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YOUNG CHILDREN'S SELF-REGULATION AND TEACHERS' RATINGS OF YOUNG CHILDREN'S PLAY AND APPROACHES TO LEARNING AS A FUNCTION OF AGE, GENDER, AND LANGUAGE BACKGROUND

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Abstract

The purpose of this study was to explore the relationships among children's self-regulation, play, and approaches to learning as a function of age, gender, and language status (English as a first language or as a second language). This research is based on the assumption that children who play well and take a positive approach to learning in the classroom are also effective in terms of self-regulation and other related "school readiness" skills, such as receptive vocabulary and social development in the classroom. Children (n = 50) were tested in the spring of the school year (2012) using measures for self-regulation, play, and approaches to learning together with an adaptation of an older version of the Peabody Picture Vocabulary Test. In order to assess development of self-regulation, executive function tasks (i.e., day-night, tapping, and Simon says tasks) were administered in late winter and early spring. The children's play quality and approaches to learning were rated by teachers. The results showed that children's self-regulation is significantly related to their rating scores for play and approaches to learning and that these ratings were highly correlated with each other. Additionally, the girls' scores on both the Simon says test and the modified Peabody Picture Vocabulary Test were significantly better than the boys' scores. For 3- to 4-year-old children, these tasks were a little challenging, but for 4- to 5-year-old children, the tasks were not difficult. From the results, it appears that self-regulation, play, language, and approaches go together at this specific period in children's lives. Thus, teachers would be well-advised to create lessons, curricula, and activities designed to strengthen these important cognitive traits and behaviors in young children.

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Acknowledgements

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Chapter 1

Introduction

Statement of the Problem

A current issue in early childhood education (ECE) pertains both to the so-called DAP (Developmentally Appropriate Practice) and achievement gap issue (Copple & Bredekamp, 2009) and to school readiness. Many young children are not ready for school (Blair, 2002). In ECE, attention is focused to a great extent on helping children to become ready to learn and to priming them so that they become eager to do so (Bowman, Donovan, & Burns, 2001). If they are to play a role in realizing the goal of ensuring school readiness, ECE personnel must find ways to prepare teachers to serve young children by creating optimal learning environments and instructional activities. A focal concern in this effort (Johnson, Christie, & Wardle, 2005), play is considered important to creating classrooms that reflect developmentally appropriate practices (DAP) (Copple & Bredekamp, 2009).

A key challenge in ensuring school readiness is that it is necessary to reach all young children. However, many children come from economically disadvantaged backgrounds and/or they are otherwise at risk for academic difficulties including the likelihood of not being ready to speak English. Other factors that mitigate against school readiness include coming from a home with only one parent, or coming from a background that is otherwise not developmentally supportive or enriching. Each of these factors has the potential to contribute to children not being ready for their first formal school encounters, who must be served through ECE programs nonetheless (Copple & Bredekamp, 2009).

But how can ECE programs help reduce the achievement gap? Will ECE programs that accord with DAP contribute to reducing the gap? Many think that the only way to reduce the gap is to emphasize direct

instruction and structured lessons combined with ongoing practice designed to facilitate young children's efforts to master content and develop basic skills pertaining to literacy and numeracy (Coolahan, Fantuzzo, Mendez, & McDermott, 2000).

However, critics such as Kuschner (2012) argue that following such a recipe is admitting that DAP means something different for children from middle-class and upper-middle-class households than it does for children from lower-socioeconomic-class households. The former are more likely to thrive in a Reggio-inspired ECE. For example, given the 100 languages of the children in such an environment, its play and artistic enrichment approaches, children from higher and middle socioeconomic class households are more likely to achieve. Children from lower-socioeconomic-class households typically must have a more basic ECE approach with an emphasis on academic content that is suitable for the young child. Children who are at greater risk, though, must be taught more developmentally appropriate way. Critics complain that this should not be the case, that all children should have a developmentally enriching, play-based ECE that is DAP. It is how young children learn and approach and engage in their learning and playing opportunities that is the key to their future success in life and in school, not an obsession with what they are learning and the quantity of that content learning.

Questions relating to how children learn are currently attracting considerable attention from researchers and ECE practitioners and consideration of such has even found its way into state standards for ECE (Hyson, 2008). Katz (1991, 1994) has referred to this important ECE goal as dispositions. According to Katz, there are four central ECE goals: young children must acquire the rudiments of basic skills in their ECE programs, achieve an understanding of basic concepts, and affective learning (socio-emotional competencies). In addition to these three, there is the question of how children approach learning (dispositions). Are they hesitant or enthusiastic? Are they curious? Are they indifferent? Do they persist? Are they able to concentrate? Can they solve problems? Do they pay attention? Notice that these dispositions pertain to how children learn, how they learn and play, rather than on what they are learning or what they can or should learn.

In accord with DAP, play is viewed as a road to school readiness, an important child-determined activity that enables children to exercise their ability to concentrate and their emerging ability to self-regulate. Adult-determined lessons and extra-curricular activities, on the other hand, may foster discipline and help children to improve on their abilities and skills but they do not add to children's imaginative lives or to their interest in self-selected endeavors. Hence, ECE should encourage a process of choice whereby children select their own activities. In such a way, children are encouraged to develop skills and abilities related to social-emotional learning—abilities and skills in regard to which children may be shortchanged when they are exposed only to lessons and activities determined by adults. Further, the proposed path of approaches to learning and activity is not to be confused with letting children entertain themselves in passive ways such watching television or playing videogames. Endeavors, in which approaches to learning and play are embedded, however, are quite the opposite: they emphasize the idea that children do best when they are active, enthusiastic, engaged, and positive, rather than when they are passive, listless, or encouraged only to have an interest in pursuing pleasure. The quality play approaches to learning recommended here are in the interest of achieving happiness and joy from the satisfaction that comes from an authentic learning encounter rather than from the immediate gratification and pleasure of partaking in a not very challenging task.

In this vein, it is important for ECE researchers to examine the relationship between given approaches to learning and play and self-regulation. Additionally, do any such relationships exist across age groups in ECE, between boys and girls, and/or among children's language status or those youngsters who have English as a first language (EFL) compared to those who have English as an added language (EAL)?

Few research studies have examined the relationships between how children play and their ability to self-regulate. Elias and Berk (2002), for example, examined Vygotsky's position that socio-dramatic play in early childhood contributes to the development of preschoolers' self-regulation ability. And, even though recent research has presented evidence suggesting a connection between play and self-regulation, there is no consensus on what constitute the most important elements of approaches to learning as they relate to self-regulation. Given

the lack of agreement about how to describe and measure children's learning, advances in child's cognitive development have been limited.

In addition, play has been identified as an important element in children's general development, which children can learn from a variety of play activities. Through mature play, children in a sense are learning to self-scaffold and to develop themselves. However, there is lack of research examining play because even educators do not agree on exactly how play can improve children's school readiness. Thus, further research related to play is needed, and it should involve child-development program teachers.

For the twenty first century, society has changed dramatically and the change process is complicated. The function of school is not only passing on knowledge but also making students adjust society. Thus, schools operating in this complex society need to determine how as a microcosm of society they could more effectively help children to grow in rapidly changing world. Schools must focus on helping children to develop their cognitive abilities; however, schools are increasingly expected to be accountable for children's social development in its entirety (Blair, 2002).

There is general agreement on the importance of development of self-regulation among scholars. Children need to control or even manage their impulsivity (Elias & Berk, 2002). And, educators, parents, and other citizens in local communities are important stakeholders in regard to providing environments designed to help ready children for school. For children to become ready for school, they must have opportunities to develop their abilities in relation to self-control and to improve their skills and knowledge through play. In this way, each will discover an authentic learning style.

Research Questions and Variables

The following research questions were established to guide this study—all pertain to 36- to 72-month-old children:

1. Is there a relationship between children's self-regulation and their play?

2. Is there a relationship between children's play and their approaches to learning?

3. Is there a relationship between children's ages and their language development?

4. Is there a relationship between children's self-regulation and their language development?

5. Is there a relationship between children's gender and their language development?

6. Is there a relationship between children's self-regulation or executive function tasks and their approaches to learning?

7. Is there a relationship between children's self-regulation and their language status?

These research questions focus on three personal variables of particular interest in this study: age, gender, and language status. Language status refers to whether English is the child's first language or an added language. Language development refers to the receptive vocabulary measure in a modified version of the Peabody Picture Vocabulary Test (PPVT). Scores on the PPVT serve as a control variable in the analyses, to determine whether the bivariate relationships of the three personal variables and the dependent variable (self-regulation measure and the Approaches to Learning and Play measures) remain the same when children's PPVT scores and/or the language development levels are controlled for. In Chapter 3, the specific dependent variables are introduced and explained as to how they were measured in this study. In Chapter 2, the background literature related to school readiness, self-regulation, play, and approaches to learning is presented. Overall, too, this study offers information about gender and language status as each relates to the dependent variables of interest herein.

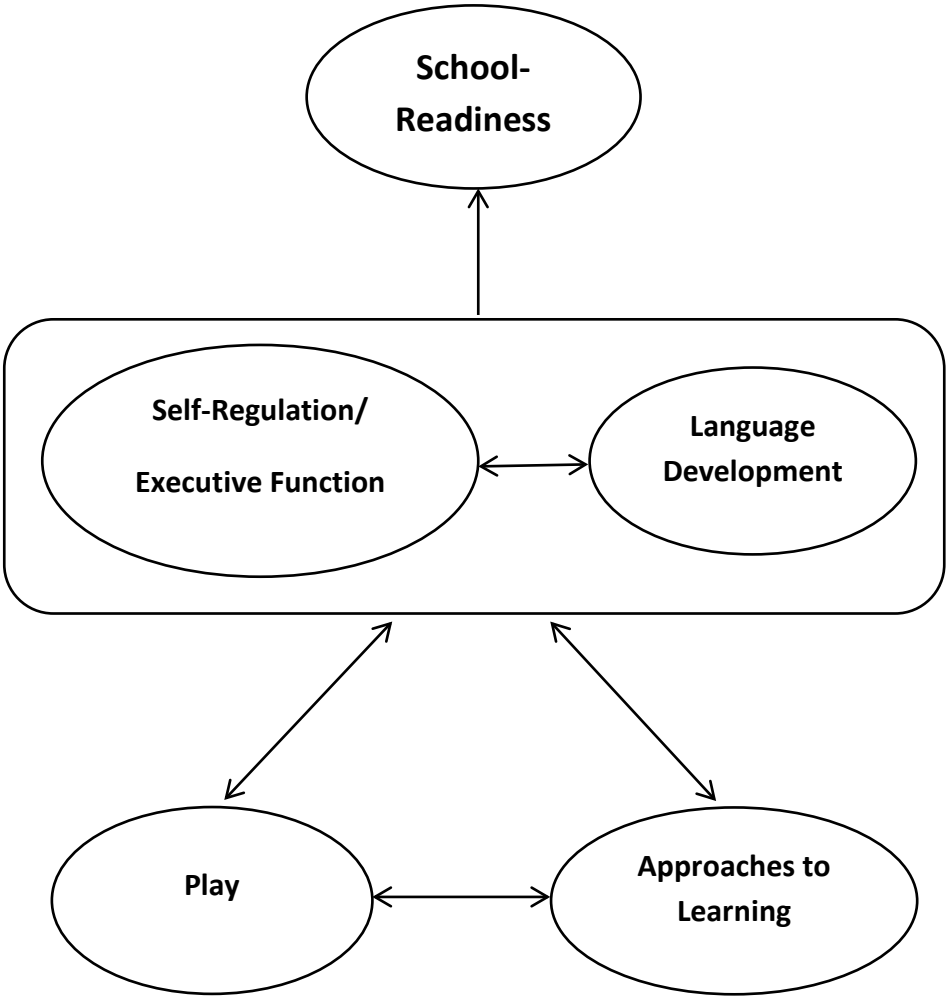

Figure 1: The conceptual framework of the study.

An overview of the study's main ideas is provided in Figure 1. Here, the reader can see that school readiness is affected by a number of factors, including self-regulation and language. These in turn are affected by how the child plays and his/her approaches to learning and to other activities. Approaches to learning are related to play and quality of play may be related to approaches to learning or other activities that may not, strictly speaking, be learning. Hyson (2008) discussed how important it is to encourage children to become enthusiastic and engaged learners. Teachers and parents can help young children by supporting their interest,

joy, and motivation to learn new things (enthusiasm), and their attention, persistence, and flexibility (engagement). Positive approaches to learning can improve socio-emotional and academic processes or outcomes. Play and other everyday behaviors can reveal important insights about the learning styles or approaches to learning of young children in various settings.

