out of 359 written responses, 182 teachers referred to Go Noodle, movement and mindfulness videos, as one of the physical activities within classrooms. Go Noodle activities may not involve children in vigorous physical activity, so the percentage of physical activities in classrooms was noted to likely be higher than longer durations of physical activity that children need. Recess breaks were found to average about six times per week for approximately 20 minutes (Brown et al., 2020). This data showed that most children were not receiving enough time to develop play, establish play schemas, make rules, establish produces, identify leaders, or create roles during play outside. Researchers expressed that minimal time during recess breaks does not maximize physical well-being and health. Results of the study also indicated that a reduction in play and recess stemmed from high-stakes testing, liability issues, and stranger-danger concerns. In addition, only 42.2 percent of teachers reported having some training regarding physical activity (Brown et al., 2020).

Limitations of this study include that, besides gender, teacher demographics were not discussed. Another limitation is that the definition of physical activity was not clearly defined for the teachers. This may have skewed the data, resulting in slightly higher percentages. With the concerns for children's lack of play and physical activity, future research should provide more data regarding the importance of these practices for children's physical health. Since the findings indicated a lack of adequate teacher training for play and physical activities, more research is needed to highlight this inadequacy. Future research should also explore the effectiveness of Go Noodle for young children's physical health (Brown et al., 2020).

### **Cognitive Development**

Research on the brain has revealed why play-based learning helps students grow and develop academic skills. During children's early years, the brain is more receptive to learning



which allows young children to be able to both absorb and process larger amounts of information (Jechura, Wooldridge, Bertelsen, & Mayers, 2016). The brain develops as children experience the world through the senses of sight, sounds, taste, touch, and smell. As the brain receives stimuli from the environment, chemical electrical reactions occur. This leads to all learning that children acquire (Jechura et al., 2016). Play provides a platform for active exploration in which children get to experience the environment through the five senses. Therefore, this assists in building and strengthening brain pathways. When children actively engage with the play environment, children develop higher-level thinking capacities, such as problem solving skills, divergent and convergent thinking abilities, and cognitive skills (Pyle, Prioletta, & Poliszczuk, 2018). By exercising these thinking skills, the foundation is laid for the brain to learn further sophisticated academic skills. Creating a play environment that immerses children in purposeful learning experiences encourages children to play in a variety of different arenas (Jechura et al., 2016). Thus, this allows for contextual expansion as children receive different stimuli from many academic domains. Children can then apply this meaningful learning to future real life scenarios. As a result, cognitive development is deepened during play as children extend previously learned skills and gain mastery over new skills.

### **Decision Making Skills**

Allowing children to make choices regarding playing and learning provides vital opportunities to strengthen decision making skills. High-quality, positive play environments support young children's development regarding decision making (Robson & Mastrangelo, 2017). Both the physical environment (layout, materials, equipment) and psycho-social environment (interactions between staff and peers) influence learning. Play environments stimulate children's senses and creates synaptic brain connections that fuels learning pathways

(Robson & Mastrangelo, 2017). Positive play environments should be responsive to children in order to ensure the needs of each child are met. Environments should be co-created with collaboration from educators and children to empower and motivate students. This empowerment involves children in decision making processes. When a play environment values risk, reflects diversity, and incorporate educators who continuously observe, document, and reflect on children's engagement, play becomes a partner in learning (Callaghan, as cited in Robson & Mastrangelo, 2017).

Robson and Mastrangelo (2017) discussed a major component within play-based learning: the environment. A qualitative study explored Reggio Emilia's concept of the environment as the third teacher and how children viewed the classroom as a space to learn. Play environments allowed students to decide which areas of the classroom to explore. Participants included 16 female students from an Ontario Reggio-Emilia kindergarten classroom. Students were divided into four focus groups. A framework for listening and responding to young children, called the mosaic approach, was used for this study. This multimethod approach allowed children to work together with adults to use children's photographs along with conversations and observations. Not only did children get to decide which areas to play in, but children also decided which areas helped enhance learning. Children were, therefore, both participants and researchers as children selected what was valuable within the environment in order to best support learning (Clark, as cited in Robson & Mastrangelo, 2017). Data was collected through observation, photo elicitation, and photo interviewing with each child. Children were able to use an iPad to photograph five areas of the classroom that supported learning. Photos were then printed out so that children could discuss the photos, why each photo was taken, and how areas photographed were important to learning. In addition, photos were

separated into categories based on of the various learning centers in the classroom including mathematics, building, communication, art, light, and drama.

Of 85 total photos taken, the math center was most photographed, followed by the communication and building centers, art, light, and drama center (Robson & Mastrangelo, 2017). Children shared how the various centers photographed supported learning by using the materials, playing, making connections, exploring, using imagination, and communicating with peers. Materials and hands-on learning experiences were a common response for how classroom areas aided student learning. For instance, when asked how the math center helped support learning, children mainly referred to supporting materials, such as the hundreds chart, puzzles, Legos, tools, and balancing equipment (Robson & Mastrangelo, 2017). Children got to make decisions regarding which materials to use and how to use those materials. Children also made decisions based on needs, wants, interests, peers, risk tolerance, etc. Children commonly brought up imaginative or pretend play as a way to support learning in the classroom. Through discussion and analysis, children shared that the classroom play environment was a place that helped evolve learning. Results of the study validated use of the play environment as a third teacher since play supports learning through children's natural curiosity to explore. Results also showed the value of including children in decision making processes. In addition, results indicated the value of the play environment for providing children with authentic experiences to practice decision making skills. Physical set up of the environment, equipment, and various types of materials were all important components for children to engage in exploration, choices, experimentation, decision making, and learning.

