Examine the Short-Term Effects on Child Development in Early Childhood Education and Care Centres: Social, Emotional, Physical, Language and Self-management Development

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***Abstract*—**A national early childhood education and care programme known as Permata Negara (literally translated as 'National Gems') was carried out under the patronage of Malaysian First Lady, Datin Seri Rosmah Mansor since 2007. This study was carried out in Johor state, one of the 13 states in Malaysia, involving 45 centres to assess the development of children within age 1 to 4 years old in five developmental aspects, namely social, emotional, physical, language, and self-management. Observation based on check list of Monitoring and Evaluation Program National PERMATA 2010 developed by the evaluation committee headed by Prof. Dato' Dr. Aminah Ayob was used to obtain the quantitative data in two assessments within a three-month period in early October and at the end of December 2010. All age groups showed encouraging development in the aspects studied. Five results provide a better understanding on the performance and assessment of children in the PERMATA nursery in Malaysia thus implying the positive results of this noble project in moulding children to be smart and emotionally mature citizens in future. It is suggested that more research needs to be carried out especially in longitudinal perspectives to provide a better measurement of the success of this project.

***Keywords*—** Early Childhood Education, PERMATA, Social Development, Emotional Development, Physical Development, Language Development, Self-management Development

I. Introduction

THE PERMATA Early childhood Education and Care (ECEC) program in Malaysia was first proposed by Datin Paduka Seri Rosmah Mansor, the First Lady of Malaysia and was allocated the first grant of RM20 million by the Cabinet on 21 June 2006. This program adopts the community-based integrated approach practiced by Pen Green Corby, United Kingdom under the Surestart Programme. The importance of early childhood experiences and education were well documented and were found to be associated with the future learning, development, achievement and performance [1]-[5].

Themed "Every Child a Jewel" (Setiap Anak Permata), the aim of Permata ECEC centres is to raise the standard and quality of childhood education and care for the children below five years old, which will focus on children living in rural areas from low-income or disadvantaged families including ethnic minorities. The founding principles of PERMATA program are (i) Every child is a jewel for the country; (ii) Every child is precious; (iii) Every child is a part of the human capital of the country; (iv) Every child needs the best education; (v) Education must start from young/birth; (vi) The first 3 years is crucial for development of the child. The centres aim to provide high quality and multi services of early childhood care and education, which includes parenting course, counseling, health care services, speech therapy, nutritionists, etc. Children in the centres are encouraged to explore and learn on their own mode, which is to foster multiple abilities, such as creativity and innovation [6]. Teachers in PERMATA centres are all trained systematically and get the opportunity to be educated regularly.

At the opening ceremony of the International Conference on Early Childhood and Special Education at Universiti Sains Malaysia, Datin Seri Rosmah Mansor said "Just after a year of operation, a study by Universtiy Pendidikan Sultan Idris revealed that Permata children are one to two years ahead of their peers in cognitive, social and emotional development." [7]. A total of 457 Permata ECEC centres was established until October 2009, which successfully nurtured 17,565 children [8]. Johor as one of the highly developed states in Malaysia also have built and applied this positive programme. The effect of this early childhood programme is encouraged to be examined. This study is mainly focused on observing the five aspects (social, emotional, physical, language and self-management development) of development on children nurtured in Permata ECEC centres in Johor.

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II. LITERATURE REVIEW

The development of individual is rapid and unbalanced in the early childhood which usually refers to the child from birth to the age of six. The progress on brain development is especially great. The brain of a new born baby is only about one-quarter of adult. It can be 80% of the adult's size at the age of 2 and 90% at the age of 5 [9]. The child development of this study includes social, emotional, physical, language, and self-management development.

"Critical periods" usually refers to a specific time to acquire or learn skills rapidly during development [10]. As the previous studies found that most "critical periods" were in the early childhood period, such as language, social emotional responsiveness [11], [12]. The quality of early childhood education is important beside natural child development in various aspects.

