

The Psychomotor and Cognitive Competencies of Filipino Children Ages 1-4: A Multiple Case Study

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Abstract

This multiple case study explored on the psychomotor and cognitive competencies of four Filipino children, ages one to four who came from different demographic background. This also determined other prominent psychomotor and cognitive competencies of these children not indicated in the NELC development standards (ECCD Council, 2015) and described relevant issues and concerns that impact their psychomotor and cognitive development using a researcher-developed early childhood development checklist and an interview guide for the children's parents/guardians. The study was able to describe the psychomotor and cognitive competencies of four Filipino children based on the NELC development standards. There were specific psychomotor and cognitive competencies that were identified but not defined in the NELC standards, but they were recognized distinct to a child's social context. Relevant environmental stimulations, especially, from primary caregivers were recognized as important determinants of children's psychomotor and cognitive development. Furthermore, findings of the study conform to principles on child development and learning – that development proceeds at varying rates for each child and reflects children's experiences and their environment. This implies that when planning programs and early learning experiences for children, individual and age appropriateness should be considered, and the child is understood as part of his/her environment. Further researches may explore other domains of development and other socio-cultural perspectives of development utilizing quantitative and qualitative research methodologies, which could involve bigger groups of children in different regions of the Philippines.

Keywords: child development; psychomotor competencies; cognitive competencies; Filipino children

Introduction

When Republic Act 10410, otherwise known as the Early Years Act (EYA) of 2013 was enacted in the Philippines, it officially recognized the first eight years of childhood as the “first crucial stage” of educational development and emphasized the need to focus on addressing developmental and learning needs of young children during the early years of life. The EYA law consequently empowered the Early Childhood Care and Development (ECCD) Council in the creation of the National Early Learning Framework (NELF) to ensure the implementation of quality ECCD programs and other national policies that strengthen the provisions of early childhood care and development in the Philippines.

In 2015, the ECCD Council published the National Early Learning Curriculum (NELC) which was designed to apply the principles and achieve the goals articulated in the National Early Learning Framework (NELF) in providing care and education to the very young Filipino children. One of the major components of the ECCD System, the NELC highlights the need to focus on children's holistic development and taking into account age, individual and socio-cultural appropriateness. The NELC includes a set of standards and competencies of children from one to four years old based on the Philippine Early Learning and Development Standards (PELDS) and universally accepted standards of development of young children, including UNICEF's set of Early Learning Development Standards (ELDS) that codified expectations for children's physical, cognitive, social-emotional and language development, from birth to 8 years of age (UNICEF, 2016). These developmental standards and competencies serve as a guide for ECCD teachers and service providers on the knowledge, skills, and values that they help young children develop as they prepare them for Kindergarten (formal school). (ECCD Council, 2015).

Two of the six equally important and interrelated developmental domains contained in the NELC standards are motor development and cognitive development. The ECCD Council (2015) established motor development, alongside physical health and well-being, that children should have the ability to conform with and move according to the environment, and perform well the competencies learned with appropriate body balance and coordination at one and two years of age. Subsequently, they should be able to demonstrate awareness and practice of standard health practices and safety rules including competency in self-help skills needed to perform a variety of physical activities at three and four years old. Cognitive development is described as the child's ability to abstract and understand concepts and their logical relations, and manipulate them to arrive at new ideas or conclusions (ECCD LRP no. 2, 2015). Gordon & Browne (2011) defined cognitive development as the construction of thought processes, including remembering, problem-solving, and decision-making, from childhood to adulthood. This also covers a child's ability to express his/her thoughts based on his/her own ability to initiate interactions and understand the people in his/her environment. Children develop an awareness of the world around them, then discover inconsistencies in their environment between what they already know and what they learn (McLeod, 2018).

Based on Jean Piaget's (1936) theory, early childhood children develop competencies in their cognitive and psychomotor domains appropriate to their age. Piaget believes that children between the ages of 2 and 7 are in the preoperative period where they do not yet grasp concrete reasoning, are unable to control knowledge, and are unable to take the point of view of other persons, which he called egocentrism (McLeod, 2018). Children are also increasingly skilled at using symbols during the preoperative process, as shown by the rise in playing and pretending. Children from birth to around 2 years of age, meanwhile, are in the sensorimotor stage of Piaget. Kids use the skills and abilities they were born with to understand more about the world (such as looking, sucking, grabbing, and listening). In other words, they experience the world and gain knowledge through their senses and motor movements (Cherry, 2018).

An in-depth understanding of the developmental skills and competencies of young Filipino children in the context of the realities of Filipino children in varied age groups is relevant to the appreciation of the Philippine Early Learning and Development Standards (PELDS) and of Early Childhood Care and Development (ECCD) in the Philippines. This may also identify specific psychomotor and cognitive competencies and relevant issues that are unique to the context of Filipino children.

Research Purpose

This research provides for an in-depth understanding of the developmental standards and competencies in the NELC for children ages one through four, specifically exploring the two domains of development: psychomotor and cognitive. Specifically, it aimed to describe the psychomotor and cognitive competencies of local Filipino children at different age groups; identify development competencies not indicated in the ECCD standards and competencies of children, ages one to four; and describe relevant issues and concerns that may impact the psychomotor and cognitive development of young children.

