Educators' Perspectives on Executive Function and the Role of Pretend Play

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ABSTRACT

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Mariah Childerhouse

This qualitative study examines educators' perspectives on the role of pretend play in the development of executive function (EF) in preschool-aged children. Five educators, aged 24-62, were recruited from three different early childcare centers in Montreal, Quebec. Data were collected online through semi-structured interviews and demographic and classroom environment questionnaires. Findings suggest that pretend play serves as a medium in which children can develop, practice and integrate skills associated with EF, such as working memory, inhibition and cognitive flexibility. It was also found that child-directed play and teacher-directed play are meaningful experiences that help to engage children's EF abilities. The study concludes that educators and the classroom environment are both moderating factors that scaffold and support children in the attainment of EF.

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Introduction

Early childhood is a vital time for laying the foundations of high-level cognitive processes known as Executive Functions (EF). EFs encompass a large set of abilities including mental flexibility, working memory, and inhibitory control, which allows children to focus attention, redirect thoughts, delay gratification, control impulses, and engage in self-directed behaviour (Diamond, 2006; Diamond, 2013; Center on the Developing Child at Harvard University, 2011). Specifically, attainment of EF in early childhood predicts children's academic achievement and social maturity from preschool into secondary school (Berk & Meyers, 2013). Play- especially pretend play- is believed to be an important contributor to the development of EF skills (Berk & Meyers, 2013; Center on the Developing Child at Harvard University, 2011). Pretend play encourages children to practice symbolic reasoning, problem solving, rule-based behaviour, inhibition of impulses, private speech, joint planning and, to some extent, a combination of these (Bergen, 2002; Bodrova, Germeroth, & Leong, 2013; Weisberg, 2015). Thus, delineating the relationship between pretend play and EF could inform our understanding of child development and how to successfully prepare preschool-aged children for the transition to a school environment.

Thus far, the literature that has examined the interplay between children's pretend play and EF has been limited. To date, there has been difficulty in obtaining accurate information pertaining to EF in early childhood due to the scarcity of measurements and the reliance on laboratory-based settings. For instance, many of the measures used to evaluate EF are designed for older children and adolescents and are difficult to apply to preschoolers due to validity concerns (Isquith, Crawford, Epsy, & Gioia, 2005). Another challenge in assessing EF, at any age, is the ecological validity of the assessment tools. By their nature, performance-based tests

are very narrow and context-situated, and the data obtained may not fully capture EF across various contexts (Isquith et al., 2005). As such, examining early childcare educators' perspectives of EF could provide unique insights into the natural development of EF in preschool-aged children and how the skills associated with EF are transposed in play.

Therefore, the goal of this qualitative research was to explore and share early childcare educators' beliefs and understandings about the role of pretend play in the development of EF. In particular, this study sought to explore educators' perceptions of EF and whether pretend play provides a context in which children can develop and utilize the skills associated with EF.

Executive Function

Definition and Components

Executive Function (EF) is an umbrella term for various abilities and actions of the prefrontal cortex of the brain, which are characterized as higher-level functions (Barkley, 2012). These functions assist children in skills such as redirecting thoughts, focusing attention, resisting impulses, as well as many other cognitive functions. More importantly, these skills are essential for daily life activities and are critical for later cognitive and social capabilities (Center on the Developing Child at Harvard University, 2011). Throughout the years, researchers have defined the concept of EF using models that consist of one or multiple components (Goldstein & Naglieri, 2014). Nevertheless, these definitions have common elements that emphasize three key characteristics of EF. First, EFs are cognitive processes that exert influence over actions, thoughts, and emotions (Diamond, 2013). Second, using EFs requires effort since they are involved in goal-directed behaviour and not in intuitive behaviour (Diamond, 2013). Third, EFs refer to a set of distinguishable and interconnected cognitive processes that are multidimensional, rather than a singular construct (Diamond, 2013). As such, most researchers acknowledge the

three core components of EF as working memory, inhibition and cognitive flexibility (Diamond, 2006; Diamond, 2013). Later, these core EFs support more complex functions, such as planning, reasoning and problem solving (Diamond, 2013).

Working memory. Working memory refers to the ability to hold information and to manipulate it during complex tasks (Diamond, 2006). A child's ability to hold information in working memory is critical for problem-solving activities, carrying out multistep instructions, and completing basic mental manipulations (Blasco, Saxton & Gerrie, 2014). It is also critical for creativity, since it fosters the ability to see connections between seemingly unrelated things and to manipulate them in new ways (Diamond, 2006; Diamond, 2013). Working memory also serves to create mental templates, which guides children's behavior and understanding of rules, such as taking turns in group activities (Bierman et al., 2008; Center on the Developing Child at Harvard University, 2011). Thus, working memory supports social-emotional competence. Furthermore, during play, older preschool children demonstrate the ability to negotiate turns and share materials, which reflects their growing mental capacity to represent and follow social rules and exchanges during play (Bierman et al., 2008). Children with limited working memory, on the other hand, may have difficulty remembering things, struggle to keep track of tasks, or simply forget a task (Blasco et al., 2014).

Inhibition. Inhibition refers to a child's ability to manage his or her behaviour, thoughts, emotions, and attention in response to internal or external stimuli (Diamond, 2013). For instance, inhibition is related to a child's ability to control emotions and to think before taking action (Blasco et al., 2014). In school settings, children rely on this skill to wait their turn, to be successful in games like "Red Light, Green Light," to ignore distractions, and to prohibit

themselves from yelling or hitting another child (Center on the Developing Child at Harvard University, 2011).

Diamond (2013) proposed three main aspects of inhibitory control: inhibitory control of attention, cognitive inhibition and self-control. Inhibitory control of attention refers to the ability to selectively attend, suppress and focus one's attention on certain stimuli. In a classroom, this ability allows a child to inhibit the sounds around them and focus their attention on a specific task (Diamond, 2013). Whereas cognitive inhibition refers to the ability to resist unwanted thoughts or memories within the brain (Diamond, 2013). Finally, self-control is the control over one's own behaviour and emotions. It's the ability to stay on task, delay gratification, resist temptations and engage in alternative behaviours. Overall, children with difficulties in inhibition often experience problems with controlling their behaviour, say inappropriate things, or become restless after sitting for periods of time (Blasco et al., 2014).

Cognitive flexibility. Finally, cognitive flexibility is the capacity to shift and sustain attention in the face of obstacles or new information (Bierman et al., 2008; Diamond, 2006). Specifically, cognitive flexibility allows children to focus and disengage attention, resist and ignore distractions and maintain concentration (Bierman et al., 2008). Cognitive flexibility requires both inhibitory control and working memory and occurs much later in a child's development (Diamond, 2013). Young preschool children often show difficulties in thinking about the same thing in two different ways or to change from one perspective to another (Diamond, 2013). With development, a child's ability to control their emotions and maintain information in working memory is supported by increased cognitive flexibility (Bierman et al., 2008).

Brain Development and Executive Function

EF is associated with structural and functional changes within the brain, notably in the prefrontal cortex (Best & Miller, 2010; Hsu, Novick, & Jaeggi, 2014). At birth, an infant's brain is relatively underdeveloped, but undergoes rapid growth in structure and function as it matures (Best & Miller, 2010). As the brain matures, two main processes occur: (1) cell proliferation leading to synaptic connections (i.e., connections between neurons in the brain) and, (2) the elimination of synaptic connections, known as synaptic pruning (Best & Miller, 2010; Hsu et al., 2014). These processes begin early in infancy and can co-occur during development. In regard to EF, the prefrontal cortex and frontal cortices are the last areas to fully develop and take longer to completely mature (Hsu et al., 2014). Thus, there is a parallel between development in the brain and a child's executive functioning.

Developmental Trajectory of Executive Function

The development of EF skills is seen across infancy, early childhood, adolescence, and young adulthood (Goldstein & Naglieri, 2014; Hsu et al., 2014). As observed in infants as young as seven to 12 months of age, the earliest executive functions to develop are inhibitory control and working memory (Hsu et al., 2014). Nonetheless, EF development is more typically observed during early childhood between ages three and five (Goldstein & Naglieri, 2014; Hsu et al., 2014). In a meta-analysis of EF studies, Romine and Reynolds (2005) found the greatest advancements in children's inhibition responses from ages five to eight. As such, increased improvements in inhibition and working memory help to prepare preschool children for more advanced academic tasks and active learning throughout the school years (Goldstein & Naglieri, 2014). On the other hand, preschool children may continue to struggle with impulse control since the skills associated with inhibitory control are not fully developed. By the time children reach adolescence, most adolescents have developed the EF skills necessary to be successful within the

school environment but may struggle to demonstrate these skills consistently (Goldstein & Naglieri, 2014). Throughout young adulthood, interactions with the environment and the brain's continuing development and maturation will lead to the full attainment of EF skills (Goldstein & Naglieri, 2014; Hsu et al., 2014).

Factors Affecting the Development of Executive Function

Individual Differences. Children are born with the capacity to develop EF skills; however, the extent to which they develop (and the rate of development) depends on various genetic and biological factors. Foremost, age plays a role in the development of EF. As mentioned earlier, EF is highly dependent on brain development particularly in the prefrontal cortex during the ages of three to five years (Ackerman & Friedman-Krauss, 2017; Hsu et al., 2014). In typically developing children, the expansion of EF skills is demonstrated through preschoolers' improved performance on EF tasks during the ages of three to five years (Ackerman & Friedman-Krauss, 2017). Therefore, although there are individual differences in children's EF abilities, age is a factor in the development of EF.

Not surprisingly, the development of EF can be negatively affected by various prenatal and child health issues. For example, Baron, Kerns, Muller, Ahronovich and Litman (2012) examined complex working memory and inhibition tasks in 3-year-olds who had extremely low birth weights in comparison to their full-term peers. Researchers found that premature birth and low birth weight is related to lower EF skills in preschoolers compared to term-born children.

