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Emerging Young Children's Thinking through Social and Cognitive Development in the Project Approach

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Abstract

Young children learn by interacting with their physical and social environments. The physical environment must be planned to invoke their curiosity and the social is to promote trust. The interaction often occurs as children explore their environment with their peers and/or with adults through social interactions. This paper presents and discusses a part of an action research on exploring young children's learning through the project approach at a private preschool. The objective of this paper is to illustrate the children's social and cognitive development as observed and as measured by the Assessment, Evaluation and Programming System (AEPS®). Six children aged five in one private preschool in Selangor were observed in this study and their interactions with peers and adults (teachers) were recorded. The findings illustrate that the children's cognitive ability or thinking emerged through the social interactions that took place while they were involved in the project work. This implies that the learning environment should be shaped or designed to allow abundant of social interactions to take place that will stimulate, encourage and eventually emerge deeper thinking skills among young children. It is therefore recommended that preschools should focus on developing young children's social skills to enhance their cognitive skills.

1. Introduction

Often, the aims of education are overshadowed by expectations of excellence in

academic achievement or performance; including at preschool education. Despite documenting that one of Malaysia's preschool objectives is to encourage comprehensive, integrated and balanced development of children via informal learning process (Ministry of Education, 2007), the opportunity for children to polish their social skills and promote cognitive or intellectual disposition is not fully entertained by the teachers in their teaching and learning process. It is vital that preschools' curriculums encourage the understanding of children's characteristics, expose children to a rich and stimulating environment and provide a variety of support materials for their learning (UNESCO, 2006). The first seven years of life need is to focus on integrating all domains of a child's development (Bredekamp & Copple, 1997). Brain research also suggests that early childhood learning experiences between 0 and 72 months are essential for the growth of their holistic development (Bredekamp, 2014). Besides, early education is an opportunity for children to become active and to create creative and critical thinking in exploring their learning environment (Mendoza & Katz, 2013). Meaningful and child-friendly learning can promote intellectual and social tendencies as opposed to the concentration of academic skills and knowledge alone (Helm & Katz, 2011).

This is in line with (Helm & Katz, 2011) project approach that attempts to enhance children's holistic learning development, specifically their social and intellectual disposition. Hence, the study reported in this paper aimed to explore young children's learning through the project approach at a private preschool. The objective of this paper is to illustrate the children's social and cognitive development as observed and as measured by the Assessment, Evaluation and Programming System (AEPS®). This paper therefore begins with literature on the concepts of social and cognitive domains and on the project approach. This is then followed by a description of the study and its methodological concerns. Then the findings are then presented as evidence of the young children's cognitive and social development; prior to the discussion and conclusion that illustrate how the young children's cognitive domain or thinking was enhanced through social interactions that took place in the project approach.

2. Literature Review

2.1. Promoting Social Domain in Supporting Young Children's Cognitive Ability

A child's development is holistic and interconnected between the cognitive, social, emotional and physical domains (Katz & Chard, 2000; Lindon, 2012). The development of each domain occurs simultaneously and affects each other (Berk, 2013). In particular, positive emotional and social development promotes intellectual trends, and guarantees optimum learning (Neaum, 2013; Snow, 2007). This growth depends on young children's access to the kinds of social interactions, experiences and environment that support them (Thompson & Thompson, 2007). Meaning, a poorly planned environment may result in restriction of

children's learning development (Robson, 2004).

Therefore, the physical environment of learning space should be planned based on the needs of children's development. For example, space for children to do solo and group activities; space that facilitates children to pick up equipment; space that enhances aesthetic appeal and comfort; space that stimulates children's curiosity; and space that stimulates children's brain development (MacNaughton & Williams, 2009). Planned physical space allows children to move and leverage their learning process in the context of the preschool environment itself (McLachlan, Fleer, & Edwards, 2013). In addition, planned environment encourages children to build their own social interaction relationships (MacNaughton, & Williams, G., 2009). A child-centered learning environment also increases motivation, reduces stress and increases problem solving and language skills of young children (Daniels & Shumow, 2003).