Method

Participants

Four Filipino children ages one to four (one from each age group) from Davao City, Philippines were considered as participants of the study, along with their parents/guardians who have been their primary caregivers. The children were purposely considered by the researchers for this study based on their age and the accessibility of residence from the researchers' workplace (University). The children were also noted to be physically healthy during the time of the study. Participants came from different demographic background (sex, ethnic backgrounds, family structure/size, socio-economic status).

Design

This study utilized the multiple case study design to explore on the psychomotor and cognitive competencies of children, ages one to four. Creswell (2014) described case studies as a design of inquiry to develop an in-depth analysis of a case, often a program, event, activity, process, or one or more individuals using a variety of data collection procedures over a sustained period. An in-depth study of each child's psychomotor and cognitive competencies at a particular age was taken as a specific case, described separately but analyzed similarly based on the purpose of the study.

Materials

Four sets of researcher-developed developmental checklists based on the NELC standards and competencies for Filipino children, ages one to four (ECCD Council, 2015) were utilized during observations to gather the data (Appendix A). An interview guide was also developed to use to gather other needed information from the children's parents/guardians (Appendix B).

Procedure

To describe the children's psychomotor and cognitive developmental competencies, observations were done in the child's home and other natural environments (e.g. playground, church ground) utilizing the researcher-developed instrument (checklist). Observations were done on weekends when the researchers visit the child and his/her family in their homes and interact with them. Observation notes were also developed from the observations.

Furthermore, the researchers also conducted in-depth interviews with the children's parents, and other family members familiar with the child (for triangulation) to collect the needed data. An interview protocol was developed and used for asking questions and recording answers during the interview. Observations and interviews were conducted for more than three months until data saturation was reached. Data collected were organized and analyzed, and categorized into broader key concepts, issues and themes to describe the children's psychomotor and cognitive competencies in detail (Creswell & Creswell, 2017).

As this study delved into the daily activities of very young children, the researchers took into account to ensure as far as possible that the anonymity of the children and other research participants were protected by means of not using their real names in the narrative analysis of data,

and that privacy and confidentiality were observed. After the purpose of the study was explained, the researchers reiterated to the participants that they were free to withdraw from the research project at any stage. After the participants signified their interest, informed consents were obtained from children's parents or guardians before actual observations and/or in-depth interview was commenced. The names of the participants were coded using pseudonyms to protect their identity in analyzing the data gathered. This was to ensure the confidentiality of the participants.

Results and Discussion

Early development standards generally specify a set of skills that are expected of children that can be charted against a child's age. In ECCD, these standards help provide clear, research-based expectations for the content and desired results of early learning experiences" to guide early childhood education providers focus curriculum and instruction (NAEYC & NAECS/SDE, 2003). Discussion of the children in the cases focuses on observed psychomotor and cognitive competencies of the children.

Psychomotor Development

Psychomotor development is the progressive attainment by the child of skills that involve both mental and muscular activities, such as the ability of the infant to turn over, sit, or crawl at will and of the toddler to walk, talk, control bladder, and bowel functions, and begin solving cognitive problems. This is demonstrated by physical skills such as movement, coordination, manipulation, dexterity, grace, strength, speed which demonstrate children's fine or gross motor skills as they learn to interact with things in their environment (Anonat, 2009). The most common classification of psychomotor skills is "gross" and "fine." Gross motor skills are defined as those that involve the use of the larger groups of muscles of the body (such as arms or legs). Fine motor skills, on the other hand, are those that involve the use of smaller groups of muscles such as those found in fingers and hands. Children's fine motor skills include grasping objects, picking objects with fingers, drawing/coloring with pencil/crayons, and moving puzzle pieces with hands.

Infants and toddlers achieve mastery of their bodies through self-initiated movement. One-year-olds can be overwhelmed with their independence as they acquire skills in walking, makes them more curious in exploring their environment (Essa, 2011). Their gross motor development is promoted by providing an environment that allows them to move freely and have many different kinds of opportunities to practice emerging skills in coordination, movement, balance, and perceptual-motor integration. Their physical development goals are to develop balance, strength, and coordination and to enhance sensory-motor integration. (NAEYC, 2018)

One-year-old, Wanda, managed to crawl and hold onto furniture for support and stand independently. She enjoyed playing in the basin with the assistance of her mother. During bathing time, she could stand with good balance whenever her mother puts her in a basin. Meanwhile, two-year-old Toto can walk straight while swinging his arms and runs skillfully with controlled stops as evident while playing chase with playmates. He was observed to demonstrate skill in climbing over a barrier that was two-thirds his height, jumping and landing on the floor in both legs without stumbling. Three-year-old Thirty can run fast, jump, and climb. He can climb low stairs without assistance and enjoys running around with other children, playing on the playground slide, and swing with proper guidance and support from adults. On the other hand, four-year-old Flora showed interest in more physically strenuous activities and preferred playing with boys during more rough games. She enjoys jumping, climbing, tumbling, and rolling on the floor. She likes to play with her bike a lot with full control and can get up quickly whenever she falls. She was also observed to use a skipping rope and play badminton with her mother. Flora is also a graceful dancer and can follow a simple dance step shown to her. She shows independence when taking a bath, brushing teeth, brushing hair, and putting on a few of her clothes.