Chapter 2

Literature Review

School Readiness

How many children are really school ready? According to Johnson (2007), school readiness is an important issue because it is a decisive factor in regard to whether or not a child is successful in school. He claimed that high-quality early childhood programs foster school readiness. Such programs are characterized by developmentally responsive teaching, appropriate and engaging materials, and literacy curricular activities. Readiness indicates that the child is proficient in regard to specific fundamental skills such that he/she is able to perform successfully in a school setting in relation to academic achievement and social abilities (Hair, Halle, Terry-Humen, Lavelle, & Calkins, 2006). According to the NEGP (National Education Goals Panel) foundation, many studies have found that physical and mental health, emotional well-being, and the ability to get along with people have a more immediate influence on children's later school life success than children's cognitive skills (e.g., Hair et al., 2006; National Research Council and Institute of Medicine, 2000). There are five aspects to school readiness: physical health, social/emotional development, approach to learning, language, and cognitive development (Kagan, Moore, & Bredekamp, 1995).

Physical well-being and motor development

Shonkoff (1992) classified physical well-being and motor development into three categories: physical development, comprising rate of growth, physical fitness, and body physiology; physical abilities, comprising gross motor skills, fine motor skills, sensorimotor skills, oral motor skills, and functional performance; and the background and contextual conditions of development, comprising prenatal context, caregiving environment, and use of health care.

Social and emotional development

According to Rogers (1961), early interaction with parents has an important effect on children's emotional development. Bandura (1977) defined self-efficacy as the belief that a person can achieve what he/she sets out to do. He further stated that self-efficacy is an important feature of emotional well-being necessary for children to take on learning at home and at school. Kagan et al. (1995) emphasized those children who can communicate appropriately with their peers and teachers about their feelings experience a positive impact on their overall health, behavior, and well-being. Howes (1992) emphasized that the ability to develop and continue social relationships with more mature people and friends is fundamental to children's readiness for school. Such attachments are rooted in children's initial relationships with parents and families, and become stronger based on the social supports experienced through reciprocal child–family relationships. With regard to social development, Howes (1988) defined social interaction with peers according to two aspects: the social skills central to collaborating with peers and the capacity to establish and maintain mutual friendships.

Learning styles

Kagan et al. (1995) stated that learning styles or approaches to learning are affected by the predispositions that children are born with. Such predispositions include (1) gender, (2) temperament, and (3) cultural patterns and values. These predispositions provide the foundation for how children approach learning conditions—their learning styles. Kagan et al. (1995) defined learning styles as each individual's ability to open and be curious about new tasks and challenges. They noted, too, that this feature entails initiative, task persistence, and attentiveness. These learning styles provide a basis for children's cognitive reflections on and interpretations of new tasks. Learning styles, then, refer to the child's attitude about or approach to learning. This variable or school readiness trait of learning styles assumes much importance in this thesis research (see page 20).

Language development

According to the NICHD Early Child Care Research Network (2005), receptive vocabulary is a central factor in determining a child's school readiness, as early development in this area has been found to predict word-recognition skills. Language development refers to the extent to which a child understands and uses language in terms of meaning, structure, and function. The concept of language development comprises two aspects: verbal language and emerging literacy. Verbal language consists of listening, speaking, social uses of language, vocabulary and meaning, questioning, and creative uses of language. Emerging literacy consists of literature awareness, print awareness, story sense, and writing process.

Cognition and general knowledge

This category has three different types of knowledge: physical knowledge, logico-mathematical knowledge, and social-conventional knowledge. Physical knowledge refers to knowledge of entities in external reality. For example, children may notice the color and weight of a ball. From concrete observation and experience, they discover, too, that the ball rolls downwards and that it has physical properties. Logico-mathematical knowledge is made up of the connections produced by individuals in their minds among objects, events, or people. This kind of knowledge is complicated and, therefore, hard to capture; however, it is important because it enables children to perform mathematical operations and solve all types of problems. Social-conventional knowledge: This sort of knowledge reveals the agreed-upon customs of society and school-learned knowledge that cannot be re-created by any subsequent generation of learners.

In sum, school readiness is related to physical well-being, social-emotional development, approaches to learning, language development, and cognitive knowledge. These factors are implicated in children's ability to think, problem-solve, and imagine. To be successful, children need to focus their attention on a given task. Perhaps, play and engaging in activities in a certain way helps children to acquire these traits.

For Fantuzzo, Sekino, and Cohen (2004), "school readiness" skills are reflected in many ways, i.e., in children's participation in educational activities and in regard to their motivation and self-regulating behaviors

in the classroom. In a study by Cameron, Ponitz, McClelland, Jewkes, Connor, Farris, and Morrison (2008), teachers reported that most children enter formal schooling without the skills considered vital to success in that environment. They indicated that between 15 and 50% of children have problems related to paying attention and remembering instruction, turning automatic behaviors into controlled responses (such as taking turns and raising their hands before participating), finishing tasks independently, and transitioning between tasks. These vital abilities are the foundation for individual learning and provide for overall classroom functioning, because one or two children with poor regulation can interrupt a teacher's plan for the entire class (McClelland, Morrison, & Holmes, 2000; Rimm-Kaufman, Pianta, & Cox, 2000).

Self-regulation

Skibbe et al. (2011) thought of self-regulation as a "set of behaviors" including attention, working memory, and inhibitory control, as indicated by focusing on a task, remembering information, and restricting responses. They stated that teachers determine the extent to which children are able to self-regulate by observing whether children are able to follow classroom routines, pay attention, stand in line, and sit properly (Smith-Donald, Raver, Hayes & Richardson, 2007). According to Vygotsky's (1930–1935/1978) socio-cultural theory, self-regulation is a process that includes the internalization of social norms and the development of skills that enable conformity to social standards. Why is self-regulation necessary? The early childhood years are generally considered a crucial time in the development of self-regulation ability. And, it is well-established that the growth of self-regulation starts in early childhood and then develops throughout a person's life. A number of researchers have recognized the importance of self-regulation, noting that it is linked to both school and social success (e.g., Blair, 2002; McClelland, Cameron, Connor, Farris, Jewkes & Morrison, 2007; Skibbe et al., 2011). More specifically, self-regulation involves mental functioning at the level of "impulse and emotion control, self-guidance of thought and behavior, planning, self-reliance, socially responsible behavior" (Bronson, 2001; Kopp, 1991). Berk, Mann, and Ogan (2006) stated that the ability to self-regulate becomes apparent when

children take turns, withstand temptation, clean up after play activities, help peers or adults with a task, and continue with difficult activities until completion. Children who make an effort to manage negative emotions during school activities such as talking to themselves or changing their aims also show the ability to self-regulate. Thus, self-regulation is important for making decisions and building up morality in the perspective of cognitive processes. In sum, self-regulation lays the foundation for fundamental skills for academic achievement and school activities. Thus, for preschoolers, learning how to self-regulate is considered an important developmental gain.

Executive Function (EF)

In her book *Mind in the Making: The Seven Essential Life Skills Every Child Needs* (2010), Galinsky explained the concept of executive function (EF) in detail. Executive function is neurocognitive processes that helps manage our attention, emotion and behaviors. For example, attention skills enable children to pay attention to one subject such that they can absorb and make good use of the given information. According to Galinsky (2010), EF forms during the preschool years and has an impact on later school success just as self-regulation does. She also made the argument that EF should not be confused with IQ because EF is not related to estimated intelligence and is more relevant to mental function. In drawing on Galinsky's book, Diamond (2007) argues that EF predicts children's success as well as IQ tests do, as EF relates to the mental functions linked to attention, emotions, and the kinds of behaviors necessary if children are to reach their own goals. Adele Diamond suggested that IQ tests measure "crystallized intelligence," a memory of what you've already learned, whereas EF is associated with "fluid intelligence," a capability whereby a person draws on what he/she already knows and then uses that knowledge creatively in order to solve a problem (p.14). EF then requires the ability to think logically and to use information for a given purpose. She also believed that EF is a better predictor of a child's ability to adjust to school adjustment than the IQ test is.

Galinsky (2010) identified four components of EF: focus, cognitive flexibility, working memory, and inhibitory control. Focus refers to the ability to concentrate, to remain alert, to concentrate on a task for a period of time, and to work on a project or task despite internal and external distractions. According to Diamond

(2007), cognitive flexibility refers to the ability to switch point of view, to make an adjustment, and to be flexible. For example, a baby is apt to look at a person who is speaking and then change his/her focus to whoever speaks next. Cognitive flexibility is shown in action when children engage in pretend play. For example, in pretending to be a dancer, a child might execute jumps and turns. When another child joins in, the scenario may change—now they're playing superheroes. Additionally, as Diamond explains, working memory refers to retaining information while mentally using and/or updating it. One idea is connected with another, and what children are learning in the present is tied to whatever they learned earlier. As a result, working memory is important in children's efforts to integrate and absorb what they learn. Lastly, Diamond described inhibitory control as the skill whereby children manage a strong craving to do a particular activity and instead do what is most appropriate. In Diamond's view, inhibition requires the ability to be focused and pay selective attention and for to remain focused on that task at hand. Children also need inhibition if they are not to give up on something at which they initially experienced failure—inhibition helps people resist the strong temptation to simply give up. Moreover, Diamond stated that inhibition lays the foundation for the ability to create good relationships with their peers. He also mentioned that it is the basis whereby children can break out of cycles of physical violence toward each other.

To sum up, EF has long been considered a prerequisite for school readiness and thus for school success. As all four of the components of EF—focus, working memory, cognitive flexibility, and inhibitory control—are regarded as essential for an independent life together with academic achievement and intelligence, it is incumbent upon educators, parents, and communities to pay due attention to this aspect of children's development.

Play

Pretend Play

Pretend play is defined as an activity wherein children add new meanings to objects, events, and people they have encountered. Pretending is important in advancing children's mental functioning, emotions, and behavior. This idea is significant in Vygotsky's sociocultural theory wherein social experiences—including

make-believe play—are viewed as principal catalysts of children's development. Kelly-Vance, Ryalls, and Glover (2002) emphasized that not only does pretend play provide an opportunity for children to practice concrete real activity; it also supports the development of cognitive and social skills. Fantuszzo, Sikino, and Cohen (2004) stated that the extent to which children reveal play skills is the extent to which they are able to initiate play with peers and use proficient emotional responses in that play. They reported that skillful children in play show "self-determination skills" and make use of "receptive vocabulary skills" (p. 323–332). Fantuzzo. Sutton-Smith, Coolahan, Manz, Caning, and Debnam (1995) created the Penn Interactive Peer Play Scale as a measure of how well or how poorly children play. For example, disrupting play and disconnecting from play are negative play behaviors, whereas interacting is a positive play behavior. Fantuzzo et al. (1995)'s work influenced the play rating scale devised especially for this thesis research.

Priessler (2006) added to the conversation about pretend play by defining another feature. According to Priessler, such play narrows the gap between actual incidents in the contemporary world and a child's imaginative experience of it. Pretend play is not about children confusing the real world with the imaginary world, as children know their own reality very well. For these reasons, according to Kelly-Vance et al. (2002), it is necessary for parents and educators to observe children at play, as pretend play often takes place spontaneously. They acknowledged that children can practice pretend play in specific events or situations using toys or other objects when they stay with more mature people. Similarly, Bretherton and Beeghly (1989) and Fein (1989) have all pointed out that pretend play enables children to master negative feelings in a safe context wherein children have an opportunity to imagine, enact, and modify their behavior with no limits on their emotional experiences.

In the same vein, in regard to pretend or make-believe play, Vygotsky (1930–1935/1978) asserted that in separating symbols from objects, make-believe play helps children to choose deliberately among a number of different courses of action. For example, children can imagine what they might do with a toy given by considering some possibilities, and then they decide on the eventual outcome. Piaget (1951) also stated that preschoolers practice and consolidate symbolic schemes with make-believe play. Freud (1959) agreed that

make-believe play helps children learn how to restrain emotions such as fear and anxiety. And, for Erikson (1950), children can have multiple opportunities to explore social roles and gain a sense of their future. Singer and Singer (1990) argued that early childhood is the time when children's interest in and ability to engage in imaginative play is at its peak; it is at this time that make-believe activity transforms from simple imitative actions into deliberate plots including complicated arrangements of roles. Singer and Singer (2006) suggested that through imaginative play, children develop and express growing cognition in regard to the world at large. Thus, children who are deficient in self-regulatory skills should be encouraged to participate in make-believe play. Through the use of developmentally appropriate play interventions, families, early-childhood programs, and communities can play a central role in helping children in this regard.

