



## Research Article

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# Development of Creation of Executive Function-EF Model for Preschool Children through the Participation Process of the School under Suan Dusit University's Network

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### Abstract

*The objectives of this research were to create the trial and develop the creation of Executive Function-EF Model. The research consisted of 3 procedures, which were 1) The formation of sample, which was teachers and parents from the school under Suan Dusit University's Network; 2) The trial of sample, which was children between 3-5 years old from 6 schools under Suan Dusit University's Network; and 3) The development of key informants, which were the Executive Function-EF Model specialists in terms of measurement and evaluation and early childhood education, including the representatives of teacher, administrator, and parents from the school under Suan Dusit University's Network. The content analysis was used in the qualitative data analysis. The average, standard deviation, and dependent t-test were used in the quantitative data analysis. The research results found that 1. The creation of Executive Function-EF Model consisted of 4 components, which were principle, objective, learning process, and evaluation; 2. The trial result of the creation of Executive Function-EF Model was that the development of creation of Executive Function-EF Model of preschool children in the overall image and each aspect after using the model was higher than before using the model with the statistically significance level of .001 and 3. The result of the development of creation of Executive Function-EF Model was that the creation of Executive Function-EF Model that was developed was suitable to be used and had the possibility to be put into practice in a high level.*

**Keywords:** Creation of Executive Function-EF Model, preschool children, participation process

## 1. Introduction

According to the monitoring of condition of Thai children and youth from Child Watch Program of Child and Adolescent Mental Health Rajanagarindra Institute and Health Intervention and Technology Assessment Program of the Office of the Narcotics Control Board (ONCB), it was found that our children and youth were said to be in a crisis. Suphawadi Hanmethi (2016:4-6) had collected the data about the condition of Thai children as follows: 1) In children of age 1-3 years old, 25% of them had premature development. For children of age 4-5 years old, 42% of them had premature development. The preschool children of up to 30% had delayed development, especially in terms of language; 2) In school age children (6-12 years old), 28% of them had intellectual status of lower than the average at 90; 3) The IQ of Thai children was in the average of 98.6 (lower than the international standard in modern times at IQ=100) and 48% of them had the intellectual status in the low level; 4) Thai teenagers chatted for 166 minutes per day, was on the Internet for 198 minutes per day, addicted to games for 13.1% and 15.2% of them was in the obsessive level, which was 2,500,000 persons. Children played games for 3.1 hours per day and 30% of them skipped class regularly; 5) For teenagers, 20% of them smoked and 25% of them had an alcoholic drink. Children in the number of 22% or 2,700,000 persons had seen drug use in school. In every 1,000 children, 7 children under 15 years old and 32 children of age 16-20 years old were addicted to drugs; and 6) School-age pregnancy in Thai children held the 1<sup>st</sup> rank in Asia. In every 1,000 children, 54 female teenagers had become a mother. In 2011, there was a report that there were 117,390 teenage mothers with the average of 354 childbirths per day. Moreover, according to the survey of IQ and EQ of Thai children in Primary 1 in 2016 in which the Department of Mental Health had surveyed the level of Intelligence Quotient (IQ) and the level of Emotional Quotient (EQ) in 2016 in 23,644 students in Primary 1 nationwide, it was found that the average of IQ was at 98.2, which increased from the year 2011 with the average of 94. However, it was still lower than the international standard, which was 100. Among this number, 2 in 3 of them had the IQ in the normal criteria or 68 percent. In overall, the children with IQ of 100 points and above were in 42 provinces in which children in Mueang District had the IQ of 101.5; children outside Mueang District had the IQ in the average of 96.9; and children in Bangkok had the IQ in the average of 103.4. However, there were students in other 35 provinces with the IQ of lower than the standard criteria and intellectual disabilities or lower than 70 for 5.8 percent whereas the international standard has determined that it shall be less than 2 percent. Most of which were children in the northeastern region and the southern region, especially in the remote area with poor financial situation. However, the survey of EQ was on the target at 77 percent and many of them needed to receive the development. Most of which had lacked the determination and problem-solving skill (Piyasakon Sakonsattayathon, 2016). Moreover, there were other research studies that studied the different variables. The summarization of interesting problems of the preschool education in Thailand can be divided into 3 main points, which were 1) The children had the average of IQ lower than the international level and those who received the academic learning since Kindergarten 2 had high stress; 2) The children lacked M.Q. (Moral Quotient) or ethics and A.Q. (Adversity Quotient) or the patience to overcome the obstacles, which was a matter that should be implanted since childhood; and 3) The children lacked the skill of living, which caused many children to have a problem in socializing and living with other people, including the inability to take care of themselves and inadequate skill to live by themselves (Monthakan Rotkhilai, 2016).