Robson and Mastrangelo (2017) identified a few limitations within the study. The large size of the focus groups created some difficulties for the researchers. Children in the focus

groups were not able to address all of the photos within the allotted timeframe. Due to lack of time, discussions were shortened. With that, the daily schedule only allowed the researchers to visit three times. Some children within the focus groups became restless when waiting for peers to discuss the photographs. This limited the discussion further. Researchers suggested that future studies incorporate smaller focus groups so that children can engage in richer discussions. The school was for girls only, which limited the scope of the research by not investigating responses between genders. Continuing studies of both genders would further support the findings from this study. Future studies should also continue to amplify children's voice by working with and listening to children throughout the research process.

### **Literacy**

Curricular expectations have led to a reduction of play in preschool and kindergarten classrooms due to increased teacher directed instruction aimed to facilitate higher levels of academic skills (Pyle, Prioletta, & Poliszczuk, 2018). As a result of these shifting expectations, a quantitative study was implemented to investigate the integration of literacy learning and play-based pedagogies. This study was conducted by using a sample of 12 full-day kindergarten classrooms. Classrooms were located in two different school districts in Ontario, one of which was in a large urban area and the other was in a suburban area. Classrooms were selected based on geographical location and willingness to participate in the study. Each classroom had approximately 25 to 30 children between the ages of four and five. Teachers had between three to 26 years of teaching experience. Data was collected through ten hours of observations of both instructional and play periods, video recordings, and semi-structured interviews with kindergarten teachers. Data was, then, analyzed by an inductive method (Pyle, Prioletta, & Poliszczuk, 2018).

Upon analysis of data, two groups arose: a play and development group and an integrated play and learning group. Researchers found that when teachers did not share the belief that play supports academic development, like in the play and development group, play environments suffered. As a result, there were less intentional spaces containing literacy rich materials. In the integrated literacy and play group, researchers found that involvement of teachers during play contributed to the occurrence of rich literacy practices during play. Results indicated that free play supported children's oral language development, preparing students with skills for reading and writing during more structured activities (Pyle, Prioletta, & Poliszczuk, 2018). Teachers in the study expressed that play both supported and nurtured children's literacy development. Through the use of scaffolding techniques and prompting, teachers were able to help deepen the complexity of literacy skills within a child-centered context. Further, play was shown to motivate children and create positive opportunities for children to engage with literacy (Pyle, Prioletta, & Poliszczuk, 2018).

Researchers expressed the need for future research regarding the balance between teacher directed instruction and play-based learning opportunities. Findings also indicated the need to address barriers to the effective implementation of play-based pedagogy, such as the tension to find time for play with mandated curriculum (Pyle, Prioletta, & Poliszczuk, 2018). Limitations of the study include that demographics of students and teachers were not mentioned. More information could be provided about participants involved to yield additional data.

### **Reading and Writing**

Play has been found to be an engaging, purposeful, and authentic way for children to engage in reading and writing practices (Yoon, 2014). Some skills children explore during play include: word recognition, letter-sound correspondence, oral stories, written words, phonics

practice, etc. Children's play environments can set foundations for successful reading strategies, writing skills, and storytelling abilities. For instance, a common dramatic play center theme is a restaurant. In this center, there could be real-life menus, receipt paper, notepads and pencils, magazines, recipes, etc. Through these materials, opportunities to read and write are a part of play. A child might make signs for a restaurant, using pictures, letters, or words. Other children might be reading the menu, readings recipes, and taking order from costumers. Within all of these roles, literacy skills are woven in. Children voluntarily engage in this literacy learning because children view play as fun. Educators can also set up a play environment that uses props related to previously read stories. Social role playing of this type, allows children to perform complex narratives. Role playing also shows how well students understood and comprehended the book and fosters retelling and storytelling skills. Through this motivating guided play, students will likely expand on this learning by acting out stories. This shows advancement from more simple imitations to sophisticated acts of play (Lindsey & Colwell, 2013).

Yoon (2014) followed a two-month case study of a diverse kindergarten classroom implementing writing tasks within play. The school was located in a lower, middle class neighborhood. Researchers identified that 63 percent of families who attended the school were classified as low-income (Yoon, 2014). There were 11 boys and seven girls in the classroom. Nine students were Caucasian, two were Asian, four were African American, and three were bi-racial. The classroom was observed for one to three hours twice a week, narrowing in on four focal children. Data types included field notes, audio-recordings, written artifacts, and interviews. Yoon (2014) attempted to validate the importance of play as a way for children to engage in authentic language tasks.