According to Nutbrown (2006), the nerves of the brain need to be stimulated during childhood. This is because the human brain grows rapidly under 6 years of age (Johnson, 2005; Keenan & Evans, 2009). The constructivist Jean Piaget explains that children build their understanding through schema. The schema is a process for clarifying ideas through acts, whether mental or physical, and organizing knowledge to give meaning to their experiences; where activities such as categorizing and comparing objects allow for systematic thinking (Lindon, 2012; Berk, 2013; Bilton, 2004; Gordon & Browne, 2011). This process involves the adaptation process—transition from sensorimotor to mental representations.

In general, cognitive development is the construction of thinking, problem solving and decision-making. Piaget (cited in (Pound, 2008a)) also identified four stages of the development, namely: sensorimotor stage, preoperational stage, concrete operational stage and formal operations stage. The sensorimotor stage is the first two years of a child's life, when babies knowledge and understanding are drawn from their senses of sight, sound, taste, touch and smell (Pound, 2008a; Oates, Sheehy, & Wood, 2005). The second stage is preoperational, where children age two to seven learn objects through play and observation (Oates, Sheehy, & Wood, 2005). In the third stage that is concrete operational, children from age seven to eleven would develop their logical thinking at which they are emphasizing classification or categorization by similarity and differences (Pound, 2008a; Pound, 2008b). Formal operation stage is the last stage where it begins at the age of twelve and continues into adulthood. At this stage, children are able to make hypotheses and see the implications of their thinking (Pound, 2008a; Oates, Sheehy, & Wood, 2005).

These stages require children to learn by actively interacting with the environment and involvement of the holistic domains of development. According to (Wood & Attfield, 2005), characteristics of children's play such as exploration, investigation, making and testing hypotheses and taking risks would help to improve children cognitive development. Encouraging and supporting problem solving in play and inquiry, as well as engaging learning environment can chal-

lenge the creative thinking of children (Taggart, Ridley, Rudd, & Benefield, 2005). Children's learning activities should also stimulate high-level thinking, and provide an emotionally comfortable environment for learning to be effective (Rushton, 2011; Rushton, Rushton-Juola, & Larkin, 2009).

Like Piaget, Vygotsky also stated that children are always active in building knowledge and understanding. However, the difference between Piaget's theory and Vygotsky is, Vygotsky believed in the influence of social and language interactions in the development of cognitive development. Vygotsky also pointed out that most children's learning take place during play (Lindon, 2012; Gordon, & Browne, 2011). Through play children are able to interact in social groups and develop their language and knowledge. The development of children's language also leads to a great change in their thinking (Pound, 2008a). In particular, when they are engaged in social dialogues with more knowledgeable individuals. As a result, the process of basic thinking of children will turn into a high cognitive process (Berk, 2013; Moore, 2012). Children also strive to achieve a good and beneficial life in adulthood (Bredekamp, 2014; Aubrey, Ghent, & Kanira, 2012). These indicate that there is a need to create an environment that would encourage social and cognitive development. A teaching approach that may create this was introduced in the Project Approach (Katz, 1993).

2.2. The Project Approach

The Project Approach introduced the project work term for children to study in depth on a topic in a small group similar to that of Reggio Emilia's Approach. This term is used as a learning activity in The Project Approach. Katz & Chard (2000) and Mendoza & Katz (2013) suggested that project work is a curriculum centre where a group of children or individuals undergo a thorough exploration of something specific. Project work is designed to help children experience and deepen their senses in detail through events and phenomena in their own environments (Katz, 1993). A study by Li (2010) suggests that project work learning allows children learn to understand their roles and be independent during the learning process. Li also stated that children can explore and build knowledge when they seek information to meet the needs of their learning. This implies the adaptation process that children do.