According to Berk et al. (2006), in line with Vygotsky's belief on make-believe, there is a significant body of research showing that a preschooler's engagement in pretense can bring about language and literacy development, social competence, and divergent thinking. Vygotsky (1930–1935/1978) suggested that make-believe can lead to development in terms of what he called the zone of proximal development (ZPD) in which children explore challenging skills and acquire valuable competencies. In addition, Berk et al. (2006) pointed out that Vygotsky (1930–1935/1978) regarded make-believe play as the principal early childhood context for the development of self-regulation and learning about social roles. Also, according to Vygotsky (1930–1935/1978), make-believe play arises out of cooperative dialogues and development-boosting consequences. Even toddlers (age 2 to 3) have the language skills to engage in pretend play, though parents often need to join in to provide a structure for it. When children reach preschool-age, their play can become more intricate and goal-directed as a form of make-believe. Also, children's attention spans escalate and their distractibility decreases (Choi & Anderson, 1991; Ruff & Capozzoli, 2003).

According to Vygotsky (1930–1935/1978), make-believe play has two aspects. First, an imaginary situation helps children to separate natural meanings from the objects and events by mental functioning. . Thus, children enhance their internal capacity which enables them open up to new knowledge and becoming socially accountable. Second, in Vygotsky's account, children's play scenarios are essentially rule-based. Based on their

experiences in external reality, children devise their ideas continuously and follow social rules. They try to fit their behavior to social expectations, and thus behave in socially appropriate ways (Berk, Mann & Ogan, 2006).

According to Krafft and Berk's (1998) interpretation, in Vygotsky's account children generally choose to follow social rules when they encounter a conflict between a social norm and what they wish to do on impulsive. Further, pretend play is the most frequently kind of play found among children because children usually try to imitate adults' behavior or social rules. Furthermore, Vygotsky (1930–1935/1978) argued that children have a desire to follow the rules of society through make-believe, internalizing them as "a new form of aspiration." By doing so, children become an accepted member of their peer cultures. When children participate in socio-dramatic play with their peers, they can engage in creative scenes that refer to cultural rules and conventions (Berk et al., 2006). Thus, the improvement of children's make-believe play can occur from 3 to 5 years old, such that educators would do well to pay special attention to children's activities during this time. In particular, make-believe play can promote children's imaginative and logical engagement in a range of activities. However, more research in this area remains to be done.

A variant of pretend or make-believe play is socio-dramatic play. Vygotsky (1930–1935/1978) regarded socio-dramatic play as an important element of cognitive, social, and emotional development. Elias and Berk (2002) claimed that children participate in socio-dramatic play because of a desire to imitate adults and to engage in activities that are difficult or impossible in real life. Bodrova and Leong (2007) suggested that dramatic play is a good tool for developing self-regulation in a way that allows children to engage in mature intentional dramatic play and wherein each child has a choice of activities within the design of the play scenarios.

To date, considerable research has been published on the relationship between play and self-regulation (Elias & Berk, 2002). Elkonin (1977, 1978) established four principal ways in which play influences child development. All four expected outcomes of play activity are important for preparing the foundation for subsequent learning in the primary grades:

1. Play influences children's motivation. During play, children take on a more complicated hierarchical system of short- and long-term goals. In play, they can practice delaying gratification in the same way as in waiting to take a turn. Children become able to transform their reactions into intentional responses.
2. Play enables children to "de-center" cognitively. The capacity to take on other people's perspectives is essential for understanding and accepting multiple roles and mediating play scenarios. Allocating different pretend aims on the same object includes cognitive decentering. This newly acquired ability will later enable children to cooperate with their peers and teachers. Eventually this ability to take on multiple perspectives will lead to the development of reflective thinking and metacognition ability.
3. Play facilitates the development of mental representations. This development appears as the result of a child separating the meaning of objects from their physical forms. First, children use imaginary models to replace real objects; then they prefer to use new objects that are different in appearance but that have the same function as the original object. Finally, most of the replacement takes place in the child's speech without the presenting object. Thus the ability to operate with symbolic substitutes for real objects contributes to the development of abstract thinking and imagination. It is necessary to note here that from the Vygotskian perspective, imagination is an expected consequence of play, not the basis for play.
4. Play supports the growth of intentional behaviors—physical and mental of children's volition. The development of deliberateness in play situations becomes possible because the child sees that in order to be accepted he/she must follow the rules of the play, as all parties are constantly monitoring each other to make sure that everyone is following the rules. At first, this deliberateness is expressed in physical actions, social behaviors, and switching speech registers in language use. Later, this deliberateness expands to mental procedures such as those relating to memory and attention.

According to Vygotskians, only when these four consequences are in place with children, they can benefit completely from academic activities. If these foundations are omitted, the child may experience a

range of difficulties adapting to the school environment. Educators need to consider how social interactions with peers and teachers can be related with four play fundamentals.

Make-believe play and socio-dramatic play are blended. However, socio-dramatic play has more dramatic elements of play than make-believe does. That is, in socio-dramatic play, children do not simply pretend or imitate the behavior of peers or adults. Instead, children may, for example, act out fables or fairy tales. In this way, they follow or directly act on the characters of the story. Based on such activities, children think about other perspectives and develop the ability to take care of others.

Self-regulation and play

Vygotsky (1930–1935/1978) held that children's play is closely related to their ability to self-regulate. He also stated that the ability to self-regulate makes for considerable cognitive growth whereby a child becomes "a head taller than herself (p.101)." In general, parents think that children aged from 3 to 5 years old would do best to study mathematics, science, or even literacy. However, during this period, children need to develop emotional abilities like self-confidence, self-control, self-efficacy, and even self-regulation. In Bronson's (2001) view, self-regulatory capacities are indicators of cognitive and social maturity and make-believe play contributor importantly to self-regulation. Play can help children to develop these important and fundamental abilities from early age.

According to Elias and Berk (2002), verification of the connection between play and the development of self-regulation would act as an essential basis for creating effective intervention efforts as a component of early childhood education programs and practices. Vygotsky (1978) maintained that play is fosters self-regulation when children create an imaginary situation, take on and act out roles, and comply with rules implicit in the play scenario. Play can strengthen a children's sense of control and ability to regulate their own learning. During play, children set their own challenges, pay attention, and fulfill their plans. These cognitive mechanisms involve effortful and intentional use of the imagination, creativity, and problem solving. Children

invent their own ZPD and then self-scaffold in play. Thus, they transcend the concrete here and now by using abstract thought and building symbolic competency.

Eisenberg (1998, 2003) acknowledged that even though many studies consider self-regulation to be significant for play competency, only a few studies have examined the role of play in improving emotional self-regulation. For Berk (2001), make-believe play is principal contributors to the development of self-regulation, broadening the impact of formal education such as adult teaching and parental involvement in exemplary educational settings. Fantuzzo et al. (2004) showed that make-believe play emerges from socialization experiences and contributes to children becoming emotionally well-regulated. The extent to which preschoolers are able to self-regulate emotionally is the extent to which they display socio-dramatic play and conflict-resolution skills in play scenarios.

According to Berk et al. (2006), make-believe is makes up for children's restricted access to the adult world. In make-believe, children accept society's norms and, make an effort to support those norms, and become aware of the need to and learn how to control emotion, thought, and behavior in the context of constructive social goals.

Elias and Berk (2002) concluded that the connection between socio-dramatic play and achievements in self-regulation is especially strong for those preschoolers considered to be highly impulsive. Such children, who show intrusive and disruptive behavior, profit from play interferences by adults. Haight and Miller (1993) confirmed that scaffolding from/with adults helps children feel make-believe play is more interesting, surprising, and fascinating when children lack their play skills. According to Ogan (2005), play training is advantageous when the approaches educators use are developmentally appropriate. He discovered that make-believe play with adult scaffolding is valuable for children because children in his study showed advancement of various assessment of self-regulation when they received encouragement to pretend by an adult. Children revealed the ability to regulate behavior, inhibit impulses, and planning their play.

Approaches to Learning

According to Chen and McNamee (2007), the concept of approaches to learning is about examining how children interact with materials from external reality and how they respond to the challenges of a task in an independent and specific area. Very little research has been conducted on approaches to learning as a predictor of later school outcomes. To date, research has not addressed the ways in which approaches to learning may impact specific areas such as self-regulation, language development, and development from play.

Approaches to learning has been viewed as a new curriculum that is fundamental to promoting school readiness. In addition, approaches to learning reflect children's habitual ways of performing and assembles a curriculum based on their attitudes and habits, and the ways in which they participate in activities. Chen and McNamee (2007) defined approaches to learning as "a performance-based, curriculum-embedded assessment tool designed for early childhood teachers" (p. 3). The assessment task provides a practical perspective for comprehending individual children's learning progression in daily classroom activities. Thus, it helps teachers to evaluate each child's growth from the age of 3 to the age of 8 in connection with developmental changes in different curricular dimensions. With each individually considered perspective, teachers engage in ongoing curriculum planning and modification in order to further children's learning in their areas of strength, so that children will benefit from educators' experiences, interventions, and practices. Learning styles can indicate various features of a child's achievement, revealing how the brain deals with information, connecting variability in learning style to mental functions such as perception and volition. Overall, then, the approaches to learning concept offers a way to consider and act on each child's specific characteristics.

Chen and McNamee (2007) studied two concepts to understand individual difference in approaches to learning. In one study, they focused on executive functioning, the term that seeks to describe how the human mind coordinates itself to come up with a solution to problems and what has an effect on the growth of mental functioning. In another study, they considered and demonstrated the importance of self-regulation. In this latter study, they described a set of behaviors whereby humans guide, monitor, and direct their performance in activities.

The concept of approaches to learning emphasizes on the child as an active performer who takes part in tasks. The concept emphasizes discovering the developmental progress of young children in relation to major concepts and skills in a range of curricular areas. A child's performance on a full range of activities (i.e., using a variety of symbol systems and materials for solving problems in different school content areas) indicates the child's current level of development. The concept is also important in regard to supporting the child's efforts to acquire new skills and improve on existing ones.

Additionally, Chen and McNamee (2007) explained that approaches to learning is grounded in Lev Vygotsky's (1978) concept of the "zone of proximal development (ZPD)" According to Vygotsky, it is the job of an educator to comprehend a particular child's development and figure out both what the child has achieved and what the child will be able to do later in school life. Approaches to learning established a method for educators based on Vygotsky's understanding of the developmental process. This method calls for monitoring the child's activity to determine what he/she is capable of doing independently and what he/she can achieve with the help of adults or the help of more capable peers. "Working" in approaches to learning represents a child's internal-mental process and relates to a child's behavior in schoolwork. Working is goal-directed and necessary for solving problems and achieving success on tasks at school or in other settings.

Lastly, Chen and McNamee (2007) described understanding children's approaches to learning is a fundamental aspect of effective teaching, as by doing so teachers are able to recognize content knowledge that has a positive effect on children's learning as individuals and as members of a group. When teachers can determine behaviors that supervise children's learning experiences, they are in place to design good curriculum and instruction that help children's involvement in daily classroom activities. Approaches to learning is an important concern in early education because teachers need to know how to help young children become young students, and become enthusiastic and engaged learners (Hyson, 2008).

Moderating variables

Berk et al. (2006), describe Vygotsky's (1930–1935/1978) idea of cooperative dialogues with friends or adults as allowing children to transfer psychological processes and abilities from the external socio-cultural environment to the inner psychological plane. According to Vygotsky (1930-1935/1978), children can accomplish cognitive functions, control of attention and behavior, consideration of experiences and ideas, and flexible strategies for solving problems given from society. He also asserted that abstract thinking emerges in communications between children and adults as the former actively and willingly take part in activities. Because language is a key way in which communication with others takes place and thus an important way in which adults reveal experience, children take the communication jointly generated in these dialogues and turn it toward the self. The earlier children can develop self-control, the more able they become to develop language skills and so become able to engage in dialogue with others.

Newson and Newson (1975) acknowledge that first, for information, ideas, and skills to move from the social-interactive level to the internal-thinking level, adults and children must attempt to achieve intersubjectivity, or shared understanding, which grows out of each partner's sensitivity to the other's perspective. Ratner and Stettner (1991) suggest that inter-subjectivity is itself a developmental procedure. Because young children are still acquiring communication skills, for young children, educators need to make mental contact and sustain interaction through sensitively adjusted verbal and nonverbal hints. According to Whitington and Ward (1999), the development of spoken language with clarification of purpose between participants results a potential for intersubjectivity. By 2 to 3 years old, children can clearly state their thoughts and feelings and respond in a timely and relevant fashion in a dialogue—abilities that develop with experience. As the adult adjusts his/her communication to the child's developmental stage, the child stretches up to understand the adult's viewpoint, yielding a "meeting of minds" that supports children's learning.