In addition, preschool children with severe delays in language may demonstrate deficits in executive functioning. In a review of research, Vissers, Koolan, Hermans, Scheper and Knoors (2015) found that children who are diagnosed with Specific Language Impairment (SLI) showed reduced performance on all working memory components, had lower inhibition skills in terms of

suppressing irrelevant information and demonstrated impaired cognitive flexibility on sorting tasks. EF impairments in preschoolers with SLI was also supported by the Behavior Rating Inventory of Executive Function-Preschoolers (BRIEF-P), which is a standardized rating scale conducted by parents and teachers (Vissers et al., 2015). Since language and EF primarily develop during early childhood, it is plausible that a relationship between the two exists. Vissers and colleagues (2015) concluded that although direction of the relationship between executive impairments and language impairments is not clear, it is indeed reciprocal.

In comparison, there is research to suggest that children who are bilingual or trilingual perform significantly better on EF measures. In a study comparing 50 kindergarteners, Carlson and Meltzoff (2008) found that, after controlling for children's age, verbal ability, and socioeconomic status, Spanish/English bilingual students performed significantly better on nine measures of EF compared to the monolingual English speakers and kindergartners enrolled in a Spanish or Japanese immersion class. The explanation behind the improved performance of bilingual children is that a child learning two (or more) languages must shift back and forth between the two languages and learn to inhibit the impulse to speak in one language while conversing in another, thereby exhibiting EF skills (Ackerman & Friedman-Krauss, 2017).

Parenting. Parenting behaviours and parent-child relationships can help foster EF skills in young children (Center on the Developing Child at Harvard University, 2011; Fay-Stammback, Hawes & Meredith, 2014). According to Fay-Stammback et al., (2014) four dimensions of parenting behaviours are responsible for individual differences in EF: scaffolding, stimulation, sensitivity/responsiveness, and control. As conceptualized in attachment theory, sensitive/responsive parents (i.e., warmth, positive effect) who provide scaffolding (i.e., praise and elaboration), enriched interactions (e.g., reading to child), and supportive behavioural control

or discipline (e.g., authoritative) help influence early development in a range of domains, including EF. For instance, Ackerman and Friedman-Krauss (2017) found in their review of research that parenting style is shown to predict EF levels at 18 and 26 months and that parental sensitivity and responsiveness are related to children's EF abilities at four and five years of age. As such, parents and caregivers influence the development of children's EF.

Early Childcare Context. Early childcare settings and teacher-child interactions have long-lasting positive effects on children's EF outcomes (Ackerman & Friedman-Krauss, 2017; Vandenbrouke, Split, Verschueren, Piccinin, & Baeyens, 2018). In 2016, Cadima, Verchueren, Leal and Guedes investigated the classroom environment and perceived teacher–child relationships as indicators of self-regulation in preschool children from disadvantaged backgrounds. Researchers found that teacher-child closeness and instructional support helped to promote children's self-regulation. Teachers who were warm, responsive and sensitive that encouraged communication and reasoning and gave more feedback relevant to learning helped to facilitate the development of self-regulation skills (Cadima et al., 2016). In a similar vein, the broader classroom context is critical for children's EF development as well. At the classroom level, important factors for children's executive functioning include classroom organization (e.g., proactive behaviour management, minimizing transition times) and instructional support (e.g., open ended questions; Vandenbrouke et al., 2018). According to the Center on the Developing Child at Harvard University, three intervention approaches enhance executive functioning in young children: (1) programs that explicitly foster EF skills, (2) programs that train teachers in strategies for effective classroom management and, (3) teacher training in how to model and coach children in their social-emotional skills. In all, these approaches support children's EF development within the early childcare environment.

Home Environment. Early environmental experiences, inside and outside the home, are vital to a child's development and learning. Children who experience family poverty, maternal depression, maltreatment and exposure to violence are more likely to experience delays in the development of EF (Bierman et al., 2008; Hughes, 2011). Indeed, research indicates that adverse environments affect both brain structure and function (Hughes, 2011). Exposure to environmental stressors (e.g., violence and neglect) can cause significant deficits in cognitive, attentional, and behavioural regulation in children, implying that EFs are vulnerable to disruption at a young age (Center on the Developing Child at Harvard University, 2011). Additionally, children who experience extreme adversity show increased levels of attention problems, emotional dysregulation and language delays (Bierman et al., 2008). Thus, living in a chaotic or stressful environment can increase demands on the executive regulatory systems in the brain making it difficult for young children to engage their executive abilities (Bierman et al., 2008).

Pretend Play: A Context for Executive Function Development

Defining Pretend Play

Play is a difficult concept to define, as it takes many forms and varies widely across children and cultures (Weisberg, 2015; Zigler et al., 2004). Play, rather than being a single activity, is a complex set of behaviours that can be social, constructive, solitary, or rule based. One of the most commonly agreed upon criteria for play is that it does not serve any immediate purpose, other than enjoyment (Weisberg, 2015). Pretend play, a type of play, is generally defined in the research literature as an activity that involves role play, object substitution, and imaginary situations. Pretend play will also be referred to as sociodramatic play for the purpose of this study and is characterized by "make-believe that involves roles, objects and situations; persists for at least 10 minutes; and includes language and social interaction" between peers,

adults, or both (Zigler et al., 2004, p.162). As Fein (1981) noted, pretend play has also been referred to as make-believe, symbolic play, imaginative play, fantasy play, dramatic play, and sociodramatic play, reflecting different research topics or preferences.

Characteristics of Pretend Play

Unlike other forms of play, pretend play is characterized by an "as-if" stance and involves actions, use of objects, and verbalisations with nonliteral meanings (Lillard, Lerner, Hopkins, Dore, Smith & Palmquist, 2013; Weisberg, 2015). Krasnor and Pepler (1980) define pretend play as having four distinct "play criteria": nonliterality, positive affect, intrinsic motivation, and flexibility. Nonliterality refers to the "as if" and a child's figurative behaviours in play. Positive affect refers to the enjoyment of engaging in play. Intrinsic motivation is a child's choice to partake in play for their own sake. Lastly, flexibility refers to how play behaviors might vary in form (e.g., exaggerated) and/or content (e.g., eating with a stick instead of spoon) from real life experiences (Krasnor & Pepler, 1980; Lillard et al., 2013). According to Krasnor and Pepler (1980), the more criteria that are present, the more likely that the behavior is play. With this in mind, play can be used when determining the developmental level of the child since there are connections between cognitive competence and the quality of pretend play. As well, play is a tool and means to practice skills such as problem solving, inhibition of impulses and private speech, which help to promote literacy abilities and mathematical readiness throughout the formal school years (Bergen, 2002).

Benefits of Pretend Play for Preschool Children

There is a bounty of research to suggest that pretend play is a significant contributor to children's development. Pretend play is crucial for building social and emotional competence (Yogman, Garner, Hutchinson, Hirsh-Pasek, Golinkoff, 2018; Singer, Golinkoff, & Hirsh-Pasek,

2010), cognitive processes (Bergen, 2002; Bodrova et al., 2013; Weisberg, 2015), linguistics abilities (Singer et al., 2010), emergent literacy (Singer et al., 2010) and physical and mental wellbeing (Yogman et al., 2018). Though the benefits of play hold true for children of all ages, the preschool years represent a critical period in a child's life since pretending during this time is most common and, because the cognitive and social skills developing at this age set the stage for academic learning and future outcomes (Bergen, 2002; Singer et al., 2010; Weisberg, 2015). Theorists Vygotsky and Piaget both wrote about the efficacy of play for children's development in the early childhood years (Singer et al, 2010). During this high period of imaginative play, children are discovering their surroundings, accommodating new ideas, and fostering their imaginations. Moreover, compared to other forms of play or interactions, children in pretend play are able to explore social roles and rules, learn about mental states (i.e., emotions, other perspectives), engage in collaborative dialogues, overcome impulses and regulate their behaviours (Singer et al., 2010). Therefore, rich opportunities for pretend play in the preschool years help set a firm foundation for children to acquire the academic and social skills necessary for success in school.

Linking Pretend Play and Executive Functioning in Preschool Children

Pretend play is one of many potential avenues to EF development (Berk & Meyers, 2013). Due to the nature and content of pretend play, it offers multiple opportunities for children to use skills associated with inhibitory control (e.g., taking turns), cognitive flexibility (e.g., role playing) and working memory (e.g., remembering the rules of a game). According to Vygotsky, pretend play allows children to construct imaginary scenarios, substitute objects that may or may not resemble the things they represent, portray and adopt various roles, and follow the rules determined by those roles (Bodrova et al., 2013). Therefore, as children engage in pretend play,

they transpose their knowledge into symbolic form, and begin to make the distinction between reality and fiction. Vygotsky also argued that when children use objects to represent other purposes in play (e.g., banana as a telephone), they begin to develop abstract thought (Zigler et al., 2004). Once the child has developed the understanding that one object can stand for another through play, he or she is able to transfer these abilities to academic skills such as reading and writing. In make-believe play, children also learn to regulate their behaviors, thoughts, and emotions and to apply that understanding to real-life situations (Bodrova et al., 2013; Lillard et al., 2013). Therefore, pretend play naturally connects with self-regulatory skills and impulse control, which are main components of EF. Furthermore, play allows a child to practice different mental representations in a pretend realm, while still recognizing which one is based in reality. This ability to hold and manipulate various mental representations relates to the ability to understand the mental states of oneself and others, an important skill in Theory of Mind development (Weisberg, 2015). Play also allows children to practice categorization, generalization, and conceptual thinking skills (Zigler et al., 2004). For example, children can categorize food in a dramatic grocery store area or learn concepts of volume such as measuring ingredients for a recipe. Finally, a child that has developed "mature play" is capable of sociodramatic play where they use self-created props, accept and maintain roles in play, practice role-specific speech and engage in high quality play scenarios over longer periods of time (Bodrova et al., 2013).

Play and Executive Function: An Overview

Interventions Related to Play and Executive Functioning in Young Children

Throughout the years, direct and indirect interventions aim to increase EFs in children. These approaches span from computer games, art programs, mindfulness, physical exercise,

martial arts, parent training, and specific educational practices (Diamond, 2012; Hsu et al., 2014). In particular, pretend play and pretense has been examined by researchers as an activity with a positive impact on the development and attainment of EF in young children (Baron, Malmberg, Evangelou, Nesbitt, & Farran, 2019; Elias & Berk, 2002; Kelly & Hammond, 2011; Slot, Mulder, Verhagen & Leseman, 2017; Thibodeau, Gilpin, Brown & Meyer, 2016; Traverso, Viterbori & Usai, 2015).