Findings noted that children found different, real-world ways to write that related to, supplemented, and broadened play experiences. Through play, children in the study engaged in naturally occurring communicative events and frequently implemented writing resources, such as letters, phonemic awareness, etc. Yoon (2014) also found that peer interactions that occurred during play, directly connected to that of more formal reading and writing tasks in kindergarten. Children often used those formal writing practices authentically within play.

Yoon (2014) did not note limitations of the study or recommendations for future studies. However, the study was completed within a single classroom. Future studies could include a larger sample size to explore more comprehensive data. The study also did not mention the type of literacy curriculum the school used and did not discuss the amount of time children in the classroom were given to play. Future studies could include curriculum and time for play to provide a better context for the observations.

### **Inventive and Reasoning Skills**

Development of both inventive and reasoning skills is supported during play (Cavanaugh et al., 2017). Students can apply new learnings in regards to these skills when provided with the opportunity to play and make connections. A quantitative, six week study on guided play was conducted in order to compare play to teacher-directed activities. In order to carry out this study, two groups of children were formed from kindergarten classrooms in different schools. The experiment used two different socio-economic populations, which allowed for both challenges and successes regarding the use of language rich play. Children were assessed through a pretest, midpoint test, and posttest. The test was called, Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment, and assessed first sound fluency, phonemic awareness, and oral reading (Cavanaugh et al., 2017). Students switched conditions at the midpoint. Children were

separated into two groups: guided play and teacher-directed. Groups were formed based on sex, English language proficiency, and academic ability (Cavanaugh et al., 2017). Both sets of children were to practice the same literacy skills. The guided play group was allowed to create games to practice the skills while the teacher-directed group needed to follow the activity the teacher created.

Results from this study showed a statistically significant advantage with developing inventive skills for the guided play group. In addition to continued application of inventive literacy games during free choice time, the play group also showed more frequent utilization of new vocabulary and stronger development of storytelling skills. Students in this group were motivated to create new games throughout the day. Students in the play group openly communicated and negotiated various components of the game creations during play. Research showed that this not only helped students develop inventive and language skills, but this also allowed children to be active participants (Cavanaugh et al., 2017). Children were able to take leadership and become independent with the learning process. Early literacy skills that these students developed during this study have a direct correlation to conventional skills affiliated with both reading and writing. This gives students the necessary foundation and skills for success in later schooling.

Researchers shared that this study was completed within a single school district in Midwest United States and acknowledged the limitation of context and other variables with this sample. A suggestion for future studies was recommended by the researchers to use a larger population size to make the results more widespread. In addition, researchers suggested implementing future studies over a longer period of time to establish more conclusive results (Cavanaugh et al., 2017).



**Mathematics**

The purpose of play is to support learning and development of children. Mathematical skills can naturally develop throughout play-based learning experiences. Math should be embedded within everyday life in order for students to find value in learning as well as to construct meaningful connections. Therefore, allowing children to engage with manipulatives and mathematical experiences during play helps create value in learning. Within the domain of mathematics, play supports children's ideas, skills, reasoning, counting, comparison ability, spatial reasoning, as well as geometric knowledge (Wickstrom, Pyle, & DeLuca, 2019). A qualitative study conducted observations of classrooms in Ontario, Canada to compare kindergartener's mathematical learning during play and direct instruction. Ontario had recently introduced a new kindergarten program mandated play as the main pedagogy. Kindergarten curriculums in Ontario also emphasize gaining mastery of seven math standards (Wickstrom et al., 2019). Twenty teachers were selected from two public schools and one independent school. Teachers came from a variety of demographic educational contexts, including differences in socio-economic status, teacher experiences, as well as urban and rural settings. Participants ranged from three to 28 years of teaching experiences and specifically, one to 14 years teaching kindergarten. All teachers, except for one, were female (Wickstrom et al., 2019). Over the course of 140 hours within the classrooms, data was collected through videos, photographs, and field notes of observations. About four to ten hours of data was collected in each classroom. Observations included both teacher-directed activities as well as play-based activities (Wickstrom et al., 2019). Two researchers analyzed the observations and used inter-rater coding of the data.

Through data, four pedagogies were identified: free play, guided play, teacher-directed play, and direct instruction (Wickstrom et al., 2019). Researchers classified these pedagogies into the categories of play and direct instruction. Observational data indicated 160 incidences of mathematical learning combined within 20 classrooms. “Of those 160 incidences, 113 (71%) were of play (8% free play, 24% guided, 39% teacher-directed) and 47 (29%) were of direct instruction, indicating that educators primarily used play as the learning context to support mathematics learning” (Wickstrom et al., 2019, p. 289). Play is a continuum that ranges from child, to mutually, to teacher-directed play. This data suggested that mathematical learning occurred mostly through various types of play-based experiences across the 20 classrooms. Within the domain of mathematics, specifically, play was found to support children’s ideas, skills, reasoning, counting, comparison ability, spatial reasoning, as well as geometric knowledge. Play provides children with engaging and developmentally appropriate opportunities to enhance learning of mathematics concepts (Wickstrom et al., 2019).

Researchers did not share limitations of the study, but did share suggestions for future research. Researchers noted that there was a misalignment between theory and practice regarding play since data from this study indicated that the majority of observed mathematical incidences occurred during teacher-directed play rather than guided play. Researchers recommended that future research should explore the integration of guided play within kindergarten environments in an effort to improve mathematical growth for young learners (Wickstrom et al., 2019).