In addition, the process of learning through project work helps to shape children's skills in terms of cognitive aspect of analysis, synthesis and evaluation. Activities involving projects as proposed by Katz & Chard (2000) are collecting information from direct observations, interviews with related experts, experiments on topics of interest to projects, collecting artefacts and visual presentation and verbal reports as a result of the project. Through such activities, children can apply their investigative skills, record and report on the results of their learning or "research". Project work also develops children's social competence through opportunities to talk, work and play together with people (Katz, Chard, & Kogan, 2014). Indirectly children are actively involved in the process of learning through real phenomena in their own environment.

Meanwhile, Boyer & Ruth (2006) stated that teaching has the "emergent" nature that results through interaction with individuals, tools, and reflections; where it acts as a topic and learning resource. Schwartz & Copeland (2010) describes the concept of emergent curriculum as two curriculum modules with an equality of curriculum goals. The difference of each curriculum depends on theoretical view on the development of early childhood learning that designs a program. The skill-based, action-based and child-centred curriculum approaches, has a common goal (Goffin & Wilson, 2001). That is driving the interest of the children themselves for the development of their learning progress (Schwartz & Copeland, 2010).

The action-based curriculum module covers the development of socio-emotional, cognitive and physical development of children. The strength of this approach is to foster children's learning through their own efforts (Schwartz & Copeland, 2010). Some action-based learning standards are outlined by Schwartz & Copeland (2010). Among them is that when children choose their own interests, they gain knowledge and improve their skills. Similarly, the knowledge of children and the use of academic skills can be extended through a set of interrelated activities. Typical program of this curriculum module is Reggio Emilia's early childhood program and The Project Approach (Edwards, Gandini, & Forman, 1993).

3. Methodology

As introduced, the objective of this study was to illustrate children's social and cognitive development as observed and as measured by the Assessment, Evaluation and Programming System (AEPS®). Hence, an Action Research (AR) research method was employed to reach in-depth understanding of situation and to formulate effective solutions to the problems (Stringer, 2004) as AR allows obtaining findings that are open to criticism and modifications for improvement (McNiff & Whitehead, 2011). In the context of this study, improvements were being developed to enhance children's social development towards supporting their cognitive ability. Meanwhile, the AEPS® is a curriculum-based assessment system that includes the activity-based holistic child-development criteria and contains several suggestions related to goals and objectives (Bricker, 2002).

3.1. Assessment, Evaluation and Programming System (AEPS®)

The instrument employed to observe and measure the children's social and cognitive domains was the AEPS® checklist. It consists of the social domain measurement involving four (4) Strands (Interaction with others, Participation, Interaction with environment and Knowledge of self and others), 11 Goals and 36 Objectives; while the cognitive domain involves eight (8) Strands (Concepts, Categorizing, Sequencing, Recalling events, Problem solving, Play, Premath and Phonological awareness and emergent reading), 17 Goals and 37 Objectives. The Strands, Goals, and Objectives of the domains are organized according to the

criteria from easy to difficult. The Goals and Objectives are related in terms of being parts of a whole and are organized in a developmental hierarchy (Bricker, 2002). For scoring purpose, the Goals and Objectives criteria were given numerical scores 0, 1 and 2 (Bricker, 2002); that is, 0 = the child not yet, not expected, does not meet the criteria, 1 = the child with assistance, inconsistently meets part of the criteria and 2 = the child independently, consistently, meets the criteria.

3.2. Preschoolers

The observation involved six (6) preschoolers age 5 years old from one private early childhood center in Bangi, Selangor Malaysia. They were purposively chosen as they have different early childhood learning backgrounds. At the time of the study, the: three boys (labeled as C1, C2 and C3) had followed the process of teaching and learning of the early childhood center since they were three years old; a girl (C5) had been learning at the early childhood center since the age four; a girl (C4) had been learning at another kindergarten before joining the current early childhood center; and a girl (C6) who had been under the care of her family members (grandmother and uncle) at home and had never followed any formal early childhood programs in the center.