The first avenue for supporting EF development in young children is through the implementation of specific curricula with a focus on pretend play. *Tools of the Mind*, which emphasizes sociodramatic play- make-believe play with other children- includes numerous activities designed to promote self-regulation (Baron et al., 2019). The *Tools of the Mind* curriculum has preschoolers spend 40 to 50 minutes per day in sustained sociodramatic play and aims to improve children's EF abilities through teaching strategies and intentional classroom activities. Teachers are trained in instructional strategies, including strategies to introduce imaginary situations and props as well as strategies to expand on children's roles during play (Zigler et al., 2004). In a New Jersey study, Diamond, Barnett, Thomas and Munro (2007) examined the effects of the *Tools of the Mind* curriculum with 85 preschool children randomly assigned to the *Tools* curriculum and 62 preschool children to the control group. At the end of the preschool year, children in *Tools* outperformed children in control classrooms on EF measures of inhibitory control and cognitive flexibility. Similarly, Barnett, Jung, Yarosz, Thomas, Hornbeck, Stechuk, and Burns (2008) examined *Tools of the Mind* by randomly assigning children to the *Tools* curriculum or control group. Specifically, 85 children were assigned to *Tools* and 120 children to the control curriculum (i.e., local school curriculum). In the fall and spring of the 2002-2003 school year, children were assessed on measures of

language, social, and cognitive development. Researchers found that the *Tools* curriculum improved children's EF as indicated by the teacher ratings of behavior problems, which were higher for children in the control than the *Tools* classrooms at the end of the year. Therefore, *Tools of the Mind* is a high-quality play curriculum that benefits preschool and kindergarten children's EF.

In a similar vein, training studies have found that preschool children's performance in EF tasks can be improved after participating in play-based interventions. In Italy, Traverso et al., (2015) conducted an intervention with 75 preschool children that aimed to understand the development of inhibitory control, cognitive flexibility and working memory. Over the course of one month, twelve play sessions lasting 30 minutes each were conducted at the educational center that the children attended. In groups of five, children were administered tasks that required increasing levels of inhibitory control, cognitive flexibility and working memory. Results suggest that the children who participated in the intervention performed significantly better in inhibition tasks (i.e., delay task, circle drawing task, arrow flanker task, gift wrap task time, preschool matching familiar figure task), cognitive flexibility tasks (i.e., point accuracy task) and working memory tasks (i.e., backward word span, keep track task). This suggests that children who participated in the play-based interventions performed better than those who did not.

More recently, Thibodeau and colleagues (2016) investigated how pretend play with a fantastical component affects the development of EFs in preschool children in a classroom context after being assigned to one of three intervention conditions. In the study, 110 children between the ages of three and five were randomly assigned to the fantastical pretend-play, non-imaginative play, and control conditions. In the fantastical pretend-play condition, children were assigned to small groups and encouraged to create and act out pretend play scripts. In the non-

imaginative play condition, children engaged in group activities that did not require any imagination and were not designed to affect EF skills. Some of the activities included songs (e.g., Wheels on the Bus), coloring, and ball games. Finally, in the control condition, children did not receive any intervention. Children were assessed pre and post intervention from direct child assessments, teacher questionnaires, and reports of children's pretense and fantasy orientation, executive functions, and play style and engagement. At the end of the intervention, researchers found that children in the fantastical pretend-play condition showed improvements in working memory (i.e., Forward Digit Span task) and attention shift (i.e., Card Sort task) more than children in the non-imaginative play condition and control condition. In sum, pretend play is an effective intervention for increasing children's EF outcomes.

Finally, correlational and experimental studies have also explored the association between pretend play and EF skills. For instance, Elias and Berk (2002) examined the relationship between sociodramatic play and self-regulation behaviours in fifty-one children ages three to four in four daycare classrooms in a Midwestern city. Naturalistic observations were conducted at two times periods: Time 1 occurred in the early fall and the follow up, Time 2, occurred in the late winter and early spring. At Time 1, play behaviours and self-regulatory behaviours (attentiveness at circle time and behaviour at clean up) were recorded, and at Time 2 researchers furthered assessed the development of self-regulation. Pretend play was coded as the following: solitary, social, and complex. Findings reveal a correlational relationship between children that engage in a higher frequency of complex play and better self-regulatory performance during clean-up time.

Slot and colleagues (2017) also investigated self-regulation behaviours by using data from an observational in-depth study, which examined the developmental effects of early

childcare education and care provisions. For the purpose of this study, researchers selected 113 three-year-old children from the larger sample in the Netherlands in order to examine how test-based measures of EF and the quality of play contributed to cognitive and emotional self-regulation. In the original study, children were tested individually on various measures of EF and receptive vocabulary as well as videotaped in four different situations: mealtime, free-play and two guided play stations in which the researchers provided standard sets of play materials (i.e., wooden trains and kitchen toys). After performing a regression analysis, Slot et al., (2017) found that children as young as three years are capable of cognitive and emotional self-regulation during pretend play, and that children displayed metacognitive regulation of their play behaviors. Furthermore, the quality of pretend play was associated with cognitive self-regulation.

Furthermore, Kelly and Hammond (2011) explored the role of EF, specifically inhibitory control and generativity, in the development of symbolic play of young children during structured and unstructured play sessions in a laboratory playroom. Researchers administered the Sun-Moon Stroop task as a measure of inhibitory control and Semantic Fluency task and Object Substitution task as measures of generativity. For the structured play component, children were assessed using the Test of Pretend Play (ToPP), which examines the child's symbolic ability through an observation of non-social pretend play (Kelly & Hammond, 2011). Followed by the unstructured play session, children were assessed in spontaneous symbolic play with ability to play freely with various materials and toys (e.g., toy truck, cardboard box, wooden blocks). Testing lasted approximately 90 minutes and all tasks were videotaped for coding of behaviour. Findings reveal that inhibitory control was associated with children's pretend play, as measured by children's competence on the Sun-Moon Stroop task. In other words, the child's ability to inhibit a response (i.e., ability to say "moon" when shown a picture of the sun) is related to the

production of symbolic play. There was also a positive relationship between the two play variables, suggesting that symbolic play abilities are similar under structured and spontaneous conditions.

In sum, numerous studies have explored the relationship between pretend play and EF, using direct measures of EF, teacher and parent ratings, naturalistic observations of pretend play, and others laboratory structured play sessions. While there is some evidence that pretend play may help EF development, Lillard et al., (2013) argue in their review of research that the existing evidence is sparse and requires further exploration. Specifically, a lack of a consistent operational definition of EF, poor ecological validity and the inaccuracy of EF measures are all aspects to be considered when investigating the relationship between play and EF development.

The Present Study

The literature reviewed explores how pretend play may be a crucial part of a child's EF development, especially in the early childhood years. Although much of the research regarding EF involves formal assessments or implementing a program to see improvements, there is a need for more research on the natural development of EF through the eyes of the educator, particularly in the early childcare setting. Thus, the purpose of the following study is to explore educator's perspectives and beliefs of the relationship between pretend play (also referred to as sociodramatic play in this research) and young children's executive functioning from a qualitative perspective. Specifically, this study seeks to address the following question: How do educators view pretend play and its role in helping preschool-aged children develop executive functioning skills?

Methodology

Participants

Participants consisted of a sample of five female educators, aged 24-62. Inclusion criteria required that the educators be currently employed by an early childcare center in Montreal, Quebec and that the educators have access to a computer or phone for the purpose of an online interview. Four educators were recruited from private childcare centers, three of which were employed at a private Montessori-based preschool. One educator was recruited from a public daycare. Three educators indicated that the age range of the children in their classroom were 3 to 4.5 years of age. One educator was leading a group of two-year-old children, and one educator specified that children in her group were four to five years of age. Educators' education level ranged from college to graduate degrees. Specifically, three educators held a bachelor's degree, one educator possessed a college diploma, and one educator had obtained a graduate degree. Educators had a range of experience as an early childhood educator from 5.8 years to 32.3 years. It is important to note that one educator had 9.4 years' experience as an educator of early childcare, but she had only been working in her current position for approximately six months. Furthermore, three educators specified having a dramatic play center available to the children in their classroom. Two of the Montessori educators indicated that they did not have a dramatic play area, but that there were opportunities for dramatic play in other areas of the school such as outdoors or in the gym. Language(s) of instruction in the classrooms were English and/or French.

Procedure

Following ethics approval from Concordia University, five educators from three different childcare centers agreed to participate. Three educators received a participation email sent to them by their director, one educator was a previous colleague to the researcher, and one educator was recruited through a friend. Eligible educators received a consent form (see Appendix A) and

a letter stipulating the purpose of the study (see Appendix B). Due to the online nature of the study, participants were asked to print the consent form, sign the physical copy and then return either a scan or photograph of the signed consent form. Once signed consent forms were returned, the researcher distributed the demographic/classroom environment questionnaires (see Appendix C) through email and contacted each educator to arrange a time and date for the interview.

Educators were interviewed in the months of December 2020 and January 2021. Specifically, three educators were interviewed in the month of December and two educators were interviewed in January. The principal investigator (PI) conducted the interviews. All educators were interviewed online via Zoom and interviews lasted between 20-60 minutes. Interviews were audio recorded and later transcribed using Microsoft Word. Each transcript was clearly labeled with the participant code, date and time. For confidentiality purposes, all participants were assigned a pseudonym.

Measures

Demographic and Classroom Environment Questionnaire for Educators

Classroom educators were given a questionnaire about their academic and professional backgrounds as well as their classroom environment and structure. First, demographic questions such as age, gender, years of teaching experience and level of education were asked. Second, information regarding the classroom environment was requested such as number of students, language of instruction, daily routine, amount of time children spend in dramatic play, and any other information relevant to the study.