In Wood's (1989) view, intersubjectivity constitutes a possible second interactive aspect that produces the ZPD: scaffolding, a metaphor that describes effective adult support as children involve in challenging efforts. Berk and Winsler (1995) commented that in scaffolding, the child is viewed as an edifice, actively under

construction, and it is the adult's job to offer a dynamic, flexible scaffold, or framework, to help the child master new competencies. To improve development, the adult matches his/her efforts to assist to the child's changing level of performance by adapting the task so that its demands are appropriate to the child's ability and by modifying the degree of intervention to the child's current learning requirements. A major goal of scaffolding is to promote self-regulation by offering strategies for successful mastery and for offering less and less assistance until the child is able to function autonomously.

Studies of children of diverse ages involved in a variety of tasks demonstrate that adult encouragement, emotional support, and scaffolding predict increased effort and more successful performance when children try challenging tasks on their own (Neitzel & Stright, 2003). Moreover, scaffolding is connected to children's use of private speech. According to Krafft and Berk (1998) private speech is defined as speaking directed toward the self. It is a major indication that children are adjusting to socially generated strategies and using them to regulate their own thinking and behavior (Behrend, Rosengren, & Perlmutter, 1989, 1992; Berk & Spuhl, 1995).

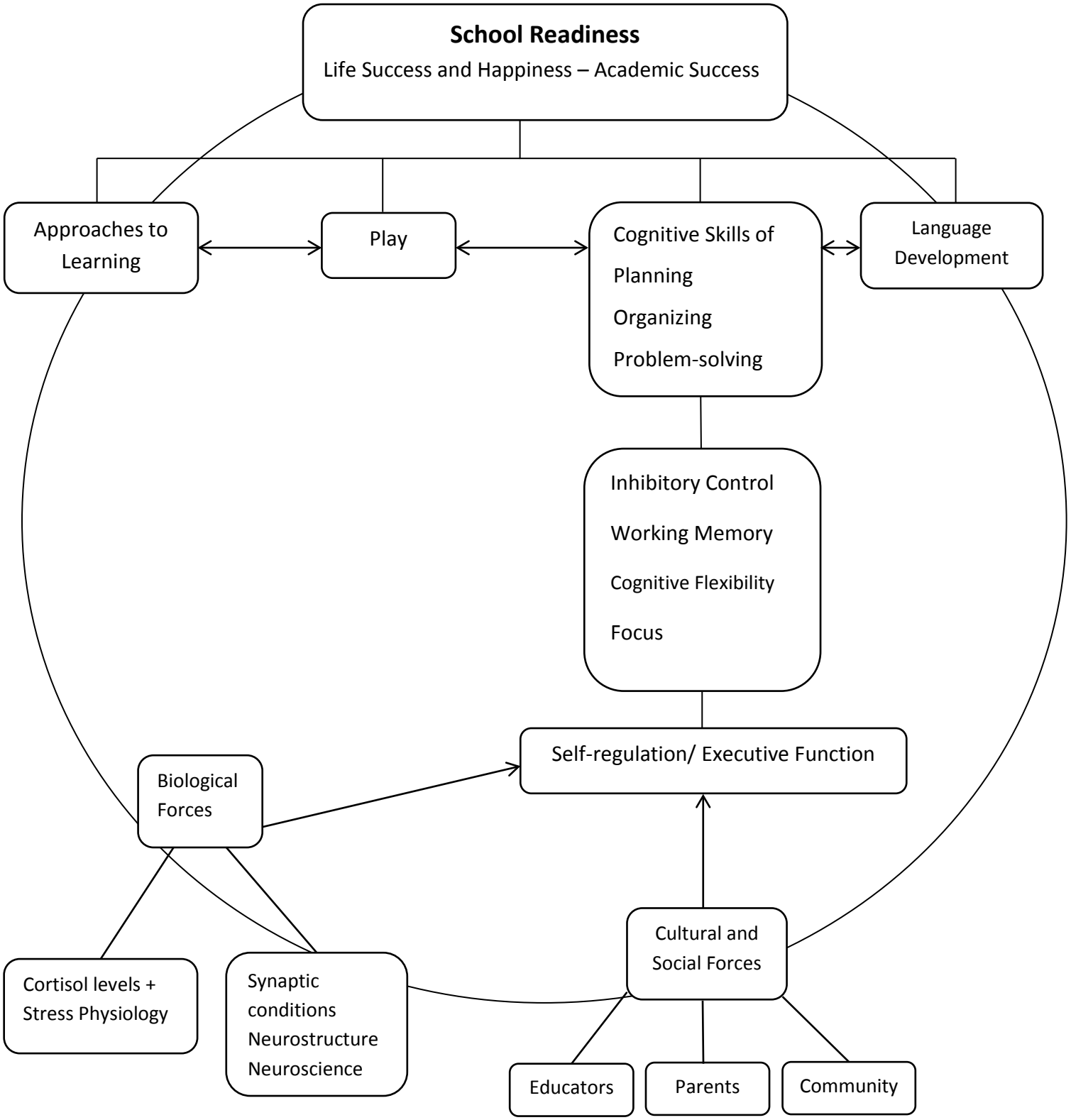

Figure 2: The cultural-social-biological-psychological-educational model.

According to Alexei Leont'ev (1978, 1981), children become aware of the world by interacting with their families, schools, and communities.

Through a combination of biological, cultural, and social forces, children can have an impact on their own self-regulation or executive function. This ability is categorized according to four elements: inhibitory control, working memory, cognitive flexibility, and focus (Galinsky, 2010). When children are equipped with abilities, they can develop the cognitive skills of planning, organizing, and problem-solving.

Chapter 3

Methodology

The primary purpose of this study was to examine the relationship among play, self-regulation, and approaches to learning in young children. The researcher was also interested in gender differences and language status differences. The researcher also wanted to compare English as First Language (EFL) and English as an Added Language (EAL) children in terms of the dependent variables used in the study. The dependent variables are identified in this chapter. They are indices of self-regulation (task scores) and Play and Approaches to Learning (AtoL) (teacher ratings). A modified Peabody Picture Vocabulary Test (PPVT) was also administered to all the children who participated in the study. The PPVT was modified by selecting only items for three to five year olds; one item was removed because the content seemed out of date and unfairly unfamiliar to the children.

This chapter presents information about the methods and procedures used in this study. The chapter is organized into the following sections: (1) Participants, (2) Research Settings, (3) Measures, and (4) Data analysis.

Participants

The participants ranged in age from 3 to 5 years old, and they became the study's target group. Consent forms were distributed to and collected from the principals, teachers, and parents of the children at two day-care centers which were both situated on a college campus. The researcher received approval from the principals of the two day-care centers first. Then, the researcher received signed consent forms from nine class teachers. In addition, parents of 55 of the children consented to their children's participation in the study on the parental consent forms that the researcher had distributed. At the beginning of spring semester 2012, the 55 children for

whom parental consent had been received began taking part in the study. In the middle of the study, one child moved to another school district and was, therefore, excluded from further participation and thus excluded from the study's results. At the end of the study, the researcher excluded 4 children—two Korean girls, one Arabian girl, and one Chinese girl—because of their limited English-language proficiency. In total, 50 children were included in the analysis: 35 girls and 15 boys from nine classes.

The data collection phase: Mid-January 2012 to February 2012

1. Three executive function tasks and Peabody Picture Vocabulary Test were conducted
2. Two teachers per class completed questionnaires to rate each participating child's Approaches to Learning and Play.

Table 3.1 *Participants in Study (n = 50)*

		Age			
Gender	Language	3 years	4 years	5 years	total
Boys	English as First Language (EFL)	2	1	2	5
	English as an Added Language (EAL)	1	5	4	10
Girls	English as First Language (EFL)	2	9	3	14
	English as an Added Language (EAL)	2	10	9	21

Research Settings

A total of 50 3-, 4-, and 5-year-old children enrolled in two child-development programs in State College, Pennsylvania, were recruited as participants and observed in the early spring of the school year. The participants were seven 3-year-old children (3 boys and 4 girls), 25 4-year-old children (6 boys and 19 girls), and 18 5-year-old children (6 boys and 12 girls). The total sample size is 50, seven 3-year-olds, 25 4-year-olds,

and 18 5-year-olds (M age in months = 55.25, range = 44–68). Observations were made by teachers in nine classrooms (Table 3.2).

Table 3.2 *Data Collection*

		Months	Jan.				Feb.			
		Weeks	1	2	3	4	5	6	7	8
Location	Site 1	Teachers' rating			X	X				
		Self-regulation tasks		X	X	X				
	Site 2	Teachers' rating				X	X	X	X	
		Self-regulation tasks					X	X		

Table 3.3 compares the two locations. The two child-development programs do not differ, based on mean scores, on any of the teacher's ratings, self-regulation tasks, or on the Peabody Picture Vocabulary Test (PPVT), supporting combining participants across settings for additional analyses. Nineteen participants were Caucasian, English-speaking, and from middle- to upper-middle-income families. This is an inference based on the fact that the day care centers and served many faculty families. The children's parents generally had high levels of education (college graduate). The teachers in each classroom had a bachelor's degree in early childhood/primary education or psychology with child development courses. No changes in teachers took place during the course of the study. For Location A, class sizes were 18–20 children with a teacher/child ratio of 1/6–1/7. For Location B, class sizes were 9–15 with a teacher/child ratio of 1/3–1/5. Based on the daily schedule of activities, the curricula in the child development programs were judged to be quite similar. All nine classrooms from two different child-development programs had various play stations that children could select at the beginning of free play periods. The children engaged in free play activities when they first arrived, participated in clean-up, ate a snack, assembled for circle time, dispersed for free play, participated in clean-up, and sometimes went outside to play or participate in a group activity.

Table 3.3 *Mean (M) and Standard Deviations (SD)*

	Location A		Location B	
Variables	*M(SD)*	Range	*M(SD)*	Range
Months	56.27 (6.41)	44.16–66.09	53.44 (7.38)	44–68
Self-regulation tasks				
Day-night	14.50 (2.40)	7–16	13.17 (4.78)	0–16
Tapping	13.44 (3.38)	2–16	11.67 (5.36)	0–16
Simon says	11.66 (3.41)	0–16	10.61 (2.52)	7–15
AtoL	3.64 (0.49)	2.78–4.61	3.57 (0.38)	3.06–4.39
Play	3.18 (0.31)	2.24–3.66	3.10 (0.42)	2.39–3.77
PPVT	21.50 (3.16)	13–25	20.28 (4.00)	9–25

Measure

The children's ability to self-regulate was measured using three executive function tasks: day-night, tapping, and Simon says. Each battery was administered in individual sessions lasting 3 to 5 minutes. Each child' learning style was measured using a modified Approach to Learning. The children's receptive vocabulary was measured using a modified Peabody Picture Vocabulary Test. The researcher completed these assessments (self-regulation and PPVT) at children's schools in a quiet area of their classroom. Each child was tested individually. The participants were each given a sticker and a pencil as they went through the battery.

Teachers' measure

The child-development center teachers (some people refer to these teachers as day-care center teachers but this is not accurate since they are not caring for days; some programs serve families on the evening shift, for

instance) were asked to assess the participating children at the beginning of the spring semester by using Play and Approaches to Learning (AtoL) scales at the beginning of spring semester 2012. For play, a 4-point Likert-type scale consisting of 41 items was used. The child-development center teachers were asked to rate each child for the play activity, according to statements such as "Develops imaginary themes," or "Takes on make-believe roles." The score scale ranged from 1 to 4, with 1 corresponding to "Agree" and 4 corresponding to "Disagree." For Approaches to Learning, the 5-point Likert-type scale had 9 items. The same teachers were also asked to rate each child in regard to Approaches to Learning based on statements such as "Initial Engagement: How does the child usually begin and respond to an activity (in general)?" "Focus, Attention: How on task is the child generally when doing activities?" The score scale ranged from 1 to 4, with 1 corresponding to "Agree" and 4 corresponding to "Disagree."