Furthermore, Wanda needed assistance from a caregiver in performing gross motor skills like walking compared to Toto, Thirdy, and Flora. It is for this reason that Wanda's mother watched over her when she was put in the basin because she would stand. Standing is part of the developmental pattern that leads to walking. Thirdy and Flora can perform complex gross motor skills such as running, jumping, climbing, and biking. They have learned to coordinate their muscular movement for them to balance in order to perform those activities. Jumping, running, climbing, and biking require strength and speed, which they have learned through their interaction with the environment.

Also considered under the psychomotor development of the participants was their ability to demonstrate fine motor skills. Fine motor skills are those that involve the use of smaller groups of muscles such as those found in fingers and hands. Children's fine motor skills include grasping objects, picking objects with fingers, drawing/coloring with pencil/crayons, and moving puzzle pieces with hands. Children can do more things for themselves when they have opportunities to practice these skills and engage in a wide variety of hands-on play experiences, and use them in daily activities (Gibbs, 2020).

Wanda (one-year-old) started to show interest in feeding herself which she demonstrated shortly after her 1st birthday. She can grasp her spoon, scoop her food, and feed herself with little spilling. Toto (two-year-old) could hold pencils and crayons firmly with clenched hand while scribbling and/or coloring; can draw a line on a paper, form small clay balls, and roll play dough against the table with his palms. He can also feed himself using a spoon with little spillage when reminded by adults as he often picks his food with fingers. Thirdy (three-year-old) already learned how to brush his teeth as shared by his parent. He showed how to use pencils and crayons to draw and color simple pictures. Similarly, Flora (four-year-old) demonstrated skills in writing. She can write numbers and most alphabets although her mother had to check on her handwriting. She was also observed to play blocks and simple puzzles, fingerplays, and tinker with her mom's cellphone. Flora liked to cut-out "princess" pictures from books or magazines, and her mother would often assist her with the scissors.

Cognitive Development

The ECCD Council (2015) refers to cognitive development as children's ability to abstract and grasp concepts and their logical relationships and manipulate them to arrive at new ideas or conclusions. This involves the cognitive capacity of a child to perceive and interpret sensory input from the environment (sight, smell, touch, hearing, tasting) and respond or behave on the basis of their own perception of his or her world.

Piaget's cognitive theory of development also depicts that infants and toddlers experience and gain knowledge through their senses (Cherry, 2018). Young children's cognitive development is closely related to sensory inputs and outputs as most infants and toddlers rely on their senses (e.g. what they see, hear, feel, smell, or taste) as they try to understand their environment. The expanding information processing capacity allows young children to make connections between old and new information; use their knowledge of the alphabet and letter sounds (phonics) to start sounding out and reading words (Oswalt, n.d.) By the end of early childhood, children's knowledge base continues to grow and become better organized. Moreover, they are capable of forming perception which is the ability to recognize and interpret sensory stimuli (sight, smell, touch, hearing, tasting) from the environment (Cooper-Kahn & Dietzel, 2008). This ability enables infants and toddlers to respond to sounds, colors, shape, texture, smell, the taste of objects in the environment.

Wanda (one-year-old) and Toto (two-year-old) were sensitive to visual stimulations and sounds from their environment and were actively responsive to them. Wanda can easily turn to people

who would call out her name; recognize familiar faces (such as that of her father's) even from afar and respond to them accordingly. Her mother described how Wanda likes to pick her food with her hands and dislikes touching slimy parts of their family table. In the same way, Toto can identify specific sounds and showed awareness of what they mean to him. His mother shared how Toto can respond to the ringing of the telephone and can tell who called by the voice of the person speaking. Based on this information, Wanda and Toto learned a great deal from the environment through their senses. Their sensory experience with a variety of things in their environment makes up their perception of the world around them. Children in the early years, interact with the environment through observation using their senses with the support and encouragement from adults, Krogh and Morehouse (2014).

Older children demonstrate cognitive capabilities including memory, thinking and reasoning, spatial processing, problem-solving, language, and perception (Richland, Frausel & Begolli, 2016) when interacting with the world around them. Thirty and Flor, who are aged three and four respectively, demonstrate these cognitive skills. Thirty showed familiarity with colors and uses of different objects in his home. He can count perfectly from one to ten and memorize a number of songs. On the other hand, Flora, who was attending preschool, showed a keen ability to remember a lot of things. She can point out to people where she lives and recognizes places previously visited. She can count number from 1 to 100, identify letters, shapes, draw pictures (e.g. herself with her family), and follow simple instructions.