Another study researched connections between play and mathematics. Through a quasi-experimental research study, 329 kindergarten students were exposed to two different pedagogies in order to examine mathematical competency. Researchers used an unbiased, random, and relatively large sampling of students. Kindergarten students were randomly selected from a list

containing all kindergartens in the Canton of St. Gall in Switzerland. From this list, educators were contacted and invited at random to be able to participate in the study. The 329 kindergarten students were then randomly assigned to one of the groups. Specifically, 111 children were assigned to the educator-led group, 91 children to the play-based approach group, and 127 children to the control group (Vogt et al., 2018).

The Switzerland study used pre-tests and post-tests to examine the effects on mathematical competency based on two differing pedagogies (Vogt et al., 2018). In addition, researchers identified the types of measurement instruments used. A test called, Zahlenstark, was used to measure mathematical competencies (Vogt et al., 2018). Researchers stated that this test is involved tasks such as ordinality, quantity, number knowledge, cardinality, and first arithmetic operations. Tasks included using images as well as numbers-only representations. Tests were completed one-to-one between research assistant and child. Cognitive abilities of children were then measured through two subtests. In order to use demographics to establish comparable groups, an analysis of variance (ANOVA) was conducted. ANOVA included children's age, cognitive ability, socio-economic status, and migration background. In addition, each child took a pre-test on mathematical competencies to establish prior knowledge. From this data, children were divided into three groups: high level, medium level, and low-level. Demographics provided within this study included that children were between the ages of five and six years old. In fact, the mean age for all three groups was six years and three months. Parents also completed questionnaires regarding socio-economic background and languages spoken at home.

Results revealed higher learning gains for the play-based group of children. Researchers argued that meeting students' diverse needs through guided play was more valuable and empowering (Vogt et al., 2018). Students' needs were met in the play-based group as children

were able to connect and communicate as well as use hands on materials. This group had needs for motivation, movement, engagement, and communication met. On the other hand, students' needs were not met in the teacher-led group since students were asked to sit and listen for a long period of time. Data displayed that children with low competencies tended to gain more from teacher-led approaches compared to the control group with no intervention at all. However, children with high competencies gained more from the play-based approach than the teacher-led. Researchers then shared that teaching the whole group of children through an instruction, teacher-led approach runs the risk of a negative effect. When children were taught content already mastered through a teacher-led approach, children were not adequately challenged and boredom occurred (Vogt et al., 2018). Ultimately, the play-based approach was shown to meet the needs of all learners within a classroom.

Researchers in this study did not critique or describe flaws within the research. However, a limitation found within the study was that race and ethnicity data was not shared. Including this information within the demographic data would provide more clear results. Researchers did, however, state that future studies with a focus on play-based learning could have a much larger sample size in order to examine competencies and beliefs of educators and children on a larger scale. Researchers also proposed that educators should foster mathematics intentionally within classrooms to provide children with opportunities that meets diverse educational needs (Vogt et al., 2018).

### **Abstract Thinking**

Development of abstract thinking allows children to process and reflect on ideas that involve complex language or visuals (Otsuka & Jay, 2017). Abstract thinking skills are important at higher levels of thinking within subjects such as math, science, social studies, etc. Through a

qualitative study, researchers conducted video observations within a nursery school in England to investigate the development of abstract thinking in preschool children. A sample of 30 children from mixed cultural background was used in the study. These children attended school five days a week for three hours in the morning. Before participating in the study, informed consent was received from children's parents. In addition, all children were read a picture book that showed the purpose of video recording. Researchers explained that this video recording would be used to write a story about the children. After children were read the story, researchers asked the children's permission to be recorded. Video observation used in this study occurred in the block area during free-play time. During observations, children either freely began play in the block area or were invited to play in that area by the researcher. Video cameras and audio recording devices were set up with the room to document children's behavior, gestures, facial expressions, language, persistence, concentration, etc. (Otsuka & Jay, 2017).

Through the video recordings, a total of 25 events were analyzed and sorted into categories, including concrete thinking (16 events), concrete to abstract thinking (seven events), and abstract thinking (three events). Three of the episodes from the concrete to abstract thinking category were selected to focus on, since this category demonstrated the transition between concrete and abstract thinking in children. Particular episodes were selected by researchers for the clear documentation of behavior, facial expressions, and verbal language. Each recording ranged from three to nine minutes. Through researcher's analysis of the recordings, eight types of behavior and six types of social interactions were highlighted (Otsuka & Jay, 2017). Analysis demonstrated that children's thinking was transforming back and forth between concrete thinking and abstract thinking continuously. Research indicated that development of abstract thinking was supported by a complex interplay of children's social interactions. When observing

peers, children imitate and memorize feature that are appealing and interesting. Through this act, children internalize concepts that aids in the understanding of the world. Researchers explained that providing a variety of activities over a long period of time allowed children to share thinking, and negotiate play. Research also highlighted the value of a pause for reflection in children. After children paused to think about actions, children's block play became more complex. Data suggested that the reflection during play supported the development of abstract thinking (Otsuka & Jay, 2017).