Semi-Structured Interviews

Semi-structured interviews were conducted with all five participants online via Zoom. These interviews sought to explore the educator's experiences, beliefs and understandings of the role of pretend play and EF development in young children. For this purpose, semi-structured interviews were chosen since they allow for "question to change, and additional interview questions to be included" (Hays & Singh, 2012, p.239). In addition, semi-structured interviews allow for more participant voice and more opinion-based questions. As such, the interview protocol (see Appendix D) included questions such as: *Do you think pretend play activities are important for young children? If so why/why not? As an educator, what do you see as your role during pretend play activities? Why is it important to help young children develop executive functioning? What elements of pretend play do you feel influence the development of executive functions? What kind of strategies do you implement in your pretend play environment to encourage executive functioning?* In order to allow for reflection, the interview protocol was given to the participant a few days prior to the interview via email.

In order to collect data, an audio recorder on the principal investigator's computer was used. The participant was made aware beforehand that the interview was to be recorded in order to decrease the participant's nervousness. The audio recorder was turned on 5-10 minutes prior to the interview in order for the participant to become more comfortable and act more natural with the PI. At the end of the interview, the participant was asked to provide an email address to which a document summarizing the interview could be sent.

Trustworthiness

To ensure the authenticity and credibility of the qualitative study and its data analysis, the following strategies were employed:

Inter-rater Reliability

Inter-rater reliability was used after the coding process on two of the five interviews (for a sample of the codes and categories, see Appendix E). Inter-rater reliability was a strategy used to help establish trustworthiness of the results. The PI initially coded all five interviews and then randomly selected two interviews to share with a qualified research team member. The research team member was a graduate student who was rigorously trained in qualitative and quantitative research methods as it relates to the field of child development. After reviewing the two interviews, the PI and team member met online via Zoom for a consensus meeting where all codes and categories were agreed upon. Additional codes and categories may have been added.

Member Checking

Member checking was used during the process of interpreting data. Member checking helps to evaluate and verify the accuracy of the interpretations of the data. At the end of the interview, each participant was asked to provide an email address to which a document summarizing the interview could be sent. Each participant read this document and discerned the validity of the statements shared. All participants responded to the emails, and one participant requested minor changes be made. The aim of the study is to gain educator's thoughts and beliefs on pretend play and EF; therefore, it was essential that the researcher gain feedback from the participant. Member checking is a method of improving the accuracy, credibility, validity and transferability of the study.

Thick Descriptions. Thick descriptions of the participants were used to help establish transferability of the study. Thick descriptions were also used in the results section to include detailed descriptions of experiences and ample quotations from each participant.

Results

Several unique themes were revealed in the findings that correspond to the initial research question. Themes fell into the following categories: (a) developmental benefits of play; (b) play experiences; (c) educator involvement; (d) strategies and practices for executive functioning.

Developmental Benefits of Play

One of the most salient themes that emerged from the data was the innate developmental benefits of play. All educators, without exception, expressed that pretend play facilitated children's *cognitive*, *socio-emotional*, and *physical development*. Educators felt that all play experiences naturally benefit children's development, and that play was a vehicle to cultivate learning.

One of the critical benefits of play was its contribution to young children's *cognitive abilities*. Educators shared that play influenced children's critical thinking, problem-solving, creativity, independent thinking, spatial awareness, attention, and Theory of Mind. Furthermore, educators asserted that play and playful activities enhanced children's knowledge and understanding, numeracy and mathematical thinking, as well as linguistic capabilities. Camille (pseudonym) shared:

> Il développe, certainement et puis enfin, c'est sur son intellectuel, sa pensée et sa capacité à résoudre… à résoudre des problèmes comme partager ou accepter les jeux de l'autre ou les idées des autres, n'ont pas seulement les siennes. Ils peuvent aussi, le jeu, peu développé, vraiment la créativité, l'imagination, ça c'est certain.
>
> [They develop their intellect, their thinking, their ability to resolve… resolve problems like sharing or accepting the games or ideas of others, not only their own. They also develop creativity and imagination. This is certain.]

Inclusively, educators viewed pretend play as a crucial support for the development of EF, specifically working memory, impulse control and mental flexibility. Pretend play allowed children the opportunity to practice skills associated with EF in an environment that was

accessible, enjoyable and free of constraints or imposed rules. Thus, children were able to use their cognitive abilities to create stories, enact situations (fantasy or realistic) and portray different characters. When asked what elements of pretend play influenced EF, Tammy (pseudonym) responded, "I think, as a whole, just their ability to embody the pretend character that they are portraying […] in terms of how are they metacognitively thinking about the characters they're playing." Evidence of EF was also discussed in terms of children's ability to regulate their emotions and actions, remember their character's role or rules of a game, and their capacity to shift plots and storylines within the context of play.

In addition, some educators believed that EF contributed to academic readiness and success. While all educators specified that EF were valuable skills for everyday life, Camille and Vivian (pseudonyms) inferred that EF would be important for later schooling. In particular, Camille spoke about how EF acquisition could influence a child's future in terms of providing them with a "good start." When speaking about why it was important for children to develop EF, she responded, "c'est un départ de l'enseignement et s'il n'a pas un bon départ au départ, ça peut vraiment influencer son future." [it is a departure for teaching and if they do not have a good start at the beginning, it can really influence their future]. Similarly, Jane (pseudonym) stated, "[executive functions] would help them learn in the future, like when they go to school" indicating that EF may play a role in a child's school readiness.

Play was also discussed as crucial for *socio-emotional development* in young children. Particularly, the act of engaging in play served as a way to exercise and consolidate children's emerging social and emotional skills such as self-regulation, prosocial behaviours, identity formation, conflict resolution, emotional awareness and maturity, empathy and relationships with others. In general, educators viewed pretend play as a social activity within which children could

experiment and practice social roles and social constructs. When referring to the importance of pretend play activities, Jane commented, "[…] they kind of act out what they see and its different ways for them to interpret certain situations that's not always provided in certain toys or given materials." Further evidence of the social-emotional benefits of pretend play were expressed by Anna (pseudonym) who stated, "it involves togetherness, and it is a great time to learn sharing and taking turns, develop and promote their emotional skills and practice and encourage them for practical life." Her comment was also echoed by Camille who expressed that pretend play was about children waiting their turn, making compromises, expressing ideas and emotions and not always following the ideas of others.

The most common social-cognitive benefit of pretend play with others (sociodramatic play) was the aspect of self-regulation. All educators agreed that pretend play helped children develop their ability to self-regulate since sociodramatic play requires that children manage their thoughts, emotions and behaviours in acceptable ways. Vivian shared her experience of how children may encounter conflicts in play and the ways in which a child may demonstrate self-regulation. She said:

> If they're playing kitchen, they need to wait for their turn to, let's say, go to the microwave or have this pan or this toy they wanted in the kitchen. Or, let's say, when they're playing with dolls, they have a specific doll or there's only one bottle for both dolls. Then they have to wait for that bottle, and they need to ask. So, they need to process, 'ok, I have to wait. I have to ask.'

Overall, educators believed that play, particularly in the context of sociodramatic play, provided children with the opportunity to practice self-regulation and, when supported by the educator, learn tools and strategies to aid in the process. For instance, Jane and Vivan believe it was their responsibility to help children understand their emotions and to provide strategies to help children regulate those emotions. Jane spoke about how she taught the children in her

classroom phrases to use to as a way to encourage prosocial behaviours such as sharing and as a means to talk about internal states.

> The only thing is, once in a while, sometimes… Let's say one or another child will take a toy from someone, and I mean, I've taught them to tell the other children, 'I'm not finished, or I don't like it.' […] Most often they'll say, 'can I have it when you're finished?' They'll ask for it. They'll ask for that toy and the child will respond, 'yes, I'll give it to you when I'm finished.'

In all, pretend play appeared to be an integral component of socio-emotional development and appeared to provide children with valuable opportunities to learn, practice and exhibit social and emotional skills.

Moreover, pretend play was critical for a child's *physical development*. Play helped children hone their fine motor skills such as hand-eye coordination, dexterity, and movements like grasping, holding, and manipulating. Blocks, cars, trains, puzzles, and drawing were common activities that educators referred to as having fine motor components. One educator, Vivian, spoke of Montessori activities, which she felt had cognitive benefits in addition to fine motor. She articulated how Montessori activities required children to choose an activity, manipulate the activity independently, and successfully clean up. When asked to describe an activity, she spoke about pouring water between two pitchers.

> The children have to go get the pitcher. They have to walk and balance those two small pitchers in their hands. They have to walk with them, stabilizing them on the platter to the table. Then, they take one of them and they go fill it to a certain level. They bring it back and it's important not to spill the water. So, they really have to walk stable. They put it down and then they have fun transferring the water from one pitcher to the other.

Educators also spoke about the value of play in terms of the gross motor benefits such as balance, coordination and large muscle movements like crawling, jumping and running. Four educators spoke about having a gym area within the childcare center, which provides children with opportunities to utilize their gross motor skills. Specifically, Camille addressed how

children in the gym are always moving. She shared: “quand ils s’expriment, bon… ramper, courir, grimper, sauter dans leurs jeux. Vraiment, on voie comment ils se développe simplement quand on voit dans la gym comment ils jouent. Ça bouge tout le temps” [when they express themselves… crawling, running, climbing, jumping in their games. Really, you see how they develop just when you watch how they play in the gym. They move all the time]. Tammy agreed that children who engaged in play in the gym (or outdoors) were building gross motor skills and that the play that occurred in those areas consisted mostly of free play. Moreover, outdoor play was described as a space for children to employ large muscle groups. For example, Anna described her children working together to build a snowman. Thus, outdoor and indoor play both provide opportunities for children to use gross motor skills.

In sum, whether indoors or outdoors, play appeared to be a context in which children could utilize both fine and gross motor skills. When describing indoor and outdoor play, educators suggested that these spaces are occasions for children to engage in free play.