Thirty and Flora have developed skills in attention. Attention is the ability to sustain concentration on a particular object, action, or thought such as when children focus on their toys during play (Richland, Frausel & Begolli, 2016). They have also developed the working memory, which is the child's ability to remember information while in the process of using it, such as when a child responds to and follows two-step directions (Michelon, 2006). This is the reason for Thirty and Flora to be able to respond to instructions given. The working memory allows them to learn and interact with the environment.

Importantly, theories of cognitive development help expound mechanisms of development rather than to merely describe the capabilities of children across ages (Richland, Frausel & Begolli, 2016). Piaget's Cognitive Theory of Development highlights that the earliest cognitive skills are manifested in children's movement, and children's sensory exploration during the sensorimotor stage and with the use of symbols, as evidenced in playing and pretending during the preoperational stage (Cherry, 2018).

Sensory-motor integration is the body's ability to take in, organize/process, and respond in a meaningful and acceptable way to the sensory input. One of the many functions of the central nervous system is to combine multiple sources of environmental stimuli to translate these inputs into motor movements or processes involved in particular goal-directed tasks (Machado, Cunha, Velasques, Minc, Teixeira, Domingues et al., 2010). Such ability is what makes infants reach out to or grab at anything that they see hanging up their cribs or toddlers run after their favorite ball rolling across the room. This important aspect of understanding psychomotor development emphasizes the relationship between the child's cognitive functions and physical movement. Wanda took interest in small objects such as small puzzles. She meticulously searched for them, picked them up with her fingers, and put them in her mouth. Handling her food with her hands involved a lot of grasping and picking with fingers. Toto had learned to strategize in order to play outside the house. He climbed over the door barricade in order to escape from the house and play outdoors. His mother shared, "*Toto can run off outside the house, and visit a playmate in a nearby house without letting us knowing about it.*" Meanwhile, Flora's creativity can be expressed in her play. She created her own make-belief house displaying dramatic play blankets. She tied them together into something to keep her "house" up.

These observations would suggest that children's psychomotor and cognitive competencies develop simultaneously. Psychomotor development relates to progressive attainment by the child of skills that involve both mental and muscular activity, such as the ability of the infant to turn over, sit, or crawl at will and of the toddler to walk, talk, control bladder and bowel functions, and begin solving cognitive problems. In the same way, cognitive development is a dynamic process through which human minds grow and change from infancy throughout the lifespan (Richland, Frausel & Begolli, 2016). The children-participants' competencies show how their psychomotor and cognitive develop over time.

Psychomotor and Cognitive Competencies of Participants

The Early Learning Development Standards (ELDS) and other universally accepted development milestones for young children have been the basis in understanding what children should know and be able to do with respect to their physical and cognitive development during the early childhood years. This section discusses other psychomotor and cognitive skills/competencies that the children demonstrate which were not identified in the NELC standards for each age group. These are based on the results of data gathered during interviews with parents and observations conducted based on the researcher-developed checklist based on the NELC standards and competencies.

Wanda

Wanda is one year old and a healthy girl. Among the cognitive competencies in the development checklist, only one competency (out of 15) was not observed, which is the ability to demonstrate an understanding of the relationship of objects by putting them together according to use or function. Meanwhile, she demonstrated most competencies (11 out of 14) under the psychomotor domain except for walking unassisted, trying to run despite the difficulty, and stacking objects or toys. However, Wanda showed her own efforts to explore her environment in bolder attempts to climb on things. Her parent shared, *"we would put her in a walker but she would climb over and get off the walker; her father even wondered how Wanda manages to do that, worried that she could get hurt"*. This ability to climb over obstacles or barriers is not among the psychomotor competencies at age one.

And although the development checklist indicated that one-year-olds can hold a spoon and fork but cannot feed themselves, Wanda was starting to assert her independence during mealtime. Her mother narrates, *"when Wanda just turned one, we noticed that she refused to let us feed her so we thought she would want to eat by herself. So we gave her her own plate, spoon and fork, then gave her food like rice with soup. She would really try to feed herself with the spoon."* Wanda also showed an increasing interest in adults' or older children's activities such as writing with pencils and crayons on notebooks or schoolwork. Her parents shared that Wanda's older sister often work with her school assignments at night. Wanda would join in, even grab her sister's pencils or crayons to scribble on notebooks.

In Piaget's theory, children at the sensorimotor stage display skills and abilities that they were born with such as grasping (Cherry, 2018) and learn about the world by using her senses to interact with her surroundings. Wanda's ability to grasp objects enables her to pull herself up to climb over obstacles (like her walker) and use a spoon to feed herself independently which is not too typical of children her age. Her growing ability to imitate more complex activities of people in her surroundings was an indication of how she learned so much from her environment from what she sensed contributing to perceptual/cognitive development.