The modification of the children's Play scales

With regard to children's Play, the researcher modified referring to Barnett (1991)'s play scale and made the new children's play scales by using five categories: play, pretend play, active-positive behavior, active-negative behavior, and passive-negative behavior. This play scaled also modified combining a couple of play scales from journals and books which already published. After testing children, the researcher categorized this scale by purpose and behavior. The score scale ranged from 1 to 4, with 1 corresponding to "Agree" and 4 corresponding to "Disagree."

Table 3.4 *Modified Play Scales*

Variables	Items
Play	2. Encourages others to join in play
	4. Movements are physically active rather than quiet
	5. Shows enthusiasm and enjoyment
	6. Enjoys joking and gently teasing with peers
	7. Laughs at humorous stories and tells funny stories
	8. Uses novel objects and creates new games to play
	9. Initiates play with others and exercise leadership
	10. Continues one activity rather than changing activities
	11. Reacts to peers' approaches and is willing to share toys
Pretend play	30. Develops imaginary themes
	31. Takes on make-believe roles
	32. Creates imaginary objects and places
	33. Uses language to create make-believe
	34. Assigns roles
	35. Plans scenes
	36. Establishes identity of objects and places
	37. Substitutes talk for action
	38. Develops a story line
Active-positive behavior	1. Asks others' opinions politely
	3. Cleans up his/her toys actively
	39. Negotiates problems w/o adult
	40. Helps
	41. Cooperates with others for an extend time period (at least 10 minutes)

Active-negative behavior	12. Yells or shouts to peers
	13. Hits and pushes other children
	14. Has trouble waiting for his/her turn
	15. Does not listen to others' opinions
	16. Coerces or teases his/her peers
	17. Tries to take peers' toys away
	18. Does not encourage peers to join activities
	19. Argues and conflicts with his/her peers
Passive-negative behavior	20. Is passive and inhibited in attending to play
	21. Displays shyness and nervousness
	22. Does not participate, keeping to him/herself
	23. Roams from place to place
	24. Mumbles to him/herself
	25. Seems distracted, cannot pay attention, unfocused
	26. Cries, whines for a long time
	27. Cannot belong to a group
	28. Acts (gets) irritated
	29. Repeats the same sequence of actions

A paired-samples t-test indicated that scores were not significantly different for play 1 (M = 3.16, SD = 0.43) than for play 2 (M = 3.15, SD = 0.34), t (49) = .24, p = .81, d = 0.03. With regard to the teacher's rating of the children's play, the mean of play 1 and that of play 2 did not differ significantly. This indicates that the scores the children received from the teacher's rating are reliable. The researcher found a significant correlation between play 1 and play 2 (r = .69, p < .01, two-tailed).

Table 3.5 *Correlation of Play*

	1
Play 1	
Play 2	.69**

**. Correlation is significant at the 0.01 level (2-tailed).

Approaches to Learning (AtoL) used a 5 point- scale with 5 indicating strongly agree to 1 indicating strongly disagree. The researcher used the concept of bridging for a number of purposes: (1) to identify a child's developmental progress relating to key concepts, knowledge, and skills; (2) to describe a child's working approach; (3) to construct a child's learning profile; (4) to select curricular activities and teaching methods; and (5) to study and reflect on key concepts and skills.

Table 3.6 *Each Item's Concept of AtoL*

Items	
Initial engagement	The child's response and demeanor when first introduced to the activity, evidenced by words, body language, and gestures.
Focus and attention	The degree to which the child is on-task throughout the activity, evidenced by attentiveness and persistent work.
Goal orientation	The degree to which the child works toward the activity's goal described by the teacher, evidenced by words and use of materials.
Planfulness	The extent to which the child uses strategies to complete the task, evidenced by words, use of materials, and sequencing of activity.
Resourcefulness	The extent to which the child seeks help to solve problems when needed.
Cooperation	The extent to which the child works with peers willingly and competently toward task accomplishment, evidenced by taking turns, sharing materials, and problem

	solving with others.
Chattiness	The amount of talking about matters unrelated to the activity (for example, personal concerns, events outside of school, or fantasies the child engages in).
Social referencing	The extent to which the child is aware of others and checks with others during the activity.
Playfulness	The degree to which the child shows a sense of humor during the activity.

Note: Taken from Jie-Qi Chen (2007).

A Spearman's rho between Approaches to Learning 1 and 2 was .50, and this statistic was significant at the .01 level. A paired-samples t-test indicated that the scores did not differ significantly between AtoL 1 (M = 3.66, SD = 0.56) and AtoL 2 (M = 3.57, SD = 0.49), t (49) = .1.16, p = .25, d = 0.17.

Table 3.7 *Correlation of AtoL*

	1
LA1	
LA2	.50**

**. Correlation is significant at the 0.01 level (2-tailed).

Self-regulation measurements

Executive Function Battery

1. Day/Night Task: This task was used to measure the children's ability to inhibit their first impulse response upon a cue and to remember the rule for producing the correct/desired response to that cue.
In this exercise, the researcher presented two types of cards: a black card with a moon and a white card with a sun. The children were then asked to say, "day" to the black card and, "night" to the white card. The children were given the opportunity to practice each action according the researcher's instructions. Then, in all, the

children were administered 16 trials in which eight of each type of card were included in a counterbalanced sequence (Gerstadt, Hong, & Diamond, 1994) (See Appendix C: The Scoring Sheet of the Self-regulation Tasks).

2. Tapping Task: This measure was used to evaluate the children's ability to inhibit a natural tendency to imitate an action while remembering the rule for the correct action. The children were instructed to tap a wooden dowel (15-cm length × 1-cm diameter) twice when the researcher tapped once and to tap once when the researcher tapped twice. In all, the children were administered 16 trials in which eight of each action (one-tap and two-tap) were included in a counterbalanced sequence (Diamond & Taylor, 1996) (see Appendix C: The Scoring Sheet of the Self-regulation Tasks).

3. Simon Says Task: The children performed a series of simple motor movements following statements such as "Touch your nose" and "Hands up," with the cue "Simon Says." The children were instructed to perform these actions only when the direction "Simon Says" was given first (Cheng, 2011) (See Appendix C: The Scoring Sheet of the Self-regulation Tasks).

The Modified Peabody Picture Vocabulary Test (PPVT)

The modified Peabody Picture Vocabulary Test (PPVT, 1959) was used to assess the children's verbal ability. It was given to all the children in the spring of the school year. When conducting the test, the researcher worked with each child individually in a classroom. The child was asked to select from a set of four pictures the one that best illustrated the meaning of an orally presented word. The vocabulary measure was included as a control variable, because it is thought that verbal ability influences the ability to communicate in socio-dramatic play (Bretherton, 1989) and the ability to self-regulate (Kopp, 1982).

Summary of Measures

Table 3.8 *Summary of Measures*

Variables	Data Collection Method	Tools/Measure
Children's Play	Teacher's rating	Modified children's playfulness scale items
Approaches to Learning	Teacher's rating	Evaluative working approach rubric
		Descriptive working approach rubric
Self-regulation	Executive function battery	day-night
		Tapping
		Simon says
Verbal ability	Psychological test	Modified Peabody Picture Vocabulary Test (PPVT)

Procedure

The researcher applied to the Institutional Review Board (IRB) in order to obtain permission to conduct this research study in September 2011, and the application was approved at the end of October. By the end of the fall semester, the researcher had conducted a pilot study about children's self-regulation with three children, two boys and one girl. The two boys were aged 3 and 4, and the girl was 5 years old. In addition, the researcher asked one preschool and one kindergarten teacher to rate general children's play and learning style for their class. It was necessary for the researcher to obtain final permission from the Department of Human Development and Family Studies, which manages the general research in the child-development program, and permission was granted. The researcher began the project at the beginning of January 2012. The researcher obtained consent from 55 parents.

Finally, the researcher tested 50 children on three executive function tasks. The researcher collected data over a two-month period. English was used in the data collection process for English as an Added Language and English as First Language children. The children ranged in age from 3- to 5 years old. The researcher

conducted the self-regulation tasks with one child at a time. Three tasks were tested over a 16-trial sequence. The teacher's rating scales of Play and Approaches to Learning (AtoL) were carried out by each child's teacher. While all the children participated in the preschool program (i.e., free-play time and daily-routine activities), one child at a time was the focus for observation and scoring. Two teachers independently scored the teacher-rating scales for each child.

Data Analysis

Data were analyzed using SPSS (19.0). The data were initially examined using frequencies, means, and standard deviations. The researcher then used inferential correlations (1-tail and 2-tail tests depending on the variables) to examine the relationships between the variables. Descriptive statistics, including means and standard deviation, were used to describe the results for each variable and to provide information to answer research questions.

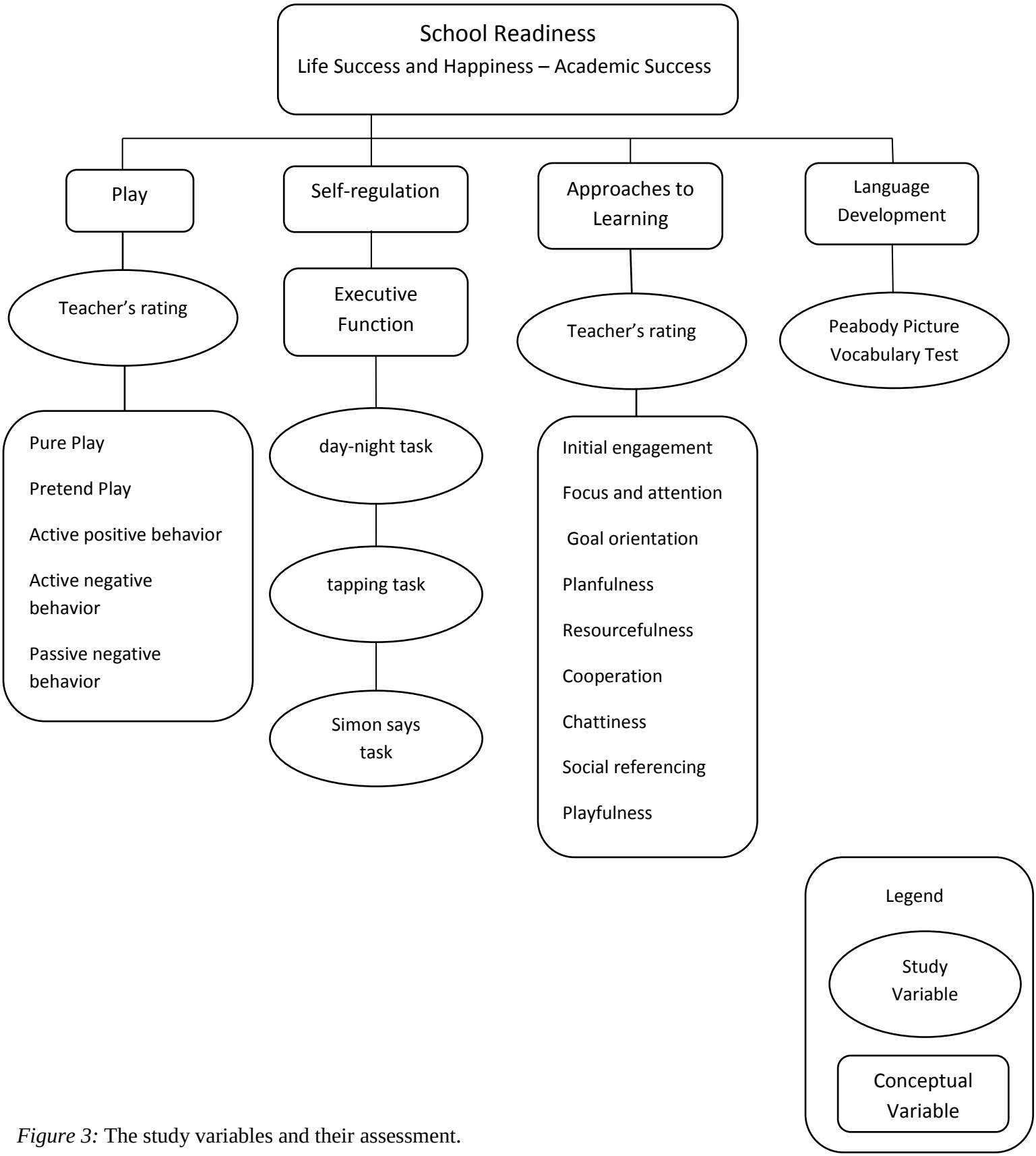

Figure 3: The study variables and their assessment.