Learning Through Play: Types of Play Experiences

Pretend play was defined by the educators as an intrinsically motived and natural medium for development. Specifically, two types of play experiences were described by the educators as having a positive impact on children’s executive functioning- *child-directed play* and *educator-directed play*. Child-directed play in which the child initiated and led their own play for the sake of their own experiences, exploration and enjoyment. Often, child-directed play was directly referred to as free play and, in some instances, inquiry-based play. All educators stated that child-directed play was a child’s way of constructing their own knowledge and processing new experiences without adult intervention. In referring to child-directed play, one educator stated, “I step back because I want it to be their story” (Tammy). Educators concurred that during child-

directed play it was important for the educator to take an inactive role and to allow children the creative freedom to explore. Vivian echoed a similar statement: “support the pretend play but not disturb the pretend play.”

Educators also seemed to suggest that child-directed play could be collaborative or independent. One educator, Tammy, discussed how not all children enjoy cooperative play and prefer solitary play, “they're creating their own story while they're playing with blocks, for example. And I could overhear them with that story and they're very content with it versus other students who like to play in a group and elaborate amongst themselves on the story or involve other people.” Although, child-directed play was discussed as mainly a collaborative activity, particularly in the context of pretend play, it is important to note that solitary play may also be child-directed.

Overall, it seems that child-directed play may provide children with valuable skills and experiences to foster executive functioning. Child-directed play also seems to occur primarily in a cooperative context where children act out situations together; however, it may also be independent with a child manipulating blocks on their own to create something else.

In contrast, educator-directed play referred to a joint activity between the educator and the children where the educator was responsible for organizing and monitoring the process and encouraging interaction of all children in the classroom. Common examples of educator-directed play included games, planned activities, guided play and storytelling. Games were the most common teacher-directed activity and were often opportunities for educators to expose children to new learning experiences or as a means to practice skills such as working memory. Camille gave an example of a game that she prepares to introduce her students to numbers and sequences:

> Je mets aussi, quelquefois, je mets des chaussettes partout par terre. Sur mes chaussettes, il y a des couleurs et il y a des chiffres […] Au départ, en général, il ne

> remarque pas les chiffres, ils remarquent les couleurs. Alors là, ils vont les mettre toutes les couleurs donc ensemble. Comme je t'ai dit, ils vont faire des suites logiques simples, rouges, bleu. […] Ou bien il va faire bleu, bleu, blanc, blanc. Tout seul.
>
> [Sometimes, I also put socks all over the floor. On my socks, there are colors and there are numbers […] At first, generally, they do not notice the numbers, they notice the colors. So, they will put all the colors together. As I told you, they will make simple logical sequences: red, blue […] Or, they will do blue, blue, white, white. All by themselves.]

In a similar vein, Jane used games as a way to encourage children to utilize their working memory. She explained how she would introduce the rules at the beginning of the game and then, at the end of the game, have a discussion about what the rules were and children's perceptions about how the game went. Therefore, games proved to be a valuable teacher-directed activity to help encourage executive functioning in young children.

Planned activities were also beneficial in terms of providing children with new information or as an expansion on children's existing knowledge. Jane described how she organized her planned activities "based on children's interests." One educator also mentioned adapting her planned activities and having alternative tasks for children. She shared, "if we're drawing and they don't like drawing, I'll ask them to write. If they don't like to write, I'll ask them to act it out or have some variation" (Tammy).

Finally, guided play and storytelling were similar educator-directed activities where the educator was responsible for providing a prompt to the children to help foster play or playful experiences. To some educators, guided play also implied providing children with specific materials and asking them to explore. For instance, Camille stated, "Éventuellement, on propose sur une table et on ne leur demande pas de faire quoi que ce soit. C'est à eux explorer les choses" [Eventually, we propose an activity on the table, and we don't ask them to do anything. It's up to

them to explore things]. Only Tammy spoke of her experiences with collaborative storytelling in the classroom,

> So, we start off like I'll give them a prompt but then, like every child is allowed to input one idea or build off of each other's ideas to create a story and then I've written out the stories and we have allowed them to draw in the pictures of each story page and then we publish it in the class.

Overall, teacher-directed play appeared to be distinctive opportunities for educators to introduce concepts, prompt new ideas and scaffold learning.

The Role of the Educator: Educator Involvement in Pretend Play

Educators may adopt many roles throughout the day, particularly during play. Common roles that the five educators assumed were *onlooker*, *co-player*, *redirector*, *play leader*, *manager* and *documenter*. In general, onlooker and co-player were the most undertaken roles of all the educators while in pretend play. An onlooker was described as a position frequently assumed by educators who were observing children. One educator stated, “you could see really how they play through observation” (Anna). Educators who assumed the onlooker role were vastly interested in observing *how* the children were playing. Camille described setting up a dramatic play area with kitchen props and observing how the children interacted with the materials. She shared,

> Au départ, je vais mettre le petit napperon, puis je ne dis rien. Ce que font les enfants avec de la nourriture, c'est que ce que font souvent les enfants et les bons maîtres, ils vont bien placer l'assiette et leur fourchette, la cuillère et tout et ils voient la nourriture. Alors moi, je les observe.
>
> [At the start, I will put a little placement, and say nothing. What the children do with the food is what teachers and children often do, they’ll place the plate, the fork, the spoon and everything and then they see the food. So I, I observe them]

In some instances, educators were invited to participate in play as a co-player but agreed that it was important to play a minor role and avoid controlling the play plots. Tammy shared,

“I’ve also played roles. Like I said, they’ve incorporated me. So, I’ve been a mother. I’ve been a princess, a driver, a baby. Literally, anything imaginable.” Vivian expressed similar instances of co-playing with the children, but insisted that educators should, “be an actor and not influence, but just act without changing their games or their ideas and just having them play.” Thus, the most common roles of educators during pretend play were that of an onlooker and a co-player.

Less common roles included the educator as a play leader, manager and redirector. Only two educators assumed the role of play leader where they influenced children’s play by providing ideas and themes. For instance, when describing the pretend play materials and activities in the classroom, Anna commented, “Sometimes, they play blocks and pretend to make like trains. Or, sometimes, I ask them, ‘can you make an airplane or a boat?’” Moreover, the same two educators also adopted the ‘redirector role’, which involved shifting children’s attention to other topics or activities. Tammy appeared to assume this role when describing conflict between children: “Let's say, I don't know, they're pretending that it's a crystal and they don't want to share that toy, like, ‘why aren't you sharing that toy?’ and to involve myself in that sense.” Therefore, the redirector may support conflict resolution during pretend play.

In comparison, manager was only described by one of the five educators. In this role, the educator seemed to actively support the play by helping children, without being overly involved. For instance, Jane stated, “I'll interact with open ended questions or offer like other materials in there and say, ‘how about this one?’” In this sense, the educator appears to facilitate play by offering suggestions. Jane also shared her contemporary role as a documenter of play. She described how the early childcare center where she is currently employed implemented a new program where educators are responsible for filming children’s activities on an iPad and labelling aspects of child development:

> Lately, this year, because we have a new program that we've integrated into our program that we have to observe what they're doing on an iPad and then we attach or tag developmental levels to it. So, I have less time playing with them, but it's more documenting what they're doing.

Overall, educators' engagement and the adoption of various roles may be used to support children's needs during play.

Strategies and Practices for Executive Function

Another salient theme that emerged from the data was the plethora of strategies and practices utilized by educators to promote cognitive development and, in turn, executive functions. *Environmental support* and *educator support* were both critical factors in this aspect. First, educators spoke about *classroom management* as a key component of environmental support. As described by one educator, promoting engagement in various play areas and managing children's time and presence in each area was essential for the children in her classroom. She commented, "most of the time, I really want to make sure that the area has enough space for children. So, for example, six kids want to go to the kitchen area and there's not enough space. So, I have to make sure that they have to take turns" (Anna).

The second element of environmental support was the *organization of the classroom* and its play areas. All educators spoke of a dramatic play area suggesting that educators viewed dramatic play as having a crucial role in a child's EF development. Specifically, all educators had access to kitchen dramatic play with cooking utensils and plastic foods. All educators also indicated a manipulative area with blocks, figurines, cars and/or trains. In addition, four educators described a doll area where children had access to dolls and other accessories. One educator even described her experience of collaborating with the children to create a dramatic play center:

> there's a complete dramatic play station where we created with the children a theater like… basically a theater stage, if you want to call it. So, we used empty cereal boxes and we made this. The children painted it and we added curtains so that it can be like their puppet stage as well as we made a bigger one where they can actually pretend that it's the backdrop of their stage (Tammy)

In comparison, one of the Montessori educators appeared to attribute the organization of her Montessori classroom and its activities and materials to cognitive development. She described how she believed "as a Montessori-based classroom, the cognitive is […] anywhere in the activities that the children choose" and that the Montessori philosophy "is a good influence on cognitive development" (Vivian).

The final element of environmental support were the *classroom routines* established by the educators. Some common practices included circle time and monthly themes. Circle time seemed to provide educators with opportunities for interactive learning. During circle time, Camille shared that, "je vais faire demander quel jour il est, de quel jour c'est. Je vais leur demander de compter. Je vais leur demander la météo avec plusieurs phrases, une vingtaine de phrases et les phrases affirmatives, les phrases négatives" [I am going to ask them what day it is. I'll ask them to count. I will ask them about the weather using several sentences, about twenty sentences, and affirmative sentences, negative sentences]. Similar aspects of circle time were also discussed by Anna and Tammy.

Monthly themes also seemed to be utilized by the educators to introduce new information and topics. Jane and Tammy both stated that they based on their classroom themes on children's interests. When asked how she incorporated children's interests into play, Jane stated, "I would be listening to what they're talking about and seeing if I can find any materials that would be relevant in pretend play to what their discussion was." Some

examples of themes used in Tammy's classroom included farming, theatrics, superheroes, hygiene, and seasons.

Furthermore, *educator support* was provided by all the educators to aid children in their cognitive development. Though strategies differed between educators, each educator highlighted the ways in which they supported children's development. First, open-ended questions were the most commonly used instructional approach. Four of the five educators described using open-ended questions, particularly in the context of pretend play, to encourage children's thinking. During kitchen pretend play, Tammy mentioned asking children questions such as, "what did you make it with? Or how did you make it?" During more structured activities like circle time, Anna would ask open-ended questions such as, "how's your morning today?"