Toto

Toto is a healthy two-year-old boy. In terms of psychomotor competency, he displays most of the competencies (14 out of 17) in the standards for two-year-olds except for walking in tiptoes in a short distance, stacking five to ten blocks, and brushing teeth/washing hand independently. His parents were proud to share that Toto showed extraordinary physical skills, *"It had been unusual for his age to jump from something that is as high as the child's height...he is not afraid to jump that high...he can do*

it...that is one his strengths... he is also not afraid to climb over the barrier that we placed to block our doorway even if it is higher than him). This ability to jump high from a higher position landing with both feet without falling is not mentioned as among the common psychomotor competencies of two-year-olds in the NELC standards. Self-initiated movements like jumping enable Toto to achieve mastery of his body and his growing awareness of objects in his environment e.g. barriers, fences and other climbing tools taught him to adapt and provided opportunities to learn new skills. According to NAEYC (2018), their gross motor development is promoted by providing an environment that allows them to move freely and have many different kinds of opportunities to practice emerging skills in coordination, movement, balance, and perceptual–motor integration.

Toto’s cognitive competencies depict his ability to perform most of the skills (12 out of 15). But his father recalled, “he is scared of matches; maybe because he got burned with it once,” hinting that Toto had learned from a bad experience and learned of “matches” as dangerous. This ability to respond to feeling unsafe in a certain way was not covered in the ECCD standards for two-year-olds and shows Toto’s growing perception. Perception is the ability to recognize and interpret sensory stimuli (sight, smell, touch, hearing, tasting) from the environment. This ability enables infants and toddlers to respond to sounds, colors, shape, texture, smell, taste of objects in the environment, (Michelon, 2006).

Thirty

Thirty is three years old. He showed mastery of most of the psychomotor competencies (15 out of 19) but needed assistance in many of the cognitive competencies (11 out of 22) identified in the ECCD checklist for three-year-olds. However, Thirty already managed to brush his own teeth, unlike most children his age when adults tend to brush their children’s teeth for them or assist them during brushing until they are older and coordinated enough. This did not only demonstrate Thirty’s well-developed eye-hand coordination but also showed his growing sense of independence in caring for oneself which his parents encouraged. The National Research Council (2000) argued that a child’s cognitive development is dependent on his/her experience and the foundation of further learning is formed in the early years of life. Thirty is in the process of developing his psychomotor and cognitive competencies as his environment provides him with the opportunities to learn new skills.

Flora

Flora is four years old. A distinctive feature of Flora is her curly hair. Based on the ECCD standards, she is able to perform most of the psychomotor competencies (14 out of 16) for children at four. She, however, showed peculiar skills that are not specifically defined in the ECCD standards under psychomotor and cognitive domains. Flora can walk backward going up a stair with ease which may not be typical for most children. Flora’s parents would share that first saw Flora did this one day while they were attending church service at a church that has a wide staircase. This ability in motor control is a demonstration of the how muscle movement and organization maintain body posture and balance (Cech & Martin, 2012). This process of linking the contractions of many independent muscles working synergistically (Darby & Frysztak, 2014) depends largely on the development of strength and muscle tone to keep the body in its balanced state. Flora’s ability to climb upstairs backwards was a manifestation of her increasing proficiency and mastery of psychomotor skills that involve movement, coordination, manipulation, dexterity, grace, strength, speed that follow a chronological order as children age or grow physiologically (Anonat, 2009).

Moreover, as Flora demonstrated most of the cognitive competencies (13 out of 16) in the development checklist for four-year-olds, she showed engagement in role-playing where she assumed roles and acted out familiar situations that she is familiar with. Her mother had disclosed, “*when we play, she would assume the teacher role. She’ll pretend to teach her doll and would say ‘read this’ pointing*

to the calendar; I would test her by giving a wrong answer and she is quick to say 'no, that's wrong'; she likes to be the teacher a lot." Wanda also likes to create her own make-belief house (during dramatic play) using blankets. She would tie blankets together and makes ceilings for her playhouse out of them. Role-playing helps develop children's way of thinking and capacity for cognitive flexibility and creativity as they use their imagination at an early age (Mottweiler & Taylor, 2014). Flora's pretend play is a natural ability of children to imagine and act out social situations, and an indication of Flora's early expression of her ability to use and understand symbols and familiar things in her environment to make sense of her world (Cherry, 2018).

Relevant Issue and Concern That Impact the Psychomotor and Cognitive Development of Young Children Environmental Stimulation

Research has established that the foundation for further learning is formed in the early years of life. A child's cognitive development is dependent on his/her experience which makes the provision of a safe and stimulating environment a highly significant input in the cognitive development of early childhood (National Research Council, 2000). Children's general developments are influenced by the environment (Doussoulin, 2006; National Research Council, 2000). According to Essa (2011), during the growing up years of children, an appropriate nurturing environment significantly contribute to being active and engage in their early experiences. It is for this reason that the role of parents and other family members in the child's household is viewed as important to the child's development. The quality of interaction and stimulation from the social environment influence children's cognitive (Andrade, et.,al, 2005) and psychomotor development (Martínez-Moreno, Imbernón Giménez & Díaz Suárez, 2020).