The Executive Function-EF is a skill that needs to be trained and developed simultaneously. It is the step of learning through various real experiences and does not naturally occur. The age of 3-6 years old is the best period to develop the Executive Function-EF in children because it is when the forebrain is developed the most (Nuanchan Chuthaphakdikun, 2016). While the forebrain and the Executive Function-EF of children is not strong due to the age, it is the adults' duty to take care and guide the behavior as well as to train the Executive Function-EF simultaneously and regularly until the skill is implanted and formed into the structure of neurons in a strong brain, which allows the children to use the skill in their life by themselves when they grown up and use it for the rest of their life (Suphawadi Hanmethi, 2016). It was found in the research that the parents' network was related to the learning effectiveness of the children. If parents participate in the school, the

academic result of the children will be better and there will be less chance of drop-out in the school system. Moreover, it was found that the intimacy level with the network was related with the good adaptation of children, which can also reduce other violent behaviors. In overall, the family network can help the children to have good physical and mind and can also prevent other problems. Therefore, the children who have a relationship with parents can obtain good social ability in the later ages. If the children receive a variety of social experiences, their behaviors will be good with the increase of social skill (Rak Luk Books, 2011:22). The reinforcement of Executive Function-EF for preschool children is an important matter that needs to be made to occur by using the key of "The purpose of education reform, teacher reform, and both indoor and outdoor childcare reform in child development is to become a complete human rather than just a person of intellect". All children have the potential of having the Executive Function-EF. However, whether the Executive Function-EF of the children will become strong and lead to success in life or become weak and cause problems in life, will depend on how parents and teachers help each child in the development of Executive Function-EF.

Therefore, the team of researchers has the concept to develop the Executive Function-EF Model for preschool children by using the participation process of parents and teachers in the school in order to receive the knowledge in terms of Executive function-EF and the Executive Function-EF Model for preschool children that can be applied as a guideline for the agencies that are related with the preschool, including teachers and parents, to arrange the integrative activities in the daily life, which will affect the good development of life quality in preschool children and the overall society henceforth.

## **2. Research Methodology Consists of 3 Procedure as Follows:**

### *2.1 Step 1: Creation of Executive Function-EF Model*

1. Create the Executive Function-EF Model by studying the basic information from the analysis of related documents and collecting the data from the relevant persons in the Teacher-Parents Meeting in 6 schools under Suan Dusit's University Network. Then, synthesize the Executive Function-EF Model for preschool children (draft).
2. Check the Executive Function-EF Model (draft) by bringing the Executive Function-EF Model (draft) that was developed for 5 experts of early childhood education, assessment and development, and development of Executive Function-EF to consider the suitability of the components of the model and revise according to the suggestion of the experts.
3. Create the teacher's handbook for the creation of Executive Function-EF Model (draft) and the parents' handbook for the creation of Executive-EF Model (draft) that are checked by the same group of experts with the checking of model. Then, revise according to the suggestions of the experts.

### *2.2 Step 2: Trial of Executive Function-EF Model*

The sample of the trial for Executive Function-EF Model was 20-25 preschool children from 6 schools under Suan Dusit's University Network in Bangkok Metropolitan Region, which were 3 schools under the government agencies and 3 schools under private sectors in the total number of 108 persons.