Researchers did not share limitations of the study or suggestions for future research. However, researchers noted when the researcher invited children to play in the block area, when the researcher engaged in conversations with the children during play, and when the researcher was not a part of the play experience (Otsuka & Jay, 2017). The presence of the researcher, as well as the interactions between researcher and child, could alter the data and findings within the study. Further research could include video recordings set up without the actual presence of researchers, allowing children to authentically engage in play and to show solely child-to-child interactions.

### **Engineering Thinking**

Children engage in engineering thinking through daily activities and educators can facilitate and extend growth in this area by creating frequent opportunities for play-based learning. Play provides opportunities that encourage thorough experimentation and investigations that essential for developing higher order thinking (Lippard, Lamm, Tank, & Choi, 2019). Lippard, Lamm, Tank, and Choi (2019), discussed how children engage in engineering thinking through daily activities. Researchers also shared how educators can facilitate and extend growth in this area by creating frequent opportunities for play-based learning. Play provides

opportunities that encourage thorough experimentation and investigations that essential for developing higher order thinking. To gain a better understanding of engineering habits of mind, a mixed-methods and multiple case study design was conducted. Participants included nine preschool classrooms and teachers. Five classrooms were preschool classrooms located in public elementary schools and the remaining four classrooms were Head Start programs. Classrooms were selected by proximity and the end of school year date. From there, the first nine teachers who agreed were able to participate in the study. Each teacher had various levels of education ranging from some college to Master's degrees. Every classroom was observed over the course of three mornings. Observations included 18 minutes of observation and ten minutes of coding time. These observations were collected twice by researchers who had either a child development background or an engineering background. An Early Engineering Observation Tool was used to collect data on engineering habits of mind. An additional observation was conducted using an Early Childhood Environmental Rating Scale to collect data on the quality of the classrooms. Along with these assessment tools, teachers completed a Teacher Engineering Self-Efficacy Scale as well as questionnaires about the classroom, demographics, and efficacy regarding teaching engineering (Lippard et al., 2019). This study focused on six engineering habits of mind, which include systems thinking, collaboration, communication, ethical considerations, optimism, and creativity. Systems thinking can be seen when children understand interconnectedness and how materials relate. Creativity is when children use imaginative thinking to solve engineering problems. Optimism is when children view problems as opportunities. Collaboration occurs when children use each other's' strengths and abilities to problem-solve together. Communication is when children socially engage to promote

collaboration. Attention to ethical consideration is when children understand that solutions to problems impact others.

Through data collection and analysis, engineering habits of mind were observed most frequently during block play. Engineering habits of mind were also documented with dramatic play, art, manipulatives, and sensory materials. Children were engaged in engineering thinking during independent play as well as during peer play. Engineering habits of mind were observed 18 separate times during the observations, eight of the occurrences was documented during independent play and the remaining ten occurrences were during peer play (Lippard et al., 2019). Each of the nine classrooms had at least one occurrence of children engaged in engineering thinking except one. Of the six engineering habits of mind (systems thinking, collaboration, communication, ethical considerations, optimism, creativity), systems thinking was most frequently observed. Data suggested limited influence in regards to teacher background and self-efficacy. In the two classrooms where teachers had less than five years of teaching experiences, engineering thinking was observed once or not at all. The seven other classrooms that had teachers who had five to 31 years of experience, showed more occurrences of engineering habits of mind. When looking at results from the self-efficacy in teaching engineering, the two teachers who reported the lowest efficacy were teachers who had zero to one occurrence of children's engineering thinking in the classrooms. Data also suggested that time, materials, and student-generated problems played a role in engineering habits of mind. The classroom with the least amount of free play had only one engineering habit of mind observed. The classrooms with the second and third most amount of free play had three occurrences of engineering habits of mind. Researchers noted that in regards to time of play as well as years of teaching experience, more time and more experience was not directly associated with more occurrences of engineering



habits of mind. Data also indicated that classrooms that had closer proximity and availability of materials as well as play that allows children to generate problems had more occurrences of engineering thinking. Research showed how valuable play is for sophisticated skills, such as engineering thinking and problem-solving. These are skills that children will use not only throughout future schooling, but also as adults in any profession. Society has a calling for, strong perseverance, critical thinkers, and creative individuals to pursue professional interests in the social science areas. Skills acquired during play-based learning experiences prepare children for potential jobs in the future.

Researchers shared observations and suggestions for future research. Researchers conducting the Early Childhood Environmental Rating Scale on two different days and, therefore, direct links could not be made between classroom quality and engineering habits of mind. This study was the first to use the Early Engineering Observation Tool. At the time of the study, inter-rater reliability was not established. Use of this tool in future studies would increase reliability. Researchers also acknowledged potential bias within the data, as researchers expected block play to be the most frequent area of engineering habits due to prior research. Suggestions included that educators should receive more professional development related to engineering habits of mind to provide knowledge and opportunities for activities and materials that encourage problem solving (Lippard et al., 2019).