Thirdy's parent explained to him things that he cannot perform and modeled to him how to master the appropriate competencies. Toto's parents can be permissive at times and let him explore his new-developed skills but made sure that they remind him repeatedly to be very careful, sometimes giving him some spanking when he would get way out of hand. Flora's parents have been around to help her with school work. Her mother would constantly join her when she does her homework at night. On the other hand, one-year old Wanda has a routine of getting leg massages from her mother in the morning. Her mother thought these would help stimulate muscular control to help Wanda walk better. She recounted that they even helped her practice when she was just starting to learn to walk; they held her and walk with her then and gradually released her to check if she can manage it on her own. She also has an older sister who she likes to imitate most of the time. Children in the early years, interact with the environment through observation using their senses with the support and encouragement from adults, Krogh and Morehouse (2014).

In all cases of this study, the parents play the most significant role in providing the important stimulation to the children to help them develop their psychomotor and cognitive competencies. Researches on child development have established that children's cognitive and psychomotor development is greatly influenced by the child's environment. Environmental stimulation may be the most relevant parameter in the study of psychomotor development of children (Doussoulin, 2006; Martínez-Moreno, Imbernón Giménez & Díaz Suárez, 2020). Factors, such as the family's socioeconomic status, parent-child relationship and family structure have a strong and stable correlation with children's development (Chen, Kong, Gao & Mo, 2018). In a study by Venetsanou & Kambas (2009), it was maintained that children's living conditions can act as significant influence on their motor development; a safe and opportunity-rich environment favors children's normal motor development. Since, children need assistance to grow into mature individuals, the family serves as the primary environmental factor in stimulating them to perform appropriate competencies according to their developmental stage. As further studies suggest and confirm a safe and opportunity-rich environment favors children's normal motor development; and the home environment are independently and positively predictive of children's cognitive development (Venetsanou & Kambas , 2009; Tong, et. al, 2007).

In summary, the children in this study demonstrated most of the gross motor and fine motor skills in the ECD checklist which mostly involves body movement, balance, coordination, flexibility, manipulation, strength, speed as children interact with things in their environment. The participants' cognitive competencies, on the other hand, are distinctive to sensory inputs and outputs and cognitive abilities. They are learning greatly from their experiences and their interaction with people from their environment. All four children have demonstrated most of the cognitive competencies in the corresponding age-group in the ECD checklist. Furthermore, findings show the development of children's psychomotor and cognitive competencies, although distinctive for each age group, occur simultaneously and interdependently, progressing in complexity as children increase in age.

Conclusions, Recommendations, and Limitations

The study was able to describe the psychomotor and cognitive competencies of four Filipino children (ages one to four) based on the ECCD (NELC) development standards/competencies that define expectations for Filipino children's behavior and performance across multiple dimensions of development. Although there were specific psychomotor and cognitive competencies that were identified but not defined in the ECCD standards, they were recognized as distinct to a child's social context. Relevant environmental stimulations, especially, from primary caregivers (e.g. parents) were recognized as important determinants of children's psychomotor and cognitive development. The psychomotor and cognitive competencies that (Filipino) children develop are defined within the context of their social environment.

Findings also conform with the well-accepted principles on child development which established that development and learning proceed at varying rates from each child, that children's development is a reflection of their experience and their environment (NAEYC,2009). This implies that when planning programs and early learning experiences for young children, individual and age appropriateness should be considered, and when understanding the development of children, one must consider looking into the child as a whole within the perspective of the child as a unique individual and as part of his/her environment.

While this multiple case study is limited to describing the psychomotor and cognitive competencies of four Filipino children (ages one to four) at a specific region in the Philippines, it is recommended that further researches may explore other domains of development and other socio-cultural perspectives of development utilizing quantitative and qualitative research methodologies, which could involve bigger groups of children in different regions of the Philippines in efforts to validate the Philippine Early Learning and Development Standards (PELDS) in the context of Filipino children in different social realities.

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Appendix A: Researcher-developed Developmental Checklist

Early Childhood Developmental Checklist

Source: Standards, Competencies and Indicators for the 0-To 4-Year Old Children, ECCD LRP no. 2, 2015

Psychomotor and Cognitive Competencies – Age ONE

Child's Name: (optional) _____

Name of Observer: _____

Home Language: _____

COMPETENCIES: Psychomotor	Observed	Not observed	Source	Remarks
Stands straight, with legs apart and arms extended for support and balance				
Crawls skillfully to reach furniture to hold onto for support to be able to stand independently				
Walks unassisted, but may fall often due to being unable to balance				
Seeks support or holds onto furniture to stand and abruptly fall back to a sitting position.				
Picks up objects and throws them (possibly repeatedly)				
Grabs or pulls and pushes toys while walking				
Tries to run despite difficulty and frequent falls				
Carries toys wherever				
Stacks two to four objects or toys				
Scribbles and colors without control using whole arm				
Holds spoon and fork but cannot feed himself/herself				
Starts to drink from glass without spill				
Imitates turning pages of a book				
Dances /sways/moves body to the music/rhythm				