The trial procedures of Executive Function-EF Model were as follows:

1. Explain to create the mutual understanding between the administrators, teachers, and parents in 6 schools under the network by arranging the orientation to explain the details about the trial procedures and handing out the teacher's and parents' handbook for the use of Executive Function-EF Model
2. Prior to the trial for 1 week, teachers in 6 schools under the network had assessed the development in terms of Executive Function-EF Model for early childhood by using the Assessment of Executive Function (EF) in preschool children of Nuanchan Chuthaphakdikun et. al.

3. Proceed with the trial in 6 schools under the network for 7 weeks. The procedures were as follows:
  - a. Teachers in all 6 schools under the network assessed the development in terms of Executive Function-EF for early childhood by using the Assessment of Executive Function (EF) in preschool children of Nuanchan Chuthaphakdikun, which was in the form of rating scale, for 1 week before the trial.
  - b. Teachers and parents arranged the activity according to the handbook for the use of the Executive Function-EF Model (draft) by emphasizing the activity in a positive and warm atmosphere, which allows the children to feel secure and happy on the basis of love and relationship. The integrative activity was arranged through play according to His Majesty's footstep. During the trial, each group created the Line Group to exchange the information, the practice according to the handbook, and the pictures of the activities between the children and the teachers or the children and the parents, including student behaviors for 7 weeks.
  - c. In the last week, teachers in all 6 schools under the network assessed the Executive Function-EF for early childhood by using the Executive Function-EF Model for preschool children of Nuanchan Chuthaphakdikun et. al.
  - d. Teachers and parents of all 6 schools under the network recorded the comments about the changes that were found in children about the development of Executive Function-EF for early childhood in Week 7 of the trial.

### 2.3 Step 3: Development of Executive Function-EF Model

1. Check the quality of the Executive Function-EF Model in terms of suitability of the use and the possibility in the practice from the experts of Executive Function-EF Model in terms of measurement and evaluation and early childhood education, including the representatives of teacher administrators and parents of the school under Suan Dusit University's Network in Bangkok Metropolitan Region in the number of 11 persons by using the assessment of possibility and possibility of Executive Function-EF Model that was developed.
2. Attend the connoisseurship to find out the conclusion in the aspect of Executive Function-EF Model and the handbook for Executive Function-EF Model for publication. The experts consisted of the experts of Executive Function-EF Model in terms of measurement and evaluation, including the representatives of teacher administrators and parents of the school under Suan Dusit University's Network in Bangkok Metropolitan Region in the number of 11 persons.
3. Bring the results from Item 1 and 2 to revise and create the Executive Function-EF Model and the handbook of Executive Function-EF for publication.

## 3. Research Results

### 3.1 Section 1: Results of the creation of Executive Function-EF Model.

The study of basic information from the analysis of related documents and the group meeting to determine the Executive Function-EF Model for preschool children is shown in Table 1.1.

**Table 1.1:** The study results of basic information from the analysis of related documents and the group meeting to create the Executive Function-EF Model

Issues	Information from Document Analysis	Information from Group Meeting	Synthesis Results
Principle	<b>Concept of Participation</b> - Participants feel attached and responsible to the activity that will be operated, which is an indicator of performing the action voluntarily.	- The cooperation of teachers and parents will greatly affect the matter of brain development in terms of EF. - Parents and teachers must exchange the information in order to understand the development and the learning of children.	<b>Collaboration between home and school</b> - Parents and teachers are partners that will help to develop the children to achieve the target together.