Individual-specific teaching strategies were used by educators as well. Overall, Camille provided the most examples of teaching strategies for supporting children in the classroom. As a second-language teacher, she described using humor as well as songs and gestures to engage her children in learning. She also employed techniques like direct instruction, deliberate errors and repetition. In contrast, Jane suggested that modeling, mindfulness and being an active listener were important strategies to support the children's needs in her classroom. Moreover, Tammy expressed that verbal encouragement was a strategy that she deployed with young children.

In sum, educators expressed that both environmental support and educator support are both crucial elements that contribute to helping young children develop executive functioning.

To conclude, educators viewed pretend play as a context for EF development. Educator expressed that the inherent characteristics of pretend play (i.e., natural, accessible, enjoyable) provide all children with a medium through which they can develop, and practice skills associated with EF. In particular, child-directed play and sociodramatic play (pretend play with others) appear to be key ingredients for EF as well as support from the educator and the childcare environment.

Discussion

The purpose of the present study was to explore educator's perspectives and beliefs about the role of pretend play in the development of EF. In general, educators viewed pretend play as multidimensional with numerous developmental benefits including cognitive, socio-emotional and physical. Through the findings, it is evident that the educators perceived pretend play as a significant criterion for executive functioning in young children. Educators asserted that the types of play experiences, their involvement as well as the classroom environment all contribute to EF.

The Link Between Pretend Play and Executive Functions

There has been an abundant amount of research on play and its effects on early childhood development and learning. In general, research indicates strong links between play and cognitive, physical, language and socio-emotional development. More importantly, play is an essential part of childhood that is a pleasurable, intrinsically motived, and rewarding experience for children (Krasnor & Pepler, 1980). In relation to EF, educators in this study viewed play as a natural opportunity for children to use skills associated with inhibitory control, cognitive flexibility and working memory. In particular, a child's ability to create stories, enact situations (fantasy or realistic), portray different characters, and manage their emotions, thoughts and behaviours were

some of the ways in which educators saw children utilizing EF during pretend play. Educators also saw children's interactions with their peers as opportunities for negotiation, cooperation and problem-solving. Berk and Meyers (2013) also found similar relationships between children's social pretense and self-regulation, inhibition of impulses, understanding of social rules, and ability to redirect behaviour. Though Lillard and coauthors (2013) argue that the role of pretend play and young children's EF skills is too limited to draw conclusions, educators in this study provided some perspective on the ways in which they observe children exercising EF skills in the context of play.

Meaningful Play Experiences

The early childhood years represent a period of rapid growth in EF particularly between three and five years of age (Goldstein & Naglieri, 2014; Hsu et al., 2014), this suggests that caregivers should seek to provide children with plenty of pretend play opportunities to cultivate EF skills. The findings in this study suggest that children should have opportunities to participate in child-directed play and teacher-directed approaches, which both aid in the development of EF. Educators implied that child-directed play (i.e., free play) provided children with a way of constructing their own knowledge and practicing social and cognitive skills, without adult intervention. There is evidence that suggests that child-directed play is beneficial for various aspects of child development (Hirsh-Pasek, Golinkoff, Berk, & Singer, 2010). Children who engage in child-directed play have better social skills, demonstrate cognitive competence and are more independent (Gmitrova & Gmitrov, 2003). Nonetheless, children exploring social and self-regulation skills in free play may not reach established educational outcomes (Fisher, Hirsh-Pasek, Golinkoff, Singer, & Berk, 2010) The findings suggest that teacher-directed approaches, such as games and guided play, incorporate learning objectives but remain child-directed. Fisher

and colleagues (2010) also describe how adults can use teacher-directed approaches while still centering on the child. In particular, they provided two ways: (1) carefully prepare the environment beforehand and (2) scaffold children's actions as the play unfolds. Vygotsky (1978) also offered reasons for teachers to intervene in the play process such as to provide assistance to children learning a new task and to extend the "zone of proximal development." Therefore, a balance between freedom and structure is what provides children with the best learning outcomes.

Moderator Factors: Adult Influence and the Classroom Environment

Additionally, adult influence and the classroom environment are moderating factors in the development of EF. In the context of pretend play, adult influence was demonstrated in two ways: through the various roles assumed by the educator during play and instructional support. First, during pretend play, the educators observed, participated, managed, redirected, and documented play. Gaziria-Loaiza, Han, Vu and Hustedt (2017) also found that educators use different roles for many different purposes. In their study, the researchers found that teachers spent more time in roles that facilitated and supported children's play. They observed two types of play events, sociodramatic and constructive play, where teachers spent the majority of their time in these events in the onlooker role (Gaziria-Loaiza et al., 2017). Similar findings were observed in the five educators in this study, who spent the majority of their time observing or co-playing with children. As suggested by Gaziria-Loaiza and colleagues (2017), educators may be careful to intervene in children's play when they do not need the support of the teacher. In a similar vein, educators who choose to engage children's play may seek to take on roles that do not reduce the value of the child's experience. For instance, Logue and Detour (2011) observed teachers' participation in young children's dramatic play and found that appropriate teacher

involvement behaviours such as taking on roles, letting children direct and lead the play scenario, improvising during play scenarios, and observing children's play before taking part all benefited children's play experiences. Therefore, educator's involvement in the context of pretend play may prove valuable in the development of EF.

Furthermore, findings suggest that each educator incorporated instructional strategies that suited the needs of the children in their classroom. As discussed by Weisberg, Hirsh-Pasek and Golinkoff (2013), good teachers recognize that teaching is a dynamic and fluid process where instruction should be differentiated based on the topic or children in the group. Therefore, good teachers are able to introduce content in a variety of ways and tailor their teaching strategies to be most effective for their audience. Some of the strategies highlighted in this study were open-ended questions, providing feedback (e.g., scaffolding, modeling, verbal encouragement), and establishing relationships to provide support. Moreover, teachers who provide emotional support (e.g., smiling, acknowledging children's emotions and experiences, sensitive responses, listening to children express their emotions) promote children's cognitive processes such as inhibition. Therefore, these findings compliment similar findings on the association between teacher instructional quality and support and observed EF skills in children (Cadmia et al., 2016; Vandenbrouke et al., 2018).

Regarding the classroom environment, the results indicate that classroom management, organization and routines play an important role in children's developing EF skills. In line with Vandenbrouke et al. (2018), these results indicate that a well-organized classroom with clear expectations may provide children with external help in terms of organizing their behaviours and forming self-regulation strategies. As such, a child's classroom environment may influence both social and cognitive aspects of development. On the other hand, though clear associations have

been made between high-quality teacher-child interactions and EF, research exploring classroom quality in terms of how teacher organize routines, implement activities and lessons, and make materials available to the children has been limited. There is research to suggest that infrastructure (i.e., class size, teacher-child ratio, curricula) and features of the environment (i.e., physical space) play a minor role in children's academic, language and social competence (Mashburn et al., 2008). Therefore, efforts should be directed towards improvement in classroom interactions with a focus on teacher instructional quality and emotional interactions. Nonetheless, continued research on aspects on the classroom environment and its contribution to EF should continue to be explored.

Limitations

Although this study was the among first to evaluate educator's beliefs and perspectives about the role of pretend play and EF, there are a several limitations that should be noted. First, only five female participants were recruited and interviewed, which limits the generalizability of the study. In addition, four of the five educators were employed in a private early childcare center. A larger and more diverse sample size would allow for a more encompassed understanding of the role of pretend play in the development of EF. Specifically, a more inclusive sample of private and public educators would provide insight on any differences and/or similarities between these two systems. Second, due to unforeseen circumstances regarding Covid-19 and restrictions regarding in-person research, all interviews were conducted online via Zoom. In-person interviews would have allowed the researcher to develop a more personal approach, as online interviews can be a bit detached. Also, due to difficulties in technology, participants would sometimes lose connection or have a muffled voice. This could have resulted in the researcher missing important information or information being absent from the transcript.

Third, potential confounding factors from the family (socio-economic status, child rearing practices, siblings, etc.) were not addressed. In other words, it may not be sufficient to link children's pretend play and EF abilities without considering possible contextual factors from their families. Finally, it is acknowledged that the findings are based on self-reported data, which may involve bias.

Conclusion and Future Directions

The findings from this study suggest that, at a young age, pretend play may serve as a medium in which children can develop, practice and integrate skills associated with EF and that educators may also play an integral role in providing strategies and practices that scaffold and support children in the process. The classroom environment may also be a key component that can hinder or reinforce EF development. Future research should seek to explore the relationship between educators, pretend play and EF development through direct observations. Specifically, longitudinal studies investigating how educator involvement during pretend play predicts later EF would be extremely beneficial in understanding developmental trajectories. Moreover, preschool curricula should seek to introduce training programs for educators which emphasize fostering stronger teacher-child relationships, recognize play and playful learning as critical for EF development and seek to provide educators with the appropriate strategies to model and coach children in their cognitive and socio-emotional skills. As Lillard and colleagues (2013) wrote, "hands-on, child-driven educational methods…are the most positive means yet known to help young children's development" (p. 27-28). When we allow opportunities for pretend play, we are ensuring the holistic development of the child while simultaneously equipping them with the tools necessary for future success.

References

Ackerman, D.J., & Friedman-Krauss, A.H. (2017). Preschoolers' executive function: Importance, contributors, research needs and assessment options. *ETS Research Report Series.* doi: 10.1002/ets2.12148

Barkley, R.A. (2012). *Executive Functions: What they are, how they work, and why they evolved*. New York, New York: The Guilford Press.

Baron, I. S., Kerns, K. A., Müller, U., Ahronovich, M. D., & Litman, F. R. (2012). Executive functions in extremely low birth weight and late-preterm preschoolers: Effects on working memory and response inhibition. *Child Neuropsychology, 18*(6), 586–599. doi: 10.1080/09297049.2011.631906

Baron, A., Malmberg, L., Evangelou, M., Nesbitt, K., & Farran, D. (2019). The play's the thing: Associations between make-believe play and self-regulation in the Tools of the Mind early childhood curriculum. *Early Education and Development, 31*, 66-83. doi: 10.1080/10409289.2019.1613327

Barnett, W.S., Jung, K., Yarosz, D.J., Thomas, J., Hornbeck, A., Stechuk, R. & Burns, S. (2008). Educational effects of the *Tools of the Mind* curriculum: A randomized trial. *Early Childhood Research Quarterly, 23*, 299–313. doi: 10.1016/j.ecresq.2008.03.001

Best, J.R., & Miller, P.H. (2010). A developmental perspective on executive function. *Child Development, 81,* 1641-1660. doi: 10.1111/j.1467-8624.2010.01499.x.