COMPETENCIES: Cognitive	Observed	Not observed	Source	Remarks
Enjoys being read to				
Starts to become talkative, can name things he/she encounters everyday (at least 50 items/words in a year)				
Points to at least three parts of the body, like the head, eyes, hands, etc				
Points to familiar persons, things, animal/pet or, toy when asked				
Uses or says a word that indicates what he/she wants to do (example, 'me' which means 'I like!' a message that includes other activities that involves him/her – such as eating and going somewhere, etc)				
Uses two words to mean that he/she wants to eat or do something or a thing is his or her possession, etc. like "More, milk"				
Responds to simple questions with a nod for "Yes" or a shake of the head for "No"				
Enjoys hide and seek or a game for searching for a toy or something he/she wants, whether in one place (principle of object permanence) or elsewhere				
Discovers that his/her hands are extension of self				
Explores the environment with senses				
Enjoys looking at picture books				
Demonstrates understanding of the relationship of objects by putting them together according to use or function				
Demonstrates fun in filling -up and emptying containers				
Follows simple instructions				
Responds to own name				

Early Childhood Developmental Checklist

Source: Standards, Competencies and Indicators for the 0-To 4-Year Old Children, ECCD LRP no. 2, 2015

Psychomotor and Cognitive Competencies – Age TWO

Child's Name: _____

Name of Observer: _____

Home Language: _____

COMPETENCIES: Psychomotor	Observed	Not observed	Source	Remarks
Jump with one foot				
Throw a ball to playmates in any direction				
Play "bounce" and "catch" a ball				
Swing arms when walking				
Walk straight				
Walk in tiptoes in a short distance				
Run easily with the ability to stop quickly if necessary				
Jump with alternating feet with balance				
Build/Stack five to ten blocks / toys				
Draw line				
Begin to hold pencil, crayon, and other writing instruments comfortably with either the right and left hand				
Try to feed self using spoon and fork awkwardly with spillage				
Try to dress self with assistance / support				
Begin to show interest in using the toilet				

Continue to imitate simple songs and finger play movement				
Brush teeth / wash hands independently				
Pick up toys after playing				
COMPETENCIES: Cognitive	Observed	Not observed	Source	Remarks
Begin to show interest in printed page as well as pretends to read				
Ask questions like: "Where's Mommy?" "Who's that?" as well as tries to imitate and repeat words and phrases commonly heard				
Say own name and age, and names of people usually around him/her, pets, things and toys				
Tell things he/ she wants which the adult/s can easily understand				
Use words like " Don't like" and "No" about the things around him/ her that he/she/doesn't like				
Engage in conversation with an adult, responds if asked using familiar words				
Pretend that stuffed animals and dolls are imaginary friends and may name them				
Put together and arranges objects according to color, shapes, and functions like socks and shoes				
Recognize and tell the color and shape, name, and number of one to three objects				
Enjoy looking at books by himself /herself or with others				
Begin to relate familiar books to play experiences				
Hold large writing tools and marks with them				
Respond and follows two step directions like "Please get my shoes and give them to me"				
Sing part of songs, enjoys own music and noises and mimics or repeats sounds that are heard in the surroundings				
Begin to demonstrate behaviors that reflect self-concept like pointing and naming some body parts, expressing feelings in self and others, etc.				

Early Childhood Developmental Checklist

Source: Standards, Competencies and Indicators for the 0-To 4-Year Old Children, ECCD LRP no. 2, 2015

Psychomotor and Cognitive Competencies – Age THREE

Child's Name: (optional) _____

Name of Observer: _____

Home Language: _____

COMPETENCIES: Psychomotor	Observed	Not observed	Source	Remarks
Develop body balance and coordination while walking in forward or backward motion with equal spacing				
Use left and right leg/foot alternately in hopping with proper body balance and coordination				
Practice the correct and appropriate speed in running and making turns				
Practice hand, trunk and leg coordination in going up and down the stairs with railing.				
Practice coordination of large muscles in throwing a ball and hitting the target				
Practice challenging gross motor activities such as walking, running, and jumping on toes				
Use various and appropriate types of playground equipment such as slide, see-saw, and swing with proper guidance and support				
Develop large muscle coordination in performing movement patterns within a group such as dancing with music				
Develop coordination of fine muscles in performing simple motor tasks such as paper tearing, folding, crumpling, pasting				
Use fine muscle and eye-hand coordination in performing tasks such as inserting shoe laces in holes, tracing, connecting numbers/letters				
Develop fine muscle coordination in performing individual or group activity using manipulative tools or unstructured materials such as clay, sand, water, etc.				
Practice individual or group activity using fine motor skills for self-expression such as coloring, painting, building blocks, etc.				
Demonstrate progress in fine motor skills and eye-hand coordination <ul style="list-style-type: none"> • Draw straight and curved lines 				