Issues	Information from Document Analysis	Information from Group Meeting	Synthesis Results
	<p><b>Maslow's Humanistic Theory</b> Humans have the need to receive a response to the demand for things according to age.</p> <p><b>Psychosexual Development Theory of Freud and Erikson</b> - The response and the arrangement of good experience in order to respond to the physical need will allow the children to develop according to the developmental procedures. - Good environment will help to develop the personality of children.</p>		<p><b>Principle of happy learning</b> - Respond to the basic needs of children in various aspects adequately. - Act towards the children with love and understanding. Do not force the children and provide the chance for children to express themselves to develop their own abilities and be a good role model for children. - Arrange the environment to support the learning, stimulate the children to solve problems and discover things by themselves. Encourage, praise, and support the children to be successful.</p>
	<p><b>Concept of Play according to His Majesty's Footstep</b> - Play in which children can interact with "nature" is the ultimate goal that comes from play, which is learning of the brain that can think, search, do, and develop by themselves.</p>	- Arrange integrative activities through play into the daily activities of the school and the way of daily life at home of each family.	<p><b>Play according to His Majesty's Footstep</b> - Provide the chance for children to solve problems, make decisions to help other persons, practice the planning, design, assess oneself, think independently, and learning through play.</p>
	<p><b>Piaget's Cognitive-Developmental Theory</b> The children in early childhood will recognize things from the use of senses.</p> <p><b>Vygotsky's Sociocultural Theory</b> Learning condition of the children (zone of proximal development)</p>		<p>- Find the toys or media for children to pick up, touch, and feel, which can allow the children to learn.</p> <p>- The play influences the learning and the development of children. - The assistance of adults to support the learning of children is importance.</p>
Objective	To reinforce the Executive Function-EF under the arrangement of activity that can be observed with the components in 5 aspects, which are inhibition of behavior, memory for use, flexible thinking, emotional control, and management plan.		Develop the children in early childhood to have the Executive Function-EF in 5 aspects, which are: 1) Inhibition of behavior; 2) Memory for use; 3) Flexible thinking; 4) Emotional control; and 5) Management plan
Arrangement for learning process	- The environment at the school and at home supports the learning in a positive atmosphere. - Arrange the integrative activities through play according to His Majesty's Footstep.	- Arrange the integrity development through the play in the daily activity at school. Play with surrounding things and toys. Play/move with music and rhythm. Have fun with exercise and enjoy the tale. - Arrange activities at home, which are play with housework/life work, traveling, and exercise. Enjoy the tale.	- Arrange an environment that supports learning in a positive atmosphere. - Arrange integrative activities through play.
Evaluation	- Observe and record the child's behavior - Assessment of Executive Function (EF) in preschool children of Nuanchan Chuthaphakdikun et. al.		Authentic assessment - Teachers and parents observe the child's behavior and record the trail of learning. - Ask for comments from teachers and parents about the changes that are found in children in terms of Executive Function-EF. - Assess the development of Executive Function-EF of the children before and after the use of model.

### 3.2 Section 2: Results of the trial of Executive Function-EF Model

The results of the trial of Executive Function-EF Model in early childhood are presented as follows:  
Comparison of the average, standard deviation, and t-test in the development of Executive Function-EF in early childhood before and after using the model can be presented in Table 1.2 as follows:

**Table 1.2:** Average, t-test and standard deviation in the development of Executive Function-EF in early childhood in the overall and each aspect before and after using the model

Developmental T Scores	Before Using the Model			After Using the Model		
	$\bar{x}$	S.D.	Interpretation	$\bar{x}$	S.D.	Interpretation
Inhibition of behavior	53.31	8.95	Moderate	60.85	7.29	Very Good
Flexible thinking	50.25	8.98	Moderate	58.53	7.55	Good
Emotional control	51.20	10.13	Moderate	58.60	9.69	Good
Memory for use	51.94	8.59	Moderate	59.76	7.57	Good
Management plan	52.60	9.23	Moderate	59.90	6.46	Good
<b>Total</b>	<b>51.75</b>	<b>8.35</b>	<b>Moderate</b>	<b>59.53</b>	<b>6.63</b>	<b>Good</b>

According to Table 1.2 Average, standard deviation, and t-test of the development of Executive Function-EF in early childhood in the overall and each aspect before and after using the model, it was found that the overall of developmental T scores after using the model was higher than before using by developing from moderate to good ( $\bar{x} = 51.75$ , S.D. = 8.35,  $\bar{x} = 59.53$ , S.D. = 6.63). When considering in each aspect, it was found that the use of model was higher in the before use than the after use. The aspect with the highest development was inhibition of behavior in which the after use of model was higher than the before by increasing from moderate to very good ( $\bar{x} = 53.31$ , S.D. = 8.95,  $\bar{x} = 60.85$ , S.D. = 7.29). The flexible thinking, emotional control, memory for use, and management plan were increased from moderate to good.