Bergen, D. (2002). The role of pretend play in children's cognitive development. *Early Childhood Research & Practice, 4*. Retrieved from http://ecrp.uiuc.edu/v4n1/bergen.html

Berk, L.E., & Meyers, A.B. (2013). The role of make-believe play in the development of executive function: Status of research and future directions. *American Journal of Play, 6,* 98-110. Retrieved from https://www.journalofplay.org

Bierman, K.L., Nix, R.L., Greenberg, M.T., Blair, C., & Domitrovich, C.E. (2008). Executive functions and school readiness intervention: Impact, moderation and remediation in the Head Start REDI program. *Development and Psychopathology, 20,* 821-843. doi: 10.1017/S0954579408000394.

Blasco, P.M., Saxton, S., & Gerrie, M. (2014). The little brain that could: Understanding executive function in early childhood. *Young Exceptional Children, 17,* 3-18. doi: 10.1177/1096250613493296

Bodrova, E., Germeroth, C., & Leong, D.J. (2013). Play and self-regulation: Lessons from Vygotsky. *American Journal of Play, 6,* 111-123. Retrieved from https://www.journalofplay.org

Cadima, J., Vercheren, K., Leal, T., & Guedes, C. (2016). Classroom interactions, dyadic teacher-child relationships, and self-regulation in socially disadvantage young children. *Journal of Abnormal Child Psychology, 44,* 7-17. doi: 10.1007/s10802-015-0060-5

Carlson, S. M., & Meltzoff, A. N. (2008). Bilingual experience and executive functioning in young children. *Developmental Science, 11*, 282 – 298. doi: 10.1111/j.1467-7687.2008.00675.x

Center on the Developing Child at Harvard University (2011). *Building the Brain's "Air Traffic Control" System: How Early Experiences Shape the Development of Executive Function: Working Paper No. 11*. Retrieved from www.developingchild.harvard.edu.

Diamond, A. (2006). The early development of executive functions. In E. Bialystok & F. I. M. Craik (Eds.), *Lifespan cognition: Mechanisms of change* (pp. 70–95). New York, NY: Oxford University Press.

Diamond, A. (2013). Executive functions. *Annual Review of Psychology, 64*, 135-168. doi: 10.1146/annurev-psych-113011-143750.

Diamond, A., Barnett, S., Thomas, J., & Munro, S. (2007). Preschool program improves cognitive control. *Science, 318,* 1387-1388. doi: 10.1126/science.1151148

Elias, C.L. & Berk, L.E. (2002). Self-regulation in young children: Is there a role for sociodramatic play? *Early Childhood Research Quarterly, 17,* 216-238. doi: 10.1016/S0885-2006(02)00146-1

Fay-Stammback, T., Hawes, D.J., & Meredith, P. (2014). Parenting influences on executive function in early childhood: A review. *Child Development Perspectives, 0,* 1-7. doi: 10.1111/cdep.12095

Fein, G. G. (1981). Pretend play in childhood: An integrative review. *Child Development, 52,* 1095-1118. doi: 10.2307/1129497

Fisher, K., Hirsh-Pasek, K., Golinkoff, R. M., Singer, D., & Berk, L. E. (2010). Playing around in school: Implications for learning and educational policy. In A. Pellegrini (Ed.), *The Oxford Handbook of Play*. NY: Oxford University Press, 341-363.

Gaziria-Loaiza, J., Han, M., Vu, J.A., & Hustedt, J. (2017). Children's responses to different types of teacher involvement during free play. *Journal of Childhood Studies, 42,* 4-19. doi: 10.18357/jcs.v42i3.17890

Goldstein, S., & Naglieri, J.A. (2014). Handbook of Executive Functioning. Springer Science.

Gmitrova, V., & Gmitrov, J. (2003). The impact of teacher-directed and child-directed pretend play on cognitive competence in kindergarten children. *Early Childhood Education Journal, 30,* 241-246. doi: 10.1023/A:1023339724780

Hays, D. G. & Singh, A. A. (2012). *Qualitative inquiry in clinical and educational settings*. NY: The Guilford Press.

Hirsh-Pasek, K., Golinkoff, R.M., Berk, L.E., & Singer, D. (2010). *A mandate for playful learning in preschool: Presenting the evidence*. Oxford Scholarship Online. doi: 10.1093/acprof:oso/9780195382716.001.0001

Hsu, N. S., Novick, J. M., & Jaeggi, S. M. (2014). The development and malleability of executive control abilities. *Frontiers in Behavioral Neuroscience*, *8*. doi: 10.3389/fnbeh.2014.00221

Hughes, C. (2011). Changes and challenges in 20 years of research into the development of executive functions. *Infant and Child Development, 20,* 251-271. doi: 10.1002/icd.736

Isquith, P.K., Crawford, J.S., Epsy, K.A., & Gioia, G.A. (2005). Assessment of executive function in preschool-aged children. *Mental Retardation and Developmental Disabilities Research Reviews, 11,* 209-215. doi: 10.1002/mrdd.20075

Kelly, R., & Hammond, S. (2011). The relationship between symbolic play and executive function in young children. *Australasian Journal of Early Childhood, 36,* 21-27. doi: 10.1177/183693911103600204

Krasnor, L.R. & Pepler, D.J. (1980). The study of children's play: Some suggested future directions. *New Directions for Child and Adolescent Development, 9,* 85-96. doi: 10.1002/cd.23219800908

Lillard, A.S., Lerner, M.D., Hopkins, E.J., Dore, R.A., Smith, E.D., & Palmquist, C.M. (2013). The impact of pretend play on children's development: A review of evidence. *Psychological Bulletin, 139,* 1-34. doi: 10.1037/a0029321

Logue, E. M., & Detour, A. (2011). 'You be the bad guy': A new role for teachers in supporting children's dramatic play. *Early Childhood Research and Practice, 13*, 1-16.

Mashburn, A.J., Pianta, R.C., Hamre, B.K., Downer, J.T., Barbarin, O.A., Bryant, D…Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language and social skills. *Child Development, 79*, 732-749. doi: 10.1111/j.1467-8624.2008.01154.x.

Romine, C. B., & Reynolds, C. R. (2005). A model of the development of frontal lobe functioning: Findings from a meta-analysis. *Applied Neuropsychology*, *12*(4), 190–201. doi: 10.1207/s15324826an1204_2

Singer, D.G., Golinkoff, RM., & Hirsh-Pasek, K. (2010). *Play-learning: How play motivates and enhances children's cognitive and social-emotional growth*. Oxford Scholarship Online. doi: 10.1093/acprof:oso/9780195304381.001.0001

Slot, P.L., Mulder, H., Verhagen, J., & Leseman, P.M. (2017). Preschoolers' cognitive and emotional self-regulation in pretend play: Relations with executive functions and quality of play. *Infant and Child Development, 26*,1- 21. doi: 10.1002/icd.2038

Thibodeau, R.B., Gilpin, A.T., Brown, M.M., & Meyer, B.A. (2016). The effects of fantastical pretend-play on the development of executive functions: An intervention study. *Journal of Experimental Child Psychology, 145,* 120-138. doi: 10.1016/j.jecp.2016.01.001

Traverso, L., Viterbori, P., & Usai, M. C. (2015). Improving executive function in childhood: evaluation of a training intervention for 5-year-old children. *Frontiers in Psychology,* 6, 1–14. doi: 10.3389/fpsyg.2015.00525

Weisberg, D.S., Hirsh-Pasek, K., & Golinkoff, R.M. (2013). Guided play: Where curricular goals meet a playful pedagogy. *Mind, Brain and Education, 7,* 104-112. doi: 10.1111/mbe.12015

Weisberg, D.S. (2015). Pretend play. *Cognitive Science, 6,* 249-261. doi: 10.1002/wcs.1341

Vandenbrouke, L., Split, J., Verschueren, K., Piccinin, C., & Baeyens, D. (2018). The classroom as a developmental context for cognitive development: A meta-analysis on the importance of teacher-student interactions for children's executive functions. *Review of Educational Research, 88,* 125-164. doi: 10.3102/0034654317743200

Vissers, C., Koolen, S., Hermans, D., Scheper, A., & Knoors, H. (2015). Executive functioning in preschoolers with specific language impairment. *Frontiers in Psychology*, *6*, 1-8 doi: 10.3389/fpsyg.2015.01574

Yogman, M., Garner, A., Hutchinson, J., Hirsh-Pasek, K., Golinkoff, R.M. (2018). The power of play: The role of enhancing development in young children. *Pediatrics, 142,* 1-17. doi: 10.1542/peds.2018-2058

Vygotsky, L.S. (1978). Mind in society: The development of higher psychological functions. Cambridge, MA: Harvard University Press.

Zigler, E.F., Singer, D.G., & Bishop-Josef, S.J. (Eds.). (2004). *Children's play: The roots of reading.* Washington, DC: ZERO TO THREE Press.

Appendix A
Consent Form for Educators

INFORMATION AND CONSENT TO PARTICIPATE IN EDUCATORS' PERSPECTIVES ON EXECUTIVE FUNCTION AND THE ROLE OF PRETEND PLAY

Study Title: Educators' Perspectives on Executive Function and the Role of Pretend Play

Researcher:
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Faculty Supervisor:
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Faculty Supervisor's Contact Information: 514-848-2425 (ext. 2040)
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Source of funding for the study: None

You are being invited to participate in the research study in *Educators' Perspectives on Executive Function and the Role of Pretend Play*. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

You have been informed that the purpose of the research is to explore the relationship between pretend play and preschool children's executive functioning.

B. PROCEDURES

If you participate, you will be asked to:

- Complete a demographic and classroom environment questionnaire relating to your academic and professional background as well as your classroom environment and structure. This questionnaire takes around 5 minutes to complete.