Chapter 4

Results

This chapter presents results of the correlations among play, self-regulation, approaches to learning and the Peabody Picture Vocabulary Test based on the research questions set out in Chapter 1. This study examined the correlations among the scores on the children's self-regulation tasks, the Peabody Picture Vocabulary Test, and teacher's ratings of children's Play and Approaches to Learning (AtoL) with gender, language, and age. The analysis of the children's mean and standard deviation scores for each variable included correlation and one-way ANOVA.

Relationships between Variables

Examination of the data in Table 4.1 reveals that the mean for each variable is above the theoretical midpoint for each of the scales. This indicates that the participants had relatively high scores on each variable. The day-night mean score was 14.02 out of a possible score of 16.

Table 4.1 *Means (M) and Standard deviations (SD) for Self-regulation Tasks and Teacher's Rating for Approaches to Learning (AtoL), Play, and Peabody Picture Vocabulary Test (PPVT) (n = 50)*

Variables	*M (SD)*	Theoretical Range
Self-regulation Tasks		
Day-night	14.02 (3.46)	0–16
Tapping	12.80 (4.23)	0–16
Simon says	11.28 (3.14)	0–16

AtoL	3.61 (.451)	1–5
Play	3.15 (.354)	1–4
PPVT	21.06 (3.50)	0–25

Note: AtoL = Approaches to Learning, PPVT = Peabody Picture Vocabulary Test

Correlations were computed to examine the relationships between gender, language, age (years) and the self-regulation tasks (i.e., day-night, tapping, and Simon says tasks), Approaches to Learning (AtoL), and the Play and Peabody Picture Vocabulary Test (PPVT). The results in Table 4.2 indicate the existence of a significant positive relationship between Approaches to Learning (AtoL) and Play ($r = .71$, $p < .01$). Gender was significantly related to the Simon says task results ($r = .41$, $p < .01$) and to PPVT ($r = .45$, $p < .01$). For both the Simon says task and PPVT, females were received higher scores than the males did. Language was significantly related to PPVT ($r = .28$, $p = .03$). In particular, it is significant to note that children's age (years) was significantly related to day-night ($r = .25$, $p = .04$), tapping ($r = 41$, $p < .01$), Simon says ($r = .47$, $p < .01$), Approaches to Learning (AtoL) ($r = .53$, $p < .01$), Play ($r = .48$, $p < .01$), and the Peabody Picture Vocabulary Test (PPVT) ($r = .40$, $p < .01$). To summarize, gender, language, and age are positively associated with the three self-regulation tasks, Play, Approaches to Learning (AtoL), and Peabody Picture Vocabulary Test (PPVT).

Table 4.2 *Correlations between Variables (n = 50)*

Variables	1	2	3	4	5	6	7	8	9
1. Gender	1.00								
2. Language	-.06								
3. Age (years)	.02	.20							
4. Day-night	.04	-.04	.25*						
5. Tapping	.20	-.13	.41**	.42**					
6. Simon says	.41**	.00	.47**	.42**	.46**				

7. AtoL	.17	.22	.53**	.37**	.40**	.46**			
8. Play	.21	.14	.48**	.31*	.40**	.28*	.71**		
9. PPVT	.45**	.28*	.40**	.10	.17	.38**	.42**	.38**	1.00

*$p < .05$, **$p < .01$ (1-tailed)

Note: AtoL = Approaches to Learning, PPVT = Peabody Picture Vocabulary Test

Coding: Gender (0 = male; 1 = female)

Language (0 = English as an Added Language; 1 = English as First Language)

Age (1 = 3-year-old, 2 = 4-year-old, 3 = 5-year-old)

Comparisons by Gender, Language, and Age (Years)

Table 4.3 shows means and standard deviations on the six dependent variables with regard to gender. The average of the Simon says task for the girls was 12.11 and for the boys was 9.33 out of a possible score of 16. There was a significant difference for gender, t (48) = 3.12, $p < .01$, with girls earning higher scores than boys on the Simon says test and PPVT.

Table 4.3 *Comparison of Self-regulation, Play, AtoL, and PPVT by Gender*

	Girls (n = 35)	Boys (n = 15)		
Variables	*M (SD)*	*M (SD)*	*t*	*p* (2-tail)
Self-regulation Tasks				
Day-night	14.11 (3.76)	13.80 (2.73)	.29	.77
Tapping	13.34 (3.35)	11.53 (5.74)	1.40	.17
Simon says	12.11 (2.68)	9.33 (3.35)	3.12	< .00
AtoL	3.66 (.46)	3.5 (.41)	1.12	.24
Play	3.20 (.34)	3.04 (.38)	1.51	.14

PPVT	22.09 (2.49)	18.67 (4.35)	3.52	< .00

Note: AtoL = Approaches to Learning, PPVT = Peabody Picture Vocabulary Test.

Table 4.4 displays the sample means and standard deviations for the dependent variables. A series of t-tests does not show a significant language difference between English as First Language (EFL) and English as an Added Language (EAL) except on PPVT ($p < .05$).

Table 4.4 *Comparison of Self-regulation Tasks, AtoL, Play and PPVT by Language*

	English as First Language (EFL) (*n* = 31)	English as an Added Language (EAL) (*n* = 19)		
Variables	*M (SD)*	*M (SD)*	*t*	*p* (2-tail)
Self-regulation tasks				
Day-night	13.90 (4.00)	14.21 (2.42)	-.30	.76
Tapping	12.39 (4.62)	13.47 (3.52)	-.88	.38
Simon says	11.29 (2.57)	11.26 (3.97)	.03	.98
AtoL	3.69 (.39)	3.49 (.52)	1.57	.12
Play	3.19 (.40)	3.09 (.27)	.96	.34
PPVT	21.81 (2.71)	19.84 (4.30)	1.99	.05

Note: AtoL = Approaches to Learning, PPVT = Peabody Picture Vocabulary Test.

Based on a one-way analysis of variance (ANOVA), the analysis of age difference on the six dependent variables found statistically significant results on two self-regulation tests, AtoL, Play, and PPVT (Table 4.5).

Table 4.5 *Comparison of Self-regulation Tasks, AtoL, Play, and PPVT by Age (n = 50)*

Variables		*n*	*M (SD)*	*F*	*Sig. (2-tailed)*
Self-regulation tasks					
Day-night	3-year-olds	7	12.00 (5.77)	1.74	.19
	4-year-olds	25	14.00 (3.63)		
	5-year-olds	18	14.83 (1.34)		
Tapping	3-year-olds	7	9.29 (6.53)	4.94	<.01
	4-year-olds	25	12.44 (4.38)		
	5-year-olds	18	14.67 (0.77)		
Simon says	3-year-olds	7	8.29 (4.11)	6.80	< .01
	4-year-olds	25	11.00 (2.68)		
	5-year-olds	18	12.83 (2.43)		
AtoL	3-year-olds	7	3.12 (.31)	9.39	< .01
	4-year-olds	25	3.58 (.39)		
	5-year-olds	18	3.86 (.41)		
Play	3-year-olds	7	2.80 (.29)	7.50	< .01
	4-year-olds	25	3.13 (.31)		
	5-year-olds	18	3.33 (.33)		
PPVT	3-year-olds	7	17.00 (5.57)	7.01	.00
	4-year-olds	25	21.48 (2.80)		
	5-year-olds	18	22.06 (2.26)		

Note: AtoL = Approaches to Learning, PPVT = Peabody Picture Vocabulary Test.

Analysis of Play and Approaches to Learning (AtoL)

Play and AtoL were derived from teachers' observations and evaluations at the beginning of the spring semester 2012. Table 4.6 presents the descriptive statistics from the teachers' evaluations.

Table 4.6 *Summary of Three Self-regulation Tasks by Gender, by Language, and by Age (n = 50)*

Gender	By Language	By Age	*n*	Day-night *M (SD)*	Tapping *M (SD)*	Simon Says *M (SD)*
Boys	English as an Added Language	3-year-olds	2	12.50 (4.95)	9.00 (9.90)	5.50 (7.78)
	(EAL)	4-year-olds	1	13.00 (. 00)	15.00 (.00)	8.00 (.00)
		5-year-olds	2	14.00 (1.41)	16.00 (.00)	9.00 (1.41)
	English as First Language	3-year-olds	1	15.00 (.00)	.00 (.00)	8.00 (.00)
	(EFL)	4-year-olds	5	13.80 (3.83)	10.00 (5.43)	9.80 (2.77)
		5-year-olds	4	14.25 (2.06)	14.50 (.58)	11.50 (1.91)
Girls	English as an Added Language	3-year-olds	2	15.00 (.00)	12.50 (3.54)	11.50 (2.12)
	(EAL)	4-year-olds	9	14.22 (2.86)	13.67 (2.55)	12.00 (3.00)
		5-year-olds	3	15.33 (.58)	14.33 (.58)	15.33 (1.15)
	English as First Language	3-year-olds	2	7.00 (9.90)	11.00 (5.66)	8.00 (.00)
	(EFL)	4-year-olds	10	14.00 (4.59)	12.30 (5.17)	11.00 (2.21)
		5-year-olds	9	15.11 (1.17)	14.56 (.73)	13.44 (1.81)

Table 4.7 shows that the girls have a higher mean than the boys do for Play and for AtoL.

Table 4.7 *Comparison of Play and AtoL by Gender*

Gender	*n*	Play Items *M (SD)*	AtoL Items *M (SD)*
Boys	15	3.04 (.38)	3.5 (.41)
Girls	35	3.20 (.34)	3.66 (.46)

Note: AtoL = Approaches to Learning.

Table 4.8 shows that the EFL children have a slightly higher mean score than do the EAL children for Play. Also, the EFL children have a slightly higher mean than do the EAL children in AtoL.

Table 4.8 *Comparison of Play and AtoL by Language*

Language	n	Play Items *M (SD)*	AtoL Items *M (SD)*
English as an Added Language (EAL)	19	3.09 (.27)	3.49 (.52)
English as First Language (EFL)	31	3.19 (.40)	3.69 (.39)

Note: AtoL = Approaches to Learning.

Table 4.9 shows that older children scored higher than younger children on the teachers' ratings of Play and the AtoL.

Table 4.9 *Comparison of Play and AtoL by Age*

Age	*n*	Play Item *M (SD)*	AL Items *M (SD)*
3-year-olds	7	2.79 (.29)	3.12 (.31)
4-year-olds	25	3.13 (.31)	3.58 (.39)
5-year-olds	18	3.33 (.33)	3.86 (.41)

Note: AtoL = Approaches to Learning.

Table 4.10 provides descriptive statistics for teacher ratings of Play and AtoL as a function of age, gender, and language.

Table 4.10 *Summary of Play and AtoL, by Gender, Language, and Age*

Gender	by Language	by Age	*n*	Play Items *M (SD)*	AtoL Items *M (SD)*
Boys	English as an Added Language (EAL)	3-year-olds	2	2.93 (4.24)	3.25 (5.30)
		4-year-olds	1	3.40 (0.00)	3.78 (0.00)
		5-year-olds	2	3.15 (19.45)	3.50 (5.66)
	English as First Language (EFL)	3-year-olds	1	2.66 (0.00)	3.17 (0.00)
		4-year-olds	5	2.84 (19.81)	3.47 (4.04)
		5-year-olds	4	3.30 (6.29)	3.68 (3.28)
Girls	English as an Added Language (EAL)	3-year-olds	2	2.68 (0.35)	2.86 (0.35)
		4-year-olds	9	3.11 (9.39)	3.5 (4.78)
		5-year-olds	3	3.30 (5.75)	3.93 (3.75)
	English as First Language (EFL)	3-year-olds	2	2.84 (26.16)	3.22 (1.41)
		4-year-olds	10	3.27 (7.03)	3.68 (1.91)
		5-year-olds	9	3.39 (17.12)	4.00 (3.37)

Note: AtoL = Approaches to Learning.

Table 4.11 shows the means and standard deviation scores on the modified PPVT as a function of age, gender, and language status. We see that the girls outperform the boys and that the highest scores were earned by 4-year-old girls whose first language was English. The 3-year-old girls with English as an added language had the lowest mean score (*M*=15).

Table 4.11 *Summary of PPVT by Gender, Language, and Age*

Gender	Language	Age	PPVT *n*	*M (SD)*
Boys	English as an Added Language (EAL)	3 years	2	11.00 (2.83)
		4 years	1	16.00 (0.00)
		5 years	2	21.00 (1.41)
	English as First Language (EFL)	3 year	1	22.00 (0.00)
		4 years	5	18.80 (2.86)
		5 years	4	21.00 (4.24)
Girls	English as an Added Language (EAL)	3 years	2	15.00 (0.00)
		4 years	9	22.11 (1.90)
		5 years	3	22.67 (1.15)
	English as First Language (EFL)	3 years	2	22.50 (3.54)
		4 years	10	22.80 (2.10)
		5 years	9	22.56 (1.51)

Table 4.12 indicates that age was a significant correlate of all the dependent variables except the day-night measure even after taking into account PPVT score as a control variable.