Difference test of the average of developmental T scores in terms of Executive Function-EF in early childhood before and after using the model is presented in Table 1.3 as follows:

**Table 1.3:** Difference test of the average of developmental T scores in terms of Executive Function-EF in early childhood in the overall and each aspect before and after using the model

Group	$\bar{x}$	S.D.	$\bar{D}$	S.D.	t	
Developmental T scores in terms of inhibition of behavior before using the model	53.31	8.95	-7.54	8.06	-9.72*	
Developmental T scores in terms of inhibition of behavior after using the model	60.85	7.29				
Developmental T scores in terms of flexible thinking before using the model	50.25	8.98	-8.28	8.55	-10.07*	
Developmental T scores in terms of flexible thinking after using the model	58.53	7.55				
Developmental T scores in terms of emotional control before using the model	51.20	10.13	-7.40	8.85	-8.69*	
Developmental T score in terms of emotional control after using the model	58.60	9.69				
Developmental T scores in terms of memory for use before using the model	51.94	8.59	-7.82	7.56	-10.75*	
Developmental T scores in terms of memory for use after using the model	59.76	7.57				
Developmental T scores in terms of management plan before using the model	52.60	9.23	-7.84	8.46	-9.63*	
Developmental T scores in terms of management plan after using the model	59.90	6.46				
Development T scores in the overall before using the model	108	51.75	8.35	-7.77	7.41	-10.91*
Development T scores in the overall after using the model	108	59.53	6.63			

\* p < .001

According to Table 1.3, when testing the differences of the average of developmental T scores in terms of the development of Executive Function-EF in early childhood in the overall and each aspect before and after using the model, it was found that the average of developmental T scores in the overall and each aspect after using the model was higher than before using the model with a statistically significance level at .001.

Comments of teachers and parents about the changes that were found in children in terms of Executive Function-EF

Teachers and parents had reported that the Executive Function-EF of children were clearly

increased after the children had done various activities for 7 weeks. The children were able to manage the emotions of themselves better, restrain the behavior, control themselves while doing the activity, memorize the information, and manage the information to use according to the situation in order to solve the problem, change the thought to be suitable with the situation that might occur, control the emotions for expression to become suitable with the situation, and able to manage the plan for working better.

### 3.3 Section 3: Result of the development of Executive Function-EF Model

Executive Function-EF Model in early childhood that was developed to become appropriate for the practice and the possibility of putting into practice in the good level is presented in Table 1.4.

**Table 1.4:** Assessment results of suitability and possibility of Executive Function-EF Model

List of Evaluation	Suitability Level			Possibility Level		
	$\bar{x}$	S.D.	Interpretation	$\bar{x}$	S.D.	Interpretation
1. Principle						
1.1 Accuracy according to the theory	4.50	0.53	<b>Very Good</b>	4.70	0.48	<b>Very Good</b>
1.2 Sorting of content	4.00	0.00	<b>Good</b>	4.30	0.48	<b>Good</b>
2. Objective						
2.1 Language reflects the behavior	4.00	0.47	<b>Good</b>	4.00	0.67	<b>Good</b>
2.2 Consistency with Executive Function-EF	4.10	0.57	<b>Good</b>	4.00	0.47	<b>Good</b>
3. Arrangement of learning process						
3.1 Sorting of content	4.10	0.88	<b>Good</b>	4.30	0.67	<b>Good</b>
3.2 Lead the activity to the practice	4.40	0.70	<b>Good</b>	4.00	0.67	<b>Good</b>
4. Evaluation						
4.1 Sorting of content	3.90	0.74	<b>Good</b>	4.00	0.67	<b>Good</b>
4.2 Evaluation method	3.80	0.63	<b>Good</b>	4.10	0.57	<b>Good</b>
<b>Total</b>	<b>4.10</b>	<b>0.26</b>	<b>Good</b>	<b>4.21</b>	<b>0.10</b>	<b>Good</b>