- Complete a semi-structured interview using Zoom or Skype. The interview will take approximately 1 hour.

- Allow the researcher to record the interview using an audio recorder.

- Review your interview answers for accuracy.

C. RISKS AND BENEFITS

You may or may not personally benefit from participating in this research. Potential benefits include: A more complete understanding of the role of pretend play in young children's executive functioning. There are no risks to this study.

D. CONFIDENTIALITY

I will gather the following information as part of this research:

- Demographic information (e.g., number of years teaching)
- Classroom environment information (e.g., language of instruction)
- Responses to interview questions

The information gathered is confidential and I will only have access to the information. I will only use the information for the purposes of a master's thesis.

I will protect the information by keeping all your information in a secure and locked cupboard in the researcher's home.

I will destroy the information five years after the end of the study

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher within 14 days following the date of your interview.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

We will tell you if we learn of anything that could affect your decision to stay in the research.

We will not be able to offer you compensation if you are injured in this research. However, you are not waiving any legal right to compensation by signing this form.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print) _____

SIGNATURE _____

DATE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

Appendix B
Invitation to Participate in Research Study

Dear Educators,

The purpose of this email is to invite you to participate in a research study. The information below provides a description of the project and its procedures, which you need to consider before deciding whether you would be willing to take part. You are not obliged to take part in this study.

Description of Project

The purpose of the study is to understand the relationship between pretend play and executive function. Executive function (EF) is the higher-level functioning in the brain such as working memory, inhibition, and cognitive flexibility. Some skills associated with EF include redirecting thoughts, focusing attention, resisting impulses, as well as many other functions. Due to the nature and content of pretend play, it offers multiple opportunities for children to use skills associated with inhibitory control, working memory, and cognitive flexibility. Specifically, the following study will seek to address the research question: How do educators view pretend play and its role in helping young children develop executive functioning skills?

Explanation of Procedures

Educators will be asked to:

- Complete a questionnaire related to their teaching experience and classroom environment (e.g., years of teaching experience, number of students).
- Complete a semi-structured interview online using Zoom or Skype. The interview will take approximately 1 hour.
- Allow the researcher to record the interview via an audio recorder.
- Review your interview answers for accuracy.

Inclusion Criteria for Participants

The participants are educators who are currently employed at an early childcare center. All potential participants will be provided with the appropriate consent forms prior to participating in the study.

Confidentiality

The results of this participation will be confidential. The researcher will keep the consent forms, questionnaires and audio recordings in a secure and locked location. The researcher will use pseudonyms to maintain confidentiality.

If you are interested in learning more about this project, please feel free to contact me. I am available to discuss your questions and concerns.

Thank you for taking the time to read this information.

I hope to hear from you soon.

Best,

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Appendix C
Demographic and Classroom Environment Questionnaire for Educators

I. Demographics and General Teaching Profile

Date: _____

Name: _____

Age: _____

Gender: ☐ Male ☐ Female

1. Years of experience as a teacher of early childhood education:

   _____ years and _____ months

2. Highest educational attainment:

   ☐ High School Diploma

   ☐ College Diploma

   ☐ Bachelor's Graduate Degree

   ☐ M.A. Graduate Degree

   ☐ PH. D Graduate Degree

   ☐ Other (specify): _____

3. Please indicate how long you have been working in your current position

   _____

II. Profile of Classroom

1. Please indicate the age range of the children in your classroom

   _____

2. How many boys and girls in your class? Boys: _____ Girls: _____

3. Please indicate the language(s) of instruction in your classroom

   ☐ English

   ☐ French

   ☐ Other (specify): _____

4. Please describe your current classroom routine:

   _____

   _____

   _____

   _____

5. Is there a "dramatic play" center in your classroom?

   ☐ Yes ☐ No

6. Time(s) of day when the children can play in the "dramatic play" center (Please check all that apply).

   ☐ 7–8 am ☐ 2–3 pm

   ☐ 8–9 am ☐ 3–4 pm

   ☐ 9–10 am ☐ 4–5 pm

   ☐ 10–11 am ☐ 5–6 pm

   ☐ 11– noon Other time frame: _____

Appendix D
Interview Protocol

1. Do you think play can contribute to a child's development? If so, how?
2. Do you think pretend play activities are important for young children? If so why/why not?
3. Describe the pretend play activities and materials you incorporate into your classroom.
4. As an educator, what do you see as your role during pretend play activities?
5. In the classroom, how do you support children's cognitive development? What are the best activities which you feel influence cognitive development?
6. In your opinion, why is it important to help children develop executive functioning?
7. As an educator, what elements of pretend play do you feel influence the development of executive functions?
8. How do you see your students practicing executive functioning skills during play time?
9. What kind of strategies do you implement in your pretend play environment to encourage executive functioning?
10. Is there anything else you would like to add?

Appendix E
Codes and Categories

Themes	Categories		Subcategories	Examples
Developmental Benefits of Play	Cognitive	Linguistics	Verbal communication	153, 161, 266, 283, 305, 307
			Literacy	152, 263, 291, 292, 294, 304, 409
			Vocabulary	3, 4, 5, 13, 163
			Bilingualism	15, 23, 24, 58, 67, 117, 305, 306
		Executive Functions	Working memory	91, 94, 95, 100, 215, 216, 228, 319, 342, 345, 396, 405
			Mental flexibility	93, 105, 240, 324, 333, 334, 335, 336, 343, 344, 345, 423
			Impulse Control	8, 97, 157, 240, 267, 407, 408, 412, 413, 421, 423, 427
			School Readiness and Success	14, 85, 219
		Other	Attention	151, 157, 230, 231, 233, 305, 316, 324
			Organization/Inner order	319, 334, 395, 397, 403, 404, 405
			Planning	158

			Problem solving	6, 8, 33, 35, 127, 263, 264, 315
			Critical thinking	127, 299
			Independent thinking	304, 396, 394
			Knowledge and understanding	37, 164, 207, 305
			Numeracy and Mathematical thinking	36, 95, 154
			Spatial awareness	409, 413
			Perseverance	106, 107, 123, 326
			Delayed gratification	419, 423
			Theory of Mind	8, 97, 224, 236, 237, 428
	Socio-emotional	Self-regulation		13, 56, 57, 97, 109, 110, 112, 113, 157, 211, 214, 234, 236, 237, 239, 240, 267, 322, 323, 337, 339, 340, 349, 419, 428, 431
		Prosocial behaviours		6, 8, 13, 128, 141, 239, 262, 267, 292, 411, 412, 426
		Social conventions and norms		18, 86, 91, 157
		Identity formation		78, 158, 307, 329,
		Interactions and relationships with others		127, 139, 262, 266, 268

		Conflict resolution		57, 322, 341,
		Emotional awareness and maturity		113, 128,
		Empathy		104
	Physical	Fine Motor	Hand-eye coordination	
			Holding/manipulating/pinching/drawing	16, 32, 39, 265, 293,
			Dexterity	265
			Construction	136, 284,
		Gross Motor	Body movements (e.g., running)	17, 163, 167, 264,
			Balance	401, 402, 403,
			Coordination	402, 403,
Characteristics of Pretend Play	Intrinsically motived			272,
	No imposed rules			270, 271, 289, 380,
	Natural medium			3, 13, 75, 133, 141,
	Enjoyable			131, 179, 183
	Accessible			81, 282, 285, 286, 414
	Promotes and demonstrates learning			14, 15, 183, 227, 228, 375, 383
	Reflection of real-life			32, 80, 86, 87, 183, 414
	Tool for assessment			382,
	Cultural context			19, 224, 383,
Play Experiences	Child-directed	Free play		41, 172, 173, 174, 223, 232, 254, 255, 263, 270, 276, 353, 361, 367, 371, 372,

		Collaborative/cooperative play		7, 132, 139, 167, 168, 169, 268, 290, 341, 349, 351,
		Solitary play		350, 351,
		Roleplaying		27, 28, 29, 143, 160, 163, 166, 271, 345, 348, 381
		Symbolic play		164, 169, 283, 284,
	Teacher-directed	Games		34, 35, 40, 66, 98, 99, 215, 300, 301
		Planned activities		154, 205, 206, 207, 328,
		Guided play		16, 23, 24, 136, 164, 354,
		Storytelling		291, 292, 293, 294, 304, 347,
Educator Roles in Play	Onlooker			26, 37, 45, 46, 141, 144, 247, 288, 296, 348, 389,
	Co-player			30, 47, 168, 194, 244, 245, 290, 295, 352, 353, 390, 391, 434, 435
	Play leader			136, 162, 163, 290
	Manager			242, 243,
	Redirector			149, 365,

	Documenter			196, 197, 358, 373,
Strategies and Practices for Executive Functioning	Environmental Support	Classroom management		146, 147, 148, 149, 335,
		Classroom organization	Dramatic play area and props	25, 26, 31, 38, 41, 50, 51, 52, 135, 138, 143, 187, 188, 189, 190, 192, 253, 258, 274, 275, 276
			Manipulatives	33, 135, 136, 151, 209, 281, 300, 303, 385, 387,
			Age-appropriate materials and toys	208,
			Montessori activities	393, 398, 399, 401
		Classroom routines	Monthly themes	276, 277, 278, 280, 291, 308, 309, 310, 311, 316, 386, 418,
			Interest-based learning	205, 248, 311, 315, 329,
			Transitions	158, 321, 324, 325,
			Show and Tell	307,
			Circle time	21, 152, 153, 305,
		Types of questions	Open-ended questions	48, 49, 60, 61, 62, 63, 65, 152, 153, 163, 195, 199, 200, 201, 245, 330, 353, 362,

	Educator Support	Direct instruction		58, 62, 63, 65, 67, 207,
		Scaffolding		4, 5, 208,
		Mindfulness		56, 109, 211,
		Modeling		225, 381,
		Active listening		249, 288,
		Verbal encouragement		357, 359, 371,
		Establishing relationships		76, 77, 79, 111, 122, 153,
		Repetition		58,
		Deliberate errors		102, 103,
		Songs and gestures		114, 115, 116,
		Humor		117, 118,
		Alternative tasks		327, 328,