Table 4.12 *Intercorrelations of Task and Teacher Report Measure Controlling for PPVT*

Control	Variables	Gender	Language	Age (Years)
PPVT	Self-regulation tasks			
	Day-night	-.00	-.07	.23
	Tapping	.14	-.18	.38**
	Simon says	.29	-.11	.37**

AL	-.03	.12	.43**
Play	.05	.04	.39**

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.13 indicates that PPVT and Simon say measures are significantly related to gender controlling for child age. The girls outperformed the boys on these two dependent variables.

Table 4.13 *Intercorrelations of Task and Teacher Report Measure Controlling for Age (Years)*

Control	Variables	Gender	Language
Age (Years)	Self-regulation tasks		
	Day-night	.04	-.10
	Tapping	.21	-.23
	Simon says	.45**	-.10
	AL	.19	.14
	Play	.23	.05
	PPVT	.49**	.22

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.14 presents a significant relationship between gender and Simon says, holding constant PPVT and the age of the child ($r = .40$, $p < .01$).

Table 4.14 *Intercorrelations of Task and Teacher Report Measure Controlling for PPVT and Age (Years)*

Control	Variables	Gender	Language
PPVT & Age	Self-regulation tasks		
(Years)	Day-night	.04	-.10
	Tapping	.24	-.24

Simon says	.40**	-.16
AL	.07	.09
Play	.14	.00

**. Correlation is significant at the 0.01 level (2-tailed).

Additional Findings

Notice that the standard deviation score is highest for pretend play and active-positive behavior and lowest for passive-negative behavior.

Table 4.15 *Means (M) and Standard Deviations (SD) for Five Play Variables (n = 41)*

	Number of items	Item Mean (SD)
Play	9	3.27 (0.39)
Pretend Play	9	3.31 (0.47)
Active-positive behavior	5	3.21 (0.47)
Active-negative behavior	8	2.88 (0.62)
Passive-negative behavior	10	3.14 (0.37)

Table 4.16 reveals that active-positive behaviors are highly correlated with age.

Table 4.16 *Correlations between Variables (n = 41)*

Variables	Gender [a]	Language[a]	Age[b]
Play	-.12	.08	.31*
Pretend Play	.17	.18	.26
Active-negative behavior	.25	-.14	.36*
Passive-negative behavior	.17	.12	.34*

Active-positive behavior	.24	.10	.50**

Note: For gender, Girl = 1, Boy = 0; For Language, Non-English Speaking = 1, English Speaking = 0; For Age, 3-year-old, 4-year-old, 5-year-old.

a: Point-biserial correlation, b: Pearson correlation

Chapter 5

Discussion

The purpose of the study was to evaluate the relationships among a set of variables generally considered important in terms of children's school readiness. Obviously language is important, and so is how the child plays and approaches learning and activities. In addition, EF and self-regulation are critical psychological processes involved in how a child pays attention, plans, thinks, and organizes intentional actions. This investigation included rating measures of play and Approaches to Learning, and task scores for EF. These measures were examined in relation to age, gender, and language status.

One of the more interesting results as reported in the previous chapter pertained to differences in performance correlating with gender. The results showed that girls outperformed boys on Simon Says scores and PPVT scores. This is probably due to gender differences in language development. There is extensive documentation showing that girls are ahead of boys during the early years in language development (Maccoby & Jacklin, 1974). Still, female teachers so common in ECE may inadvertently favor girls over boys. The researcher was also female and may have displayed unconscious bias towards girls over boys.

This study addressed an important issue in early childhood development: self-regulation. Given that Vygotsky's (1930–1935/1978) assumption is that play influences children's ability to self-regulate, this research explored the correlation between play and self-regulation. The study also examined self-regulation in connection to the teacher's rating of Approaches to Learning (AtoL). This is important to add, because children are not always playing and the Approaches to Learning (AtoL) rating is considered important too, even though it did not feature in Vygotsky's thinking. The indices of self-regulation, Simon says, day-night, and tapping tasks were significantly related to the teacher ratings of Play and Approaches to Learning. Even though these relationships were not significant once PPVT and age were partialed out, the correlations suggest that the

classroom behaviors of young children can be important in the development of psychological processes believed to be important, in turn, for the cognitive skills involved in school readiness.

It is exciting to think that teachers may be able to help children engage in higher-quality play and approaches to activities, learning or otherwise, and that this can actually help children develop the ability to self-regulate and/or develop EF. To some degree, the ability to self-regulate may be malleable. However, the results presented herein are not straightforward. The results considered language status (English as First Language or English as an Added Language), gender, and age. Gender but not language status (English as First Language or English as an Added Language) was a significant correlate. The general model represented in Chapter 1 (Figure 1) is compatible with the results and this line of thinking.

This study investigated self-regulation in terms of two aspects: teacher's ratings and children's self-regulation tasks. The current study indicates that typical children's play quality is associated with levels in Approaches to Learning (AtoL). For receptive vocabulary, those skills at preschool age, at least, are affected by gender, age, and language status.

Limitations

The results from this study are hard to generalize to other populations of children. In regard to variations in preschool participation, future work should involve a broader sample as a basis for determining how preschool may or may not affect children's development in specific ways. The present cross-sectional study could be extended by including a longitudinal study in order to establish whether changes in the variables co-occur, or whether one set is a precursor to another set. Do play and approaches to learning help the child to self-regulate later on, or is the reverse true? In the present study, a limitation of the data is that it does not afford us the opportunity to see gain scores or changes over time.

For researchers and educators, it is necessary to develop new play scales in order to more accurately measure children's play and to assess play quality, although it should be noted that the researcher did devise

play scales referring to extant empirical findings. But, in regard to the children's play scale, accuracy, validation, and reliability are required. Many methodological and conceptual problems have presented challenges to previous studies examining the developmental consequences of young children's play. General issues in all correlational research include the direction of effects and the possibility of third-variable influences. Prior self-regulatory development and/or other intrinsic and extrinsic variables might account for the play/self-regulatory gain associations obtained in this study.

Both day-care programs enrolled only middle- to upper-middle-income, ethnically homogeneous children. Consequently, the findings of this study may not generalize to children enrolled in other types of preschool settings or to children of other family-income levels and ethnic backgrounds.

The analyses examining the relationship between play, approaches to learning, and self-regulation for children are based on a particularly small sample. They remain tentative until followed up with additional research.

With regard to play scale, the researcher found that active-positive behavior, active-negative behavior, and passive-negative behavior could not explain children's play behavior. These three scales, however, can be applied to general classroom behavior. So, only play and pretend play scales are effective for explaining children's attitudes toward play and their tendencies in this regard. Thus, more studies of play scale are necessary.

Strengths of the Study and Implications

A strong point of this study is that it recognizes the complex set of variables affecting school readiness, and presents findings that have relevance in regard to how teachers might program classroom materials and activities to encourage children to engage in quality play and approaches to learning or activities. The significant associations between play and level for self-regulation obtained in this study have implications for preschool curricula.

How do educators teach play activities to young children? This study did not intend to determine how to teach play to young children. However, the results showed that children's approaches to learning and their ability to self-regulate are closely related—both are vitally important not as to what children learn but in regard to how children learn, such that diverse experience from play is required. Even though the play scales used in this study were rather broad and blended with children's attitude and behavior, these scales can help educators to judge children's play as either effective or ineffective. Additionally, the question remains as to how exactly teachers can most effectively promote children's play activities. Many studies have found that simple adult-led play activities are not helpful for child-directed play activities (Nelson, Hart, & Evans, 2008). But, Vygotsky (1930–1935/1978) stated many times that adults can help children to scaffold their abilities in a variety of activities. Among them, play is likely to be an important element in activities that children can enjoy and through which they can improve themselves. Play can be a self-scaffolding process. Thus, children and teachers need to have play time, and in general, the school curriculum does require play activities.

Evidence in regard to the link between socio-dramatic play and the development of self-regulatory competence suggests that an effective way to prepare preschoolers for the academic and social challenges of the school years is through joint make-believe with peers in early childhood. However, other play forms such as constructive play or block play hold similar promise. Going further, activities in this regard can extend beyond play, after all approaches to learning or approaches to activities are not always play.

The ECE field should develop standards for quality play but also pay attention to approaches to learning and develop standards for this, too. ECE teacher education and in-service professional development workshops should help ECE teachers realize this. Too often, only play is thought of as a road to learning and school readiness. Parents should also become aware of this erroneous tendency. Both play and approaches to learning are important.

To conclude, this study supports or at least is in accord with the general model shown in Chapter 1 (Figure 1) that describes the connections among cultural, social, biological, psychological, and educational factors. Pathways to maturity via enculturation or socialization and educative processes are multiple, and

thinking about this complexity brings up the need to consider the problem of school readiness in a new way. Growth during the early years must be understood in multi-disciplinary terms, as biological, social, and cultural factors underpin psychological and developmental processes, which in turn lead to school readiness and academic attainments.

There is some truth to the cliché that play is the bridge to school success in early childhood. Benefits come with quality play, but let us not forget the importance of children's approaches, actions, and intentions when they are applied to non-play events. Quality play and non-play stimulate and reinforce the executive function and self-regulation, and this bodes well for future academic achievement, attitudes, and behaviors. The quality of play and approaches to learning are beneficial to ECE. This study brings that fact into view.

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Appendix A: Teacher Consent Form

Informed Consent Form for School Science Research

The Pennsylvania State University

Title of Project: Exploring the relations among self-regulation, play, learning style and verbal intelligence in young children

Principal Investigator: Yoojung Ko, M.S., Curriculum and Instruction, yik5103@psu.edu, (814) 470-0336

Advisor: Dr. James E. Johnson; Professor, Curriculum and Instruction, jej4@psu.edu, (814) 865-2230

1. **Purpose:** The purpose of this research is to examine children's play in relation to young children's self-regulation, their approaches to learning activities and verbal ability in English.
2. **Procedures to be followed:** This research study involves the following procedures to collect data: (1) Children are individually administered three self-regulation tasks: day-night, tapping and Simon says tasks and the Peabody Picture Vocabulary Test (PPVT) by the researcher. (2) The researcher and teacher will observe children's play behaviors in free play. (3) The two instruments (Approaches to Learning Assessment & Children's Play Scale) will be rated by the researcher and the teacher of each child in the study during fall 2011 and spring 2012. First, children will be rated by the teacher and researcher on the learning-style-to-activities items of the Approaches to Learning Assessment. Second, children will be

rated on the Children's Play Scale for active-positive play, active-negative play, passive-negative play and pretend play. Third, children will be requested to do three tasks that estimate self-regulation ability. Fourth, children will be rated by the researcher using part of the Peabody Picture Vocabulary Test (PPVT), which measures an individual's vocabulary for Standard American English.

3. **Discomforts and Risks:** There are no risks to participating in this research beyond those experienced in everyday life. Children may feel some stress taking the tasks. Teachers may feel some pressure completing the ratings.
4. **Benefits:** The results will provide parents and educators with useful and practical implications in the development of early pedagogy, assessment and curriculum related to children's self-regulation and verbal ability. In turn, children will learn to regulate themselves in a more intrinsically motivated way.
5. **Duration:** The research will occur over the course of fall 2011 and spring 2012. The Approaches to Learning Assessment and the Children's Play Scale will take you approximately 10 minutes to fill out per one child.
6. **Statement of Confidentiality:** Your participation and the information that results from this research are strictly confidential. The data will be kept in a locked file cabinet and stored in a password-protected computer of the investigator. Penn State's Office for Research Protections, the Penn State Institutional Review Board, and the Office for Human Research Protections in the Department for Health and Human Services may review records related to this research study. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.
7. **Right to Ask Questions:** Please contact Yoojung Ko at (814) 470-0336 with questions, complaints, or concerns about this research. You can also call this number, if you feel this study has harmed you. If you have any questions, concerns, or problems about your rights as a research participant or would like to offer input, please contact The Pennsylvania State University's Office for Research Protections (ORP) at (814) 865-1775. The ORP cannot answer questions about research procedures. Questions about research procedures can be answered by the research team.

8. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions that you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits that you would receive otherwise. You must be 18 years of age or older to take part in this research study. If you agree to take part in this research study in accord with the information outlined above, please sign your name and indicate the date below.

You will be given a copy of this consent form for your records.