Current educators tried to add new component based on the traditional early childhood programme, such as computer. Some found the positive effect of computer aided instruction on early childhood education [13]. Musical and instrumental education were also well studied and found its facilitation on child's psychic processes and psychomotor characteristics, which may assist early childhood education [14], [15]. Developing new education approach and method are based on the child development theories and literatures. The new found on the characteristics of child development usually lead to establish new education approach or improve the traditional education.

There are ample literatures on child development. Most researches in early days mainly concentrated on the cognitive aspect of early childhood development. Recently, more and more researchers are starting to be concerned on the social and emotional development of children. The importance of these two developmental aspects were confirmed by numerous previous researches, which found that peer, teacher-child relationship, and anti-social disorders were related to future problems, such as behavior and peer relationships [16]–[19].

Social development refers to the ability of young children to interact and sustain relationships with others, including parents, siblings, peers, teachers, and other adults. Emotional development refers not to relationships but to children's feelings about themselves and others. It includes such characteristics as self-control, self-efficacy (i.e. the sense of being able to affect events), and the ability to properly interpret the emotions of others [20].It includes abilities to control emotion, social skills, and self-confidence [21]. Early development of these abilities is crucial for child development [22].

The curriculum studies to improve the competence of these two aspects (social and emotional) are increasing and have achieved some positive results. Krammer, Caldarella, Christensen, and Shatzer (2010) who examined the effect of "Strong Star" lessons showed decreases in internalizing behaviour [23]. A study focused on emotional regulation skills reported that there were positive relationships between child's emotion regulation and academic success, early literacy and math achievement scores [24]. The positive changes in the children's behaviors were found to be related to the social skills curriculum [25]. Schultz et al. (2011) also found the significant influence of social skills curriculum "Connecting with Others: Lessons for Teaching Social and Emotional Competence" on children's behaviors change [26].

Physical development is the most easily observed aspect in children's development and develops especially fast in the early childhood stage. It includes various aspects, e.g. height, weight, muscle, bone, and motor skills. In general concept, the physical development and health in early childhood period was more related to nutrient type[27].But physical activity as an education strategy was also associated with the physical health (overweight) [28], [29], as well as other developmental aspects [30]. Children who are overweight have more risk on physical health such as bone, joint problems, sleep apnea; social and psychological problems (e.g. poor self-esteem) compared with normal weight ones. The prevalence of children in the overweight category has been increasing in the past 30 years [31]. Hence, it is important to develop appropriate early childhood physical activities, as well as a conducive environment in order to nurture a child's health and other development aspects [32], [33].

Language is defined as "a socially shared code or conventional system for representing concepts through the use of arbitrary symbols and rule-governed combinations of those symbols". It can be divided into five components – syntax, morphology, phonology, semantics, and pragmatics [34]. Language development in early childhood period is quite rapid. Typically developing children begin to communicate intentionally during the eighth month of the first year. They communicate using symbol, such as words around 12 to 18 months and acquire about 10,000 vocabulary words from birth to five years old [35]. Language learning is important during early childhood, which may affect the future school success and other development aspects such as social development [36], [37], [38]. Families and schools are two critical developmental systems influencing children's language learning [36]. The positive influence of daycare center on child language learning has been well documented [39]-[41]. Bond and Wasik (2009) indicated that oral language knowledge helps facilitate academic growth in all learning areas [42]. Storytelling and reading were another useful strategy on oral language [43]. Appropriate music application in daily education setting was thought to provide positive learning environment where children studied more effieinctly on reading and writing [44].