### **Conclusion**

Through research, play was identified as a developmentally appropriate practice for fostering healthy growth in preschool and kindergarten children. Qualitative, quantitative, mixed-methods and case studies indicated play-based learning helps students make holistic growth. Studies highlighted the value of quality play as well as adequate time, space, and

materials for children to engage in meaningful learning (Otsuka & Jay, 2017). Findings emphasized the value of maximizing the learning potential of all activities, rather than just instructional, teacher-directed experiences (Kirk & MacCallum, 2017). Results displayed the importance of meeting diverse needs of students and effectively demonstrated that innovative approaches to academics can be successfully based on play-based learning experiences. In addition, studies showed that a “one size fits all” approach to learning does not meet the needs of children with diverse abilities, interests, prior experiences, and learning styles (Vogt et al., 2018). Rather, play fosters children’s growth and development with effective, authentic developmentally appropriate experiences. By nurturing children’s natural inclination to play and explore, children can make healthy developmental gains that support growth throughout a lifetime. The following chapter provides summarized insights gained, application of research, and recommendations for future studies.

### **Chapter Three: Discussion, Application, and Future Studies**

Through research play has shown to be a vehicle for learning in which students reconstruct prior knowledge into new learnings. Research found that children perform ahead of themselves during play, achieving more advanced and sophisticated skills (Heidemann and Hewitt, 2010). Lev Vygostky's findings support research in that play propels children's development. When playing, children engage in an authentic, rich learning environment. Therefore, children are motivated to experiment with new ideas, transforming play and helping children develop more abstract ideas and maturity. Creating play-based learning experiences in preschool and kindergarten classrooms allows children to construct deep connections to strengthen social, emotional, physical, cognitive, and academic development. Research on play has provided insights for the early childhood field, information regarding effective educational practices, and suggestions for future research.

#### **Summary of Insights**

Research advocates for preschool and kindergarten classrooms to be transformed into child-centered learning environments where children can play, explore, and interact with one another (NAEYC, 2009; Nilsson, Ferholt, & Lecusay, 2018). Learning and development occur synergistically and simultaneously during children's play (Kirk & MacCallum, 2017). Educators can use a variety of play activities to orchestrate the flow of learning to ensure students are meeting developmentally appropriate expectations. Playing is a vehicle for learning, transforming what students already know into new learnings. From this knowledge, educators can use play and learning to create developmentally appropriate practices. Since there are many types of learners and styles, the goals of play-based learning include providing opportunities for equitable learning, increasing engagement, maintaining authentic observation and assessment,

and for children to reach the full potential as a whole child. Along with these goals, this play-based stands to help eliminate the stigma of play by showing how play is a developmentally appropriate tool for achieving high levels of learning in all areas.

Through play, children learn various social and emotional skills, such as self-regulation, managing emotions, developing empathy for others, and cooperation (Miller & Almon, 2009). These skills help children build and maintain friendships and to learn to work and play with others in appropriate, successful ways. Play also reduces stress, anxiety, depression, and challenging behaviors. Less stress helps children to feel happier, calmer, and have a sense of control (Stegelin, 2005). With lower stress levels within the classroom, challenging behaviors can also be reduced. When feeling calm, supported, and happy, children are less likely to act out in distracting, aggressive, and negative ways. Learning is then able to continue without interruption. Play environments provide children with ample time, space, and rich materials to have these interactions that benefit social and emotional development. When children enter the real world, professions are looking for people who can problem solve, cooperate with others, and think creatively. Providing challenging experiences during play allows children to navigate obstacles faced when working with others, when taking risks, and when problems arise. This prepares and sets students up for success later in life. Since much of play entails movement, children's physical development flourishes (Brown et al., 2020). From developing fine and gross motor skills, to strengthening muscles, balance, and coordination, play allows children fun ways to practice these vital skills that encourage fitness and movement. As a result, children have stronger and healthier bodies, helping to avoid the chance of obesity and other illnesses. Play also supports healthy brain development, allowing children's cognitive skills to grow substantially (Jechura et al., 2016).

### **Application of Research**

Play and development research will inform instructional and educational practices for preschool and kindergarten classrooms. By adding more play every day in preschool and kindergarten classrooms, educators can better help children maintain healthy social, emotional, physical, and cognitive development. Adding more play will also help spread knowledge and understanding regarding the importance of play for young children, helping to stop the stigma associated with play. Increased knowledge provides educators with ample opportunities to advocate for play to program developers, administrators, colleagues, and parents. Knowledge also provides educators with opportunities to partner with pediatricians and other health professionals to further advocate for play. Spreading knowledge and awareness will help, not only restore play, but also to begin conversations regarding reassessment of learning standards and types of assessments given to young children to ensure developmental appropriateness. Through increased professional development, making play a priority within classrooms, dedicated advocacy efforts, attention to play environments, and authentic assessments during play, more children can benefit from playful experiences.

### **Emphasizing Professional Development**

Research continually highlights the need for increased professional development opportunities and play trainings for educators (Flannigan & Dietze, 2017; Howard & McInnes, 2013; Lippard et al., 2019). Professional development provides experiences for educators to gain knowledge and explore opportunities for activities and materials that best encourage growth. Researchers recommend professional development regarding the importance and implementation of play experiences, loose parts, and child development (Flannigan & Dietze, 2017; Lippard et al., 2019). Play trainings should be utilized to emphasize the value of play and how educators

can effectively implement and facilitate playful learning environments (Howard & McInnes, 2013). Knowledgeable educators will be able to incorporate play to support the learning and growth of young children in developmentally appropriate ways.