3.3. Observation

The observation of the children's social and cognitive domains was carried out in a naturalistic environment for three months (January, March and June 2016). The routine of teaching and learning process at the early childhood center and children's activities were not interrupted to ensure that data collected from observations are authentic and reliable in order to identify the improvement of children's social and cognitive domain within the naturalistic environment setting as recommended by Yunus (2014). Data gathered from the observations were scored in the Social and Cognitive Data Recording form AEPS® for each child. The scores were then analyzed using descriptive statistic and interpreted through critical reflection.

4. Findings

The first observation was carried out in January 2016 to record the children's social skills. As January was the first month of the preschool session and teachers were busy welcoming new children (C4, C6), some of the children were not yet adapted with the early childhood setting. The return children (C1, C2, C3, C5) were also taking their time in socializing with the new peers, particularly in participation of learning activities where they need to cooperate and work in groups. Often, the children C1, C2 and C3 were grouping among themselves and rarely seen to have a conversation with children C4 and C6. In spite of that, children C1, C2 and C3 had made good teamwork and talking about various topics from time to time between them. They also actively involved in giving ideas for their project work, especially children C2 and C3 as their curiosity of-

ten been observed through the various questions until they get the answers. However, children C1 have made an interaction when he was asked and during the recess. He also was seen to be a listener and following his peers guide and instructions for their project works.

Contrary to C1, child C4 always led in conversation and involved herself in grouping children C5 and C6. This could be because children C4 was friendly and had been to other early childhood centre, in comparison to children C6 who was a first timer in early childhood setting. Children C6 was a very quiet little girl, where she only talked to teacher when she was asked and had little interaction with her peers. She always waited for teacher to assist her with the project works. Although children C4 was friendly and talkative with her peers, but she needed teacher assistance to guide her with the learning. While children C5 was a return child and used to the setting, yet she was always either doing things on her own or following her peers. She sometimes gives ideas and suggestions of her project work. Figure 1 shows the children first score of their social and cognitive domains in AEPS®.

The second observation conducted in March found that there was a slight increase in scoring for all children in all the Strands stated in the AEPS® observation form. In particular children C6 who showed an encouraging improvement for social and cognitive domain. Meanwhile, children C1, C2 C3 and C5 showed a consistent improvement for social and particularly cognitive domain. The increasing score of cognitive domain in comparison to social domain, resulted from the emergent teaching and learning process via project work, which requires children to always discover and explore their learning with various tools and sources. To achieve this, children had to actively participate, cooperate and interact with peers, teachers and environment. However, it is contradicted with children C4, her social skills were impressive compared to her cognitive ability. Yet, her cognitive domain is consistently improving since January. Figure 2 shows the observation score for March.

The final observation in June 2016 showed consistent improvement for all children in both social and cognitive domain (see Figure 3). Children C2, C3 and C5 had high scores their cognitive domain compared to social domain. Whereas children C4 and C6 had developed their social skills better in supporting their cognitive ability, which showed consistent improvement from previous observation. Meanwhile, children C1 showed a stability in social and cognitive development, with both skills supporting each other. The improvement in the domains from the three (3) observations were consistent.

In conclusion of the findings, the first observation saw that children's social domain was more dominant than their cognitive. With consistent implementation of the project work as a learning process, social skills were seen as the supporting development in enhancing children's cognitive ability. The final scoring showed that cognitive domain was more domain than social. These results show that developmental domains are actually interrelated and that is to say that children's holistic development is a must for learning to occur.
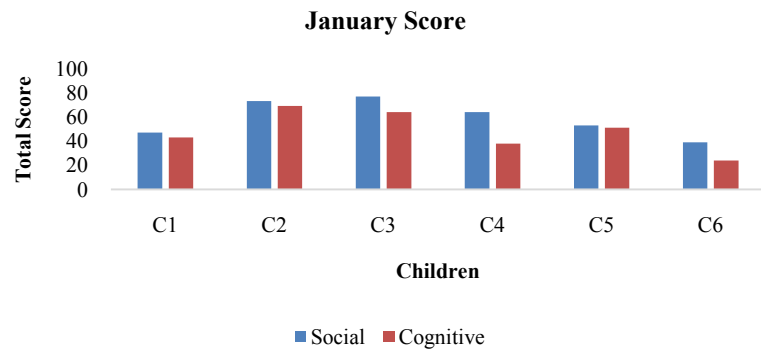
January Score

Figure 1. Social and cognitive domain score in January 2016.