<ul style="list-style-type: none"> • Color drawn pictures of objects, shapes, animals, etc. • Trace lines to form different shapes 				
Demonstrate progress in fine motor skills and eye-hand coordination by drawing without tracing, coloring within line-boundaries and cutting on-line boundaries				
Use correctly and with ease writing and drawing materials				
Develop fine motor skills and eye-hand coordination in the initial and correct handling and use of spoon and fork				
Demonstrate correct and proper self-feeding				
COMPETENCIES: Cognitive	Observed	Not observed	Source	Remarks
Demonstrate attention and modulation in age-expected levels of activities <ul style="list-style-type: none"> • Remain settled while leafing through a picture book for 5 minutes • Remain settled while listening to a story using picture books for 5 minutes • Sustain attention and concentration on a tabletop activity for 10 minutes • Work on school assignment with minimal supervision 				
Develop and demonstrate basic concepts pertaining to object constancy, space, time, quantity, seriation, etc. and use these as basis for understanding how materials are categorized in his/her environment <ul style="list-style-type: none"> • Tell which is prettier/nicer of 2 items based on his/her criteria • Group picture objects according to category • Tell which is left and right on himself/herself • Understand concept of conservation at a simple level • Understand the concept of number-quantity relations for 1-10 				
Demonstrate understanding in the cause-effect relationship <ul style="list-style-type: none"> • Understand reasons behind rules and practices in school • Understand reasons behind rules and practices in the community, like those pertaining to sanitation, environmental preservation, etc. 				
Demonstrate the ability to follow the logic of events and draw accurate conclusion by evaluating the facts presented to him <ul style="list-style-type: none"> • Tell what is silly or wrong with absurd pictured scenes 				

Early Childhood Developmental Checklist

Source: Standards, Competencies and Indicators for the 0-To 4-Year Old Children, ECCD LRP no. 2, 2015

Psychomotor and Cognitive Competencies – Age FOUR

Child's Name: (optional) _____

Name of Observer: _____

Home Language: _____

COMPETENCIES: Psychomotor	Observed	Not observed	Source	Remarks
Demonstrate forward and backward steps with equal spacing motion				
Practice new and challenging large muscle physical activity such as continuously jumping in backward motion from one to six times				
Practice body coordination while running and making turns with appropriate and correct speed and slowly stopping the movement upon signal				
Develop body coordination and exercise caution/practice safety rules in independently going up and down the stairs with railing				
Develop balance and coordination of large muscles in throwing a ball towards any direction, catching a ball from any direction and hitting a target				
Develop body balance and coordination of large muscles in performing movement patterns with rhythm in group such as dancing simple steps with music				
Demonstrate independence in starting group game/s with 3 to 5 players				
Use various and appropriate types of playground equipment with caution and care following the advice of an adult comp				
Develop fine motor skills in independently shoe lacing of worn or unworn shoes				
Practice fine motor skills in tying and untying appropriate strings or ropes				
Develop eye-hand coordination in tracing, drawing, coloring and cutting basic lines and shapes using age-appropriate materials such as pencil, crayon and a pair of scissors				
Utilize writing, drawing, cutting materials with proper caution and care				
Demonstrate progress in fine motor skills and eye-hand coordination by drawing without tracing, coloring within line-boundaries and cutting on-line boundaries				
Demonstrate fine motor activity for self-expression and social interaction using unstructured materials such as clay or play dough, sand, etc.				

Develop progress in eye-hand coordination in new and challenging activities such as pouring water from pitcher to glass, finger plays, pressing toy computer keys on a keyboard, etc.				
Practice habitually the use of fine motor skills and eye-hand coordination in keeping and maintaining self-cleanliness and proper hygiene before, during and after self-feeding				
COMPETENCIES: Cognitive	Observed	Not observed	Source	Remarks
Demonstrate attention and modulation in age-expected levels of activities <ul style="list-style-type: none"> • Sustain attention and concentration on a tabletop activity for 15-20 minutes • Work on school assignment with minimal supervision 				
Develop and demonstrate basic concepts pertaining to object constancy, space, time, quantity, <u>seriation</u> , etc. and use these as the basis for understanding how materials are categorized in his/her environment <ul style="list-style-type: none"> • Tell which is the left and right of people facing him/her • Know the difference between yesterday, today and tomorrow • Understand the concept of number-quantity relations for 1-20 • Demonstrate concept of addition using fingers or objects • Demonstrate concept of subtraction using fingers or objects 				
Demonstrate the ability to follow the logic of events and draw accurate conclusion by evaluating the facts presented to him/her <ul style="list-style-type: none"> • Know that certain elements remain the same even if their position change • Predict what will happen next in the story • Predict how a story will end half-way through 				
Plan and organize a simple, familiar activity <ul style="list-style-type: none"> • Plan how he/she will carry out an activity without adult guidance 				
Develop new ideas or concepts or new associations between existing ideas or concepts <ul style="list-style-type: none"> • Draw or paint things that do not exist in real life (i.e., from fantasy or imagination) 				
Demonstrate the ability to store verbal information in short and long term memory <ul style="list-style-type: none"> • Name/recite the days of the week with no errors • Name/recite the months of the year with some errors • Count 1 to 20 • Print numerals 0 to 20 				

Appendix B: Parents' Interview Guide

1. What are things that your child can do at his/her age?
 - a. Psychomotor
 - b. Cognitive

2. What are some observed skills that your child can do that are unusual for children his/her age?
 - a. Psychomotor
 - b. Cognitive

3. Why do you think your child is able to do this/these differently?