_____ _____

Participant's Signature Date

_____ _____

Person Obtaining Consent Date

Appendix B: Parent Consent Form

Informed Consent Form for School Science Research

The Pennsylvania State University

Title of Project: Exploring the relations among self-regulation, play, learning style and verbal intelligence in young children

Principal Investigator: Yoojung Ko, M.S., Curriculum and Instruction, yik5103@psu.edu, (814) 470-0336

Advisor: Dr. James E. Johnson; Professor, Curriculum and Instruction, jej4@psu.edu, (814) 865-2230

1. **Purpose:** The purpose of this research is to examine children's play in relation to young children's self-regulation, their approaches to learning activities, and verbal ability for English.
2. **Procedures to be followed:** This research study involves the following procedures to collect data: (1) Children will be individually administered three self-regulation tasks: day-night, tapping, and Simon says tasks and the Peabody Picture Vocabulary Test (PPVT) by the researcher. (2) The researcher and teacher will observe children's play behaviors in free play. (3) The two instruments (Approaches to Learning Assessment & Children's Play Scale) will be rated by the researcher and the teacher of each child in the study during fall 2011 and spring 2012. First, children will be rated by the teacher and researcher on the learning-style-to-activities items of the Approaches to Learning Assessment. Second,

children will be rated on the Children's Play Scale for active-positive play, active-negative play, passive-negative play, and pretend play. Third, children will be requested to do three tasks that estimate self-regulation ability. Fourth, children are rated by the researcher using part of the Peabody Picture Vocabulary Test (PPVT), which measures an individual's vocabulary for Standard American English.

3. **Discomforts and Risks:** There are no risks to participating in this research beyond those experienced in everyday life. Children may feel some stress taking the tasks.
4. **Benefits:** The results will provide parents and educators with useful and practical implications in the development of early pedagogy, assessment and curriculum related to children's self-regulation and verbal ability. In turn, children will learn to regulate themselves in a more intrinsically motivated way.
5. **Duration:** The research will occur over the course of fall 2011 and spring 2012. The three self-regulation tasks (i.e., tapping, day-night, and Simon says) will take 20 minutes. The Peabody Picture Vocabulary Test (PPVT) will take 10 minutes.
6. **Statement of Confidentiality:** Each child's participation and the information that results from this research are strictly confidential. The data will be kept in locked file cabinets and stored in the password-protected computer of the investigator. Penn State's Office for Research Protections, the Penn State Institutional Review Board and the Office for Human Research Protections in the Department for Health and Human Services may review records related to this research study. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.
7. **Right to Ask Questions:** Please contact Yoojung Ko at (814) 470-0336 with questions, complaints or concerns about this research. You can also call this number, if you feel this study has harmed you. If you have any questions, concerns, or problems about your rights as a research participant or would like to offer input, please contact The Pennsylvania State University's Office for Research Protections (ORP) at (814) 865-1775. The ORP cannot answer questions about research procedures. Questions about research procedures can be answered by the research team.

8. **Voluntary Participation:** Your decision to allow your child to be in this research is voluntary. You can stop at any time. Your child does not have to answer any questions he/she does not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you or your child would receive otherwise.

   If you agree to allow your child to take part in this research study in accord with the information outlined above, please sign your name and indicate the date below.

   You will be given a copy of this consent form for your records.

   I give permission for my child _____ (your child's full name) to participate in this research.

   _____ _____

   Parent's Signature Date

   _____ _____

   Person Obtaining Consent Date

Appendix C: The Score Sheet for the Self-regulation Tasks

Date of testing:	Time:
Name:	Date of birth:
Age:	Gender:
Teacher:	Code:
School:	Examiner:

1. day-night task (randomly selected)

Practice	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Trial	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total

***Comment:**

2. tapping task

Practice	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Trial	1 I	2 II	3 II	4 I	5 II	6 I	7 I	8 I	9 II	10 II	11 I	12 II	13 II	14 I	15 I	16 II	Total

***Comment:**

3. Simon says task

Practice	1. Simon says	2. No Simon says	3. Simon says	4. No Simon says	5. Simon says	6. No Simon says	7. Simon says	8. No Simon says
Trial	1 .No Simon says	2. Simon says	3. No Simon says	4. No Simon says	5. Simon says	6. Simon says	7. No Simon says	8. Simon says

9. Simon says	10. No Simon says	11. No Simon says	12. No Simon says	13. Simon says	14. No Simon says	15. Simon says	16. Simon says	Total

1. Stand up
2. Simon says touch your toes
3. Put your hands up
4. Touch your nose
5. Simon says stick out your tongue
6. Simon says clap your hands
7. Touch your toes
8. Simon says put your hands up
9. Simon says turn around
10. Touch your shirt
11. Clap your hands
12. Turn around
13. Simon says stand up
14. Stick out your tongue
15. Simon says touch your shirt
16. Simon says touch your nose

***Comment:**

Appendix D: The Score Sheet for the Approaches to Learning Assessment

Date of testing:	Time:
Name:	Date of birth:
Age:	Gender:
Teacher:	Code:
School:	Examiner:

Circle the number that best describes the child's evaluative working approach in an activity.

Initial Engagement: How does the child usually begin and respond to an activity (in general)?

Hesitant _____ **Eager**

1	**2**	**3**	**4**	**5**
very hesitant or unwilling to begin activity		becomes involved on his or her own		eager to begin activity

---

Focus, Attention: How on task is the child generally when doing activities?

Distractable _____ **Attention**

1	**2**	**3**	**4**	**5**
very easily distracted by		attentive some of the time		sustained, absorbed

other children, events, or materials		attention to activity

Goal Orientation: How clearly is the child working toward an activity's goal?

Personal Goal				**Activity Goal**
1	**2**	**3**	**4**	**5**
works on personal goal rather than activity goal		child's work vacillates between personal goal and activity goal		works efficiently toward activity goal

Planfulness: How organized is the child generally in working toward task completion?

Haphazard				**Organized**
1	**2**	**3**	**4**	**5**
random or impulsive; no evidence of organization of materials or approach		organized some of the time		well-organized, methodical in approach or with materials

Resourcefulness: What does the child do when stuck (in general)?

Helpless				**Resourceful**
1	**2**	**3**	**4**	**5**
does not ask for help; unable to use help		moves forward a step when help is given		seeks help and makes good use of it to

when offered	figure out challenges

Cooperation (for group activities): How does the child work with peers to accomplish the task?

Difficulty working with others_____Helpful to others

1	**2**	**3**	**4**	**5**
has difficulty sharing materials or attention, taking turns, supporting the efforts of others		gets along with other children		helps other children with activity, materials, or as a mediator; models ideas for others

Chattiness: How much of the child's talk is unrelated to the activity?

Very quiet_____Very chatty

1	**2**	**3**	**4**	**5**
little conversation and self-talk throughout the activity		talks from time to time		constantly talks about unrelated topics

Social referencing: How often does the child check with teachers or peers?

Little interaction ____ **Constant checking**

1	**2**	**3**	**4**	**5**
focuses on own work		pays attention to others' work and checks with others about own work occasionally		frequently asks teacher or peer if own work is on track

---

Playfulness: How animated, lively, or happy is the child during the activity?

Serious ____ **Playful**

1	**2**	**3**	**4**	**5**
mood/demeanor is serious and cheerless		business-like with activity		cheerful and sense of humor related to activity

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Appendix E: The Score Sheet for Children's Play Scale

	Frequency of behavior			
	Never seen 1	Seldom (once or twice) 2	Occasionally 3	Frequently 4
Active-positive play behavior				
Asks others' opinions politely	1	2	3	4
Encourages others to join in play	1	2	3	4
Cleans up his/her toys actively	1	2	3	4
Movements are physically active rather than quiet	1	2	3	4
Shows enthusiasm and enjoyment	1	2	3	4
Enjoys joking and gently teasing with peers	1	2	3	4
Laughs at humorous stories and tells funny stories	1	2	3	4
Uses novel objects and creates new games to play	1	2	3	4
Initiates play with others and exercises leadership	1	2	3	4
Continues one activity rather than changing activities	1	2	3	4
Reacts to peers' approaches and is willing to share toys	1	2	3	4
Active-negative play behavior				
	Never seen 4	Seldom (once or	Occasionally 2	Frequently 1

		twice) 3		
Yells or shouts to peers	4	3	2	1
Hits and pushes other children	4	3	2	1
Has trouble waiting for his/her turn	4	3	2	1
Does not listen to others' opinions	4	3	2	1
Coerces or teases his/her peers	4	3	2	1
Tries to take peers' toys away	4	3	2	1
Does not encourage their peers to join their activities	4	3	2	1
Argues and conflicts with his/her peers	4	3	2	1

Passive-negative play behavior

	Never seen 4	Seldom (once or twice) 3	Occasionally 2	Frequently 1
Is passive and inhibited in attending to play	4	3	2	1
Displays shyness and nervousness	4	3	2	1
Does not participate or keeps to him/herself	4	3	2	1
Roams from place to place	4	3	2	1
Mumbles to him/herself	4	3	2	1
Seems distracted, cannot pay attention, unfocused	4	3	2	1
Cries/whines for a long time	4	3	2	1
Cannot belong to a group	4	3	2	1
Acts (gets) irritated	4	3	2	1
Repeats the same sequence of actions	4	3	2	1

Pretend play				
	Never seen 1	Seldom (once or twice) 2	Occasionally 3	Frequently 4
Develops imaginary themes	1	2	3	4
Takes on make-believe roles	1	2	3	4
Creates imaginary objects and places	1	2	3	4
Uses language to create make-believe	1	2	3	4
Assigns roles	1	2	3	4
Plans scenes	1	2	3	4
Establishes identity of objects and places	1	2	3	4
Substitutes talk for action	1	2	3	4
Develops a story line	1	2	3	4
Negotiates problems w/o an adult	1	2	3	4
Helps	1	2	3	4
Cooperates with others for an extended time period (at least 10 minutes)	1	2	3	4

VITA

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EDUCATION

Aug. 2010–present **The Pennsylvania State University**

- Master of Science in Early Childhood Education

Oct. 2009–Feb. 2010 **Gangnam – University of California, Riverside**

- Attended 2 sessions of the Intensive English Language Program
- Level 500A, Level 500B: Advanced English

Mar. 2006–Aug. 2008 **Sookmyung Women's University, Seoul, Korea**

- Completed graduate-level coursework in pursuit of a Master of Culture & Arts in The Graduate School of Traditional Culture and Arts
- Thesis: A Study of the Operation Status of French Restaurants

Mar. 2002–Feb. 2006 **Kangnam University, Seoul, Korea**

- Bachelor of Education in Department of Early Childhood Education

PROFESSIONAL EXPERIENCE

Sept. 2006–Feb. 2007**,** Student Representative, Graduate School of Traditional Culture and Arts

- Served as a liaison between students and professors
- Responsible for purchasing ingredients for class
- Planned and coordinated special events

Sept. 2005–Oct. 2005, Student intern in public kindergarten which is located in Anyang, South Korea

- Supervised preschool children's daily schedule
- Coached preschool children's study
- Observed and assisted a homeroom teacher
- Received a performance evaluation from the teacher
- Wrote a daily record of classroom work after class
- Assisted with field trips to museums, concerts, and the Korean Culture Institute
- Playground observation

Jul. 2005–Aug. 2005, Student intern, Korea Labor Welfare Corporation Ansan Child Care Center

- Supervised children's daily schedule
- Coached children's study
- Observed and assisted homeroom teacher and vice-homeroom teacher
- Wrote a daily record of classroom work after class
- Guided and participated in various events such as free market and swimming day
- Narrated children's stories orally

- Helped children during meals and at naptime

OTHER WORK EXPERIENCE

Dec. 2005–Jun. 2006, Worked part-time at a restaurant
Sept. 2003–Feb. 2006, Trained in yoga at the Social Education School of Korea University

TEACHING CERTIFICATIONS

Feb. 2006, Kindergarten Teacher License
Kangnam University and Ministry of Education, Science and Technology

- Completed all the required courses in education
- Completed all the required courses for major in early childhood education
- Assisted teacher and trained as a student intern

OTHER CERTIFICATIONS

Mar. 2007–Aug. 2007, Le Cordonbleu confectionery intermediate course completion
Mar. 2006–Mar. 2007, Le Cordonbleu cuisine diploma
Sept. 2005–Feb. 2006, Le Cordonbleu confectionery beginner's course completion
Mar. 2005–Jun. 2005, ICIF Italy cooking course training (Korea)
Sept. 2004, National skill license in confectionery