Zimmerman (1990) indicated that self-management requires the ability to apply learning principles to control and change one's own learning, attitude and behaviors by the higher order decision-making process of accepting the responsibility and the academic imperative [45]. Self-management in this study involved the ability to recognize and monitor one's own behavior and organizational methods. In the early childhood period, self-management development is more related to self-help skills and appropriate behavior. Self-help

development includes learning the skills needed to function independently in society, such as dressing, bathing, and feeding, wash hands, brush teeth, toileting, buttoning / unbuttoning buttons grooming. Basic skills to take care of one's own needs and daily life

III. Objectives

This study is aimed to examine and observe the five aspects of children's development (social, emotional, physical, language and self-management) in Johor Permata ECEC centres from October to December; identify and monitor the short-term effect of child natural development and The PERMATA Early childhood Education and Care (ECEC) program on the five aspects of child development including social, emotional, physical, language and self-management development.

IV. Method

A. Subjects

This is a short-term longitudinal study which conducted two assessments over three month period (October to December). A total of 180 children from 45 Permata Early Childhood Education centers in Johor were selected to participate in this study. The subjects in this study were divided into three age groups - 1-2 years old, 2-3 years old, and 3-4 years old. The data and subjects were provided by the Permata Early Childhood Education centers in Johor.

B. Measure

The observation check list of Monitoring and Evaluation Program National PERMATA 2010 developed by the evaluation committee headed by Prof. Dato' Dr. Aminah Ayob was applied to examine five aspects of development in children which is social, emotional, physical, language and self-management development. The first assessment on five child development was conducted in the early October 2010. The second assessment using the same observation checklist as the first assessment was carried out in the end of December 2010.

V. Results

A. Social development

As shown in table 1, there are 52% of children (1-2 years old) achieved good level in the first assessment on social development (in October), 39.11% of children are in average level, and 8.89% of children are in weak level. The second assessment in December showed that the percentage of children in good level was increased to 60%, and the percentages of children in average and weak level were decreased accordingly. It implied that there are 8% of children which were in average or weak level of social development in October, progressed into good level in December.

The similar tendency was found in both 2 to 3 and 3 to 4 years old groups. In 2-3 years old group, the percentage of children in good level of social development was increased to 56.28% in December, which was 50.51% in October.

There are 72.5% of children in good level of social development in 3 to 4 years old group in October. It was increased to 78.13% in December

The descriptive analysis showed the increased number of children in good level of social development from October to December in all three age groups. But the further analysis using chi square did not found the significant difference on the percentage of children in three level of social development between the assessment in October and December (1-2 years: X^2 =2.62, P=0.27; 2-3 years: X^2 =1.55, P=0.46; 3-4 years: X^2 =0.89, P=0.64), which could not conclude that the increment of children progressed into the good level of social development was either due to their natural development by time or the effect of early childhood programme (table 1).

Table 1. Percentage distribution of three-level on social development for three age groups

	Good	Average (%)	Weak	X^2	P
1-2 years (October)	52.00	39.11	8.89	2.62	0.27
1-2 years (December)	60.00	35.56	4.44		
2-3 years (October)	50.51	37.05	12.44	1.55	0.46
2-3 years (December)	56.28	36.54	7.18		
3-4 years (October)	72.50	23.57	3.93	0.89	0.64
3-4 years (December)	78.13	18.84	3.04		

B. Emotional Development

For the emotional development, a total of 47.30% of children in the age 1 to 2 years old in good level in October (first assessment), it was increased to 55.24% in December (second assessment) as shown in table 2.

For 2-3 years old group, the percentage of children in good level of emotional development was 59.83% in October, which was increased to 64.62% in December.

For 3-4 years old group, there were 68.19% of children in good level of emotional development in October. The percentage of children in good level was increased and achieved 74.38% in December.

The descriptive analysis above presented the increased number of children in good level and decreased number of children in average and weak level towards to emotional development from October to December in all three age groups.

But the inferential analysis using chi square did not found the significant difference on the percentage of children in three level of emotional development between the assessment in October and December(1-2 years: X^2 =1.52, P=0.47; 2-3 years: X^2 =0.74, P=0.69; 3-4 years: X^2 =0.74, P=0.69), which could not conclude that the increment of children progressed into the good level of emotional development was either due to their natural development by time or the effect of early childhood programme (table 2).