March Score
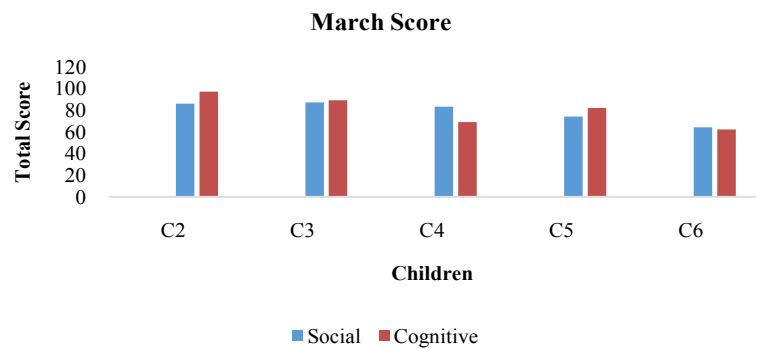
Figure 2. Social and cognitive domain score in March 2016.

June Score
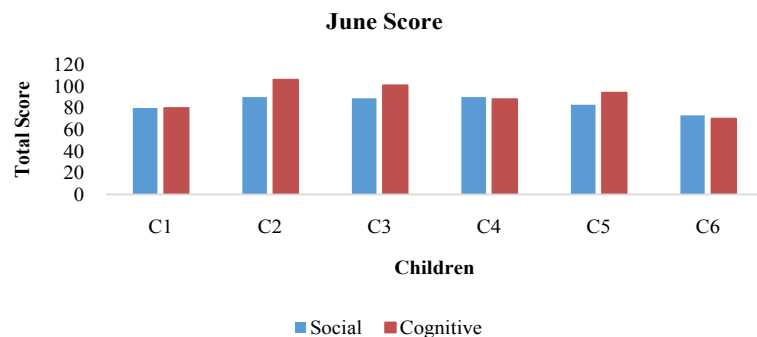
Figure 3. Social and cognitive domain score in June 2016.

5. Discussion and Conclusion

The study began with the belief that early stimulation of social skills is able to boost children's cognitive ability. In order to ensure that, children have to be exposed to the encouraging learning environment as provided in a project approach; where these young children experienced the opportunity to express their opinions and ideas towards as the actively participate in the learning process. As discussed in the literature, involving the children in projects allowed the children to analyze, synthesize and evaluate information and then present or report what they have gathered from observing, interviewing, experimenting, reporting and presenting (Katz, & Chard, 2000; Li, 2010). Basically, providing an environment, in this case a learning environment through doing projects will allow

the children to explore and do things which will eventually develop their cognitive ability as they communicate and interact and in solving any issues while doing the project. An important aspect to be raised from the findings of this study is a developmental process of social and cognitive growth. It reflects the "emergent" notion that one thing leads to another; the interrelatedness of domains in children's growth.

Hence, terms like "intellectual disposition, higher order thinking skills (HOTS) and cognitive ability" should not to be misinterpreted by early childhood teachers. That, when it is misinterpreted, teachers tend to think that in order for them to prepare young children to attend primary school, they need to provide young children ready to read, write and do arithmetic on worksheets. The emergent teaching and learning process stimulate holistic development of children, especially cognitive and social developments as witnessed in this study. The study illustrates that despite not achieving high level skills, children were able to express ideas, opinions and suggestions during the teaching and learning process in the setting. At times, children may also think of solutions to problems that teachers do not think that is "thinking out of the box". As described by Piaget, children build their understanding through building their schema. Schema is a process for describing and organizing knowledge or ideas to give meaning to an experience. Therefore, providing early stimulation of cognitive development will make it easier for children to develop their schema in order to achieve high-level thinking through enhancement of social skills; as avail in a project approach.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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