### **Making Play a Priority**

With an emphasis on professional development, informed educators need to make play a priority within classrooms by maintaining at least 30 to 40 minutes of uninterrupted play every day (Brown et al., 2020; Heidemann & Hewitt, 2010). Research validates that quality play experiences can eliminate many of the consequences for children who have already been play deprived and can enrich the development of children who have not lacked play experiences (Belknap & Hazler, 2014; Mainella, Agate, & Clark, 2011). Standards and curriculum show educators the goals of learning. Curriculum can be implemented with fidelity and meet high standards, while adding in play experiences to enrich learning. Play can be intertwined within curriculum and instruction to ensure children receive developmentally appropriate practices. Curriculum can still be implemented with fidelity and educators can meet high standards, while adding in play experiences to enrich young children's learning. Play curriculum can also be adopted for preschool and kindergarten classrooms. Play based learning can include opportunities for both indoor and outdoor play experiences across multiple academic domains.

### **Advocating for Play**

Research noted that educators need to dedicate sufficient time and effort for children to engage in play as well as advocate to others why play is essential in classrooms for young learners (Miller & Almon, 2009). There are many ways educators can advocate for play. One of the most important steps toward advocacy is personal reflection and knowledge. Educators should reflect on personal values, beliefs, and philosophies regarding play. Teachers should

dedicate time to enhance knowledge, such as by researching, reading about theories, talking with other experienced teachers, or attending professional development opportunities on the topic of play. Personal reflection and knowledge about play based learning will enhance communication skills of educators when advocating for play. Educators will feel more confident and dedicated to discuss play with others. Educators will also be more informed and prepared when answering questions in regards to implementing play based learning. Sharing of knowledge, research, and experience with parents, colleagues, administrators, etc. will help validate the need for and benefits of play.

Building relationships and expanding partnerships are a key component of advocacy (Kirk & MacCallum, 2017). Whether engaging with parents, colleagues, advocacy organizations, or policymakers, relationships help form credibility, trust, and support. When sitting down with administrators, when families volunteer in classrooms, or when conversing with colleagues in the lounge, play is a much needed conversation. Knowledgeable educators should welcome opportunities to explain the value of play and the many developmental benefits of children's play experiences within the classroom. Educators are professionals and should feel equipped with the power, tools, and knowledge to express the complexity and rigor children experience when playing. Documentation of young children's work during play is one powerful way to show, rather than just tell, why play is vital for optimal growth and development (Robson & Mastrangelo, 2017). Photographs or videos of children playing also provide a platform for conversations about what children are doing and how play demonstrates thinking processes as well as children's overall learning. Being specific about what children learn in all areas of development helps provide authentic, relatable validation for implementing play-based curriculum in classrooms.

### **Creating Purposeful Play Environments**

Play environments act as a third teacher, supporting children's growth and learning (Robson & Mastrangelo, 2017). Educators need to construct purposeful environments to reflect the diverse needs of young learners. Children should be included in decision-making processes regarding the play environment as well (Robson & Mastrangelo, 2017). To ensure children are provided with a rich environment and quality play, educators can use a play checklist (Heidemann & Hewitt, 2010). Play checklists help educators monitor the appropriateness and effectiveness of play environments, materials and equipment. Play requires designated spaces in the classroom. Environments should incorporate mindful set up, and quality, diverse materials and equipment. Research noted that there should be a mix of loose parts, open-ended and realistic materials (Flannigan & Dietze, 2017). Furniture should be child-sized. Poster and wall decorations should be at the eye level of students. In addition, there should be opportunities for academics incorporated, such as providing science materials that relate to the curriculum, writing paper, or materials to practice reading. Play checklists can be modified to display standards children met during play or mastery of curriculum-related skills and content observed. Usage of play checklists help with assessing children within various domains to meet social, emotional, physical, and cognitive developmental goals, standards, and content from any given curriculum (Heidemann & Hewitt, 2010). In addition, checklists could help ensure that educators provide purposeful engagement with the students.

### **Assessing During Play**

Educators can use observation and continued use of play checklists to assess children's growth during play. By dedicating time each day to observe specific children, educators can assess for progress with social, emotional, physical, and cognitive development. Authentic



assessments during play can replace inappropriate high stakes testing (Belknap & Hazler, 2014; Nilsson, Ferholt, & Lecusay, 2018). Taking anecdotal notes of observations or making use of play checklists that observe various skills of children are very helpful. When taking notes, educators should refrain from assumption or opinion. Notes should be strictly factual, identifying exactly what was said or observed in terms of what children can do or what children are working toward doing. Educators can also make use of documentation to show what children created during play and how creations display holistic development and learning (Robson & Mastrangelo, 2017). By documenting throughout the year and saving evidence within portfolios for each child, year-long progress can be determined.