Table 2. Percentage distribution of three-level on emotional development for three age groups

	Good	Average (%)	Weak	X^2	P
1-2 years (October)	47.30	38.41	14.29	1.52	0.47
1-2 years (December)	55.24	34.29	10.48		
2-3 years (October)	59.83	34.19	5.98	0.74	0.69
2-3 years (December)	64.62	30.94	4.44		
3-4 years (October)	68.19	28.48	3.33	0.74	0.69
3-4 years (December)	74.38	22.95	2.67		

C. Physical Development

Table 3 shows the physical development of three age groups. For children in 1 to 2 years old group, a total of 67.6% of children achieved good level at the first assessment in October. The percentage of children in good level was increased to 72.98 at the second assessment in December.

For the 2 to 3 years old group, there were 59.83% of children achieved good level at the first assessment (October), while the percentage of children in good level of physical development became 64.62% at the second assessment (December).

At the first assessment on physical development in October, there were 68.19% of children in the age of 3 to 4 years old achieved good level. It was increased to 74.38% at the second assessment in December.

The increased tendency of children in good level of physical development from October to December was found in all three age groups. The increment of three age groups was 5.38% for 1 to 2 years group, 4.79% for 2 to 3 years group and 6. 19% for 3 to 4 years group respectively. But the result of chi square test showed that there was no significant difference on the percentage of children in three level of physical development between the assessment in October and December (1-2 years: X^2 =2.10, P=0.35; 2-3 years: X^2 =0.74, P=0.69; 3-4 years: X^2 =0.74, P=0.69) (table 3). It implied that the increased number of children progressed into good level may be related to two assessments by chance, not related to the effect of early childhood programme (Permata) or their development in nature along time.

Table 3. Percentage distribution of three-level on physical development for three age groups

	Good	Average (%)	Weak	X^2	P
1-2 years (October)	67.60	23.27	9.12	2.10	0.35
1-2 years (December)	72.98	22.92	4.09		
2-3 years (October)	59.83	34.19	5.98	0.74	0.69
2-3 years (December)	64.62	30.94	4.44		
3-4 years (October)	68.19	28.48	3.33	0.74	0.69
3-4 years (December)	74.38	22.95	2.67		

D. Languages Development

As shown in table 4, a total of 52% of children (1-2 years old) achieved good level at the first assessment on language development (in October), while the second assessment in December showed 65.78% of children achieved good level.

For the children in 2 to 3 years old group, the percentage of children in good level of language development was 54.70% at the first assessment in October and increased to 61.54% at the second assessment in December.

For children in 3 to 4 years old group, there are 74.52% of children in good level at the first assessment in October. It was increased to 80% at the second assessment in December.

The increment of children progressed into good level of language development from October to December was 9.56% for 1 to 2 years group, 6.84% for 2 to 3 years group, and 5.48% for 3 to 4 years group respectively. Although the increased tendency of children in good level and decreased tendency of children in average and weak level in the three age groups was consistent, the chi square test did not found any significant difference on the percentage of children in three levels of language development between the assessment in October and December (1-2 years: X^2 =1.88, P=0.39; 2-3 years: X^2 =1.55, P=0.46; 3-4 years: X^2 =1.22, P=0.45), which could not conclude that the increment of children progressed into the good level of language development was either due to their natural development along time or the effect of early childhood programme (table 4).

Table 4. Percentage distribution of three-level on language development for three age groups

	Good	Average	Weak	X^2	P
		(%)			
1-2 years (October)	56.22	35.33	8.44	1.88	0.39
1-2 years (December)	65.78	28.22	6.00		
2-3 years (October)	54.70	34.53	10.77	1.55	0.46
2-3 years (December)	61.54	31.11	7.35		
3-4 years (October)	74.52	21.79	3.69	1.22	0.54
3-4 years (December)	80.00	17.74	2.26		

Table 5. Percentage distribution of three-level on self-management development for three age groups

	Good	Average	Weak	X^2	P
		(%)			
1-2 years (October)	43.78	38.00	18.22	2.37	0.31
1-2 years (December)	52.22	36.89	10.89		
2-3 years (October)	68.89	23.08	8.03	0.27	0.88
2-3 years (December)	72.82	20.68	6.50		
3-4 years (October)	87.02	10.99	1.98	0.05	0.97
3-4 years (December)	88.33	9.68	1.98		

E. Self-management Development

Table 5 showed the percentage distribution on three-level of self-management development. There were 43.78% of children (1 to 2 years group) achieved good level of self-management development at the first assessment in October, and 52.22% of children at the second assessment in December.

For the 2 to 3 years group, the percentage of children in the good level of self-management development was 68.89% at the first assessment in October and increased to 72.82% at the second assessment in December.

For the children in 3 to 4 years group at the first assessment in October, the percentage of children in the good level of self-management development was 87.02%. It was increased to 88.33% at the second assessment in December.

The descriptive analysis showed that the increment of children progressed into good level of self-management development from October to December was 8.44% for 1 to 2 years group, 3.93% for 2 to 3 years group, and 1.31% for 3 to 4 years group respectively. But the result of chi square test indicated that there was no significant difference on the percentage of children in three levels of self-management development between the assessment in October and December (1-2 years: X^2 =2.37, P=0.31; 2-3 years: X^2 =0.27, P=0.88; 3-4 years: X^2 =0.05, P=0.97) (table 5). . It implicated that the increased number of children progressed into the good level of self-management may associated with the two assessment by chance, not related to their development in nature along time or the effect of the early childhood programme.

VI. Discussion

This is a short-term longitudinal study which was carried out in Permata Early Childhood Education centers in Johor. It aimed to monitor the development status of children in Permata education centers, as well as the quality of the PERMATA early childhood education and care programme. The descriptive analysis of this study was consistent in all the three age groups regarding to the five aspects of child development, which showed the increasing number of children in good level from October to December. It implied that children in average or weak level in October progressed into good level in December. But the chi square test did not achieve the significant level in all three groups, which could not conclude that the children's progress was related to their nature development by the time or the effect of early education programme.

Although the inferential analysis above did not present the significant effect, it cannot deny the increasing tendency in good level among all the three age groups toward to the five child development aspects (social, emotional, physical, language and self-management) by the time.

The nonsignificant inferential result found in this study may first due to the short time effect. Although the child development in the first three years is rapid, the huge or significant change among children is still difficult to be observed by the three months period. The study conducted by Universtiy Pendidikan Sultan Idris which lasted one year and found that Permata children were one to two years ahead of their peers in cognitive, social and emotional development [7]. The data of this study was only one part of this PERMATA project in Johor state, which reported the partial progress and short-term effect of education.

Second, is related to the statistical method applied in this study. This study utilized percentage to describe the frequency

and distribution of children in three developmental level (good, average, weak). The non-parametric test of Chi square was applied to test the different distribution of children in three levels, which is usually not sensitive and powerful. .

VII. Conclusion And Future Study

This short-term longitudinal study showed a consistent positive tendency to improve among three groups of children in the 1-2, 2-3, and 3-4 years old age groups under the PERMATA early childhood education program . The results showed that this program helped the children in average and weak level progressed into good level of all five developmental aspects measured which are social, emotional and physical, language and self-management developments.

This observation study only provided the frequency of children in each of the three developmental levels – good, average and weak. The performance of children and a performance comparison group are suggested to be included in the future studies. More samples and longer term observations should be introduced in the future studies. A qualitative study is suggested to identify the positive factors influencing child development resulting from the PERMATA education curriculum.

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