### **Future Studies**

Research continuously reiterates the sparsity of studies regarding links between play based learning and holistic development for young children (Howard & McInnes, 2013; Suggate, Stoeger, & Pufke, 2017). More research is needed to illuminate the barriers educators face with implementing play in preschool and kindergarten classrooms. Along with barriers, research should address the consequences of a lack of play for young children. Future studies are also necessary for providing clear definitions of play as well as data about the benefits of play for children's social, emotional, physical, and cognitive development. Specifically, future studies of play should use larger sample sizes, provide detailed demographic information, conduct research over longer periods of time, and incorporate multiple different types of data collection methods.

### **Using Larger Sample Sizes**

Many researchers made the recommendation to use larger sample sizes (Cavanaugh et al., 2017; Flannigan & Dietze, 2017; Lindsey & Colwell, 2013; Sezgin & Demiriz, 2019; Vogt et al., 2018; Yoon, 2014). Larger sample sizes allow researchers to gather greater amounts of data and,

therefore, provide extensive and more conclusive results. Data is also more reflective of different populations of people. Using participants from a single classroom or even certain school districts limits the findings. With small sample sizes, children only have access to the same teachers, materials, toys, equipment, and play environments (Lindsey & Colwell, 2013). Other classrooms and schools may look entirely different and, therefore, the findings from one study may not reflect all schools. Results can more accurately depict diverse groups of people when samples include multiple classrooms across various different school districts.

### **Increasing Demographic Information**

With larger sample sizes, future studies should increase the amount of demographic information gathered by researchers and provided in research articles (Brown et al., 2020; Lestari & Ratnaningsih, 2016; Lindsey & Colwell, 2013; Pyle, Priolella, & Poliszczuk, 2018; Sezgin & Demiriz, 2019; Vogt et al., 2018). Gaining more information about participants, such as gender, race, ethnicity, socioeconomic status, and number of children in a family can strengthen studies (Vogt et al., 2018). Detailed participant demographic information allows researchers to explore connections, similarities, and differences between how males and females benefit from play environments and how play impacts children from various socioeconomic backgrounds. Collecting data from one classroom may only represent a single population or limited populations of people. Identifying participant information is important in order to maintain accuracy and reliability of the findings.

### **Conducting Longer Studies**

Researchers should conduct studies regarding play based learning over longer periods of time (Cavanaugh et al., 2017; Flannigan & Dietze, 2017; Sezgin & Demiriz, 2019). With increased observations and data collection periods, researchers can better track, compare, and

analyze children's progress and development. Studies that take play over shorter periods of time can provide limiting results as the studies may only represent a small portion of activities or interactions (Otsuka & Jay, 2017). Longitudinal studies are better able to monitor changes and growth of children at various intervals (Sezgin & Demiriz, 2019). Longer studies also allow researchers to collect data regarding the types of play children choose to engage in, frequency of play episodes, teacher interactions, location of play, gender differences, etc. Detailed information provides well-rounded, conclusive results.

### **Incorporating Multiple Types of Data Collection**

Using multiple types of data collection methods to research play based learning can yield dynamic results and allow for more reliable findings (Kirk & MacCallum, 2017; Lestari & Ratnaningsih, 2016; Otsuka & Jay, 2017; Robson & Mastrangelo, 2017; Sezgin & Demiriz, 2019; Yoon, 2014). Future studies should incorporate a combination of observation-based methods along with the tests and measurement tools to increase validity within studies (Sezgin & Demiriz, 2019). Various data collections methods include: observations, videos, photographs, interviews, questionnaires, pre-tests and post-tests, etc. Usage of a control group is recommended for future studies, in order to compare results of children who do and do not experience appropriate amounts of play (Lestari & Ratnaningsih, 2016). Using control groups also allows for the comparison of play based curricula versus other types of curricula used in preschool and kindergarten classrooms (Yoon (2014). Combining observational data with more concrete data creates well-rounded results as some methods are more objective than others. Presence of researchers can also impact interactions and, ultimately, results (Kirk & MacCallum, 2017; Otsuka & Jay, 2017). Experimenting with different data collection methods, such as video recordings, can allow for children to more authentically engage in play experiences and provide

more accurate data with child-to-child interactions (Otsuka & Jay, 2017). In addition, future studies should continue to involve researchers, educators, families, and children within the data collection process. Different people in different roles provide unique perspectives. Children, too, should be prioritized and involved within the research process (Robson & Mastrangelo, 2017).

### **Conclusion**

Research accepted and validated play-as-learning, where learning was transformed by experiences in which children engage in meaning-making processes (Nilsson, Ferholt, & Lecusay, 2018). Rather than feeling weighed down by the pressure to ensure students reach academic milestones before continuing on to the following grade, early childhood educators should be empowered to bridge the gap between play and learning (Pyle et al., 2018). Instead of focusing on instructional adult–child interactions, preschool and kindergarten classrooms should be focused on play and exploration (Nilsson, Ferholt, & Lecusay, 2018). Educators can relieve tension between the emphasis on academic success and use of developmentally appropriate practices, such as play, by weaving the two together. Creating play-based learning experiences in classrooms will allow children to be mentally active, social, engaged, and able to make meaningful connections to personal lives. For these reasons preschool and kindergarten classrooms should implement play as a part of daily routines in order to help students achieve social, emotional, physical, and cognitive growth.

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