According to Table 1.4, the evaluation of suitability and possibility of Executive Function-EF Model in the overall was in the good level ( $\bar{x} = 4.10$ , S.D. = 0.26,  $\bar{x} = 4.21$ , S.D. = 0.10). When considering in each aspect, it was found that the suitability and the possibility in terms of principle, which was the accuracy according to the theory was in the very good level ( $\bar{x} = 4.50$ , S.D. = 0.53,  $\bar{x} = 4.70$ , S.D. = 0.48). In other aspects, the evaluation result in terms of suitability and possibility was in the good level.

The handbook for Executive Function-EF in early childhood for publication was made into a booklet of both parents and teachers. The essence in the book consisted of 5 sections, which were 1) Knowledge about Executive Function-EF; 2) Executive Function-EF Model; 3) Play according to His Majesty's Footstep to reinforce the Executive Function-EF by the family; 4) Play according to His Majesty's Footstep to reinforce the Executive Function-EF by the school; and 5) Authentic assessment.

## 4. Discussion and Suggestion

From the research, there were many interesting aspects for discussion as follows:

1. According to the development of Executive Function-EF Model, the team of researchers had the concept to create the awareness of life quality of children in 21<sup>st</sup> century that the children are currently facing. It is a world of uncertainty and very complicated because the technology changes quite fast. The whole world connects and communicates to each other quickly and has become a borderless world. Therefore, it is both crisis and opportunity at the same time. There are many negative factors or stimuli that affect the development of Thai people to deviate from the trail than should be. In order for the children to grow, have a good life, be successful in terms of study, work, and life family, parents and teachers are considered to be those who play an important role on laying the



- foundation in the child's life. The child's potential to become a quality human capital in order to respond to the world in the new era needs to be developed with the understanding in the nature and the brain function, aiming on the child development to become a complete human rather than just a person of intellect, which conforms with the philosophy of early childhood education that emphasizes the basic of upbringing and the support on the learning process that responds to the nature and the development according to the age of each child in full potential under the socio-cultural context that the child has lived in with love, generosity, and understanding from everyone in order to build the foundation in the life quality for the children to develop into a complete human and create value to themselves, family, society, and country (Ministry of Education, 2017; Page 2). The development of Executive Function-EF Model relies on the basic theory and key concept as foundation, which are 1) Maslow's Humanistic Theory that emphasizes the parents and the teachers to respond to the basic needs of children in various aspects adequately, provide love, warmth, and security to the children, and arrange the activities to enhance the ability of children for the children to feel confident in themselves; 2) Psychosexual Development Theory of Freud and Erikson emphasizes arranging the environment in order to respond to the needs of children, and act toward the children with love and understanding. Do not force the children and provide an opportunity for the children to express themselves in order to develop the abilities of themselves. Be a good role model to the children by implanting and inserting the virtue and morality. Provide an opportunity for the children to choose the activity, experiment, and research for things independently. Arrange the environment to support the learning. Stimulate the children to solve the problem and discover things by themselves. Encourage, praise, and support the children to become successful; 3) Piaget's Cognitive-Developmental Theory emphasizes finding the toys or media for children to pick-up, touch, and feel, which helps the children to learn. Try to arrange the activity and environment to stimulate the children to recognize appropriately. Train the children to use the senses to develop the sensory perception and arrange the activity to stimulate the thought for children to gain experience; 4) Vygotsky's Sociocultural Theory emphasizes the aid of adults to support the learning of children. Parents and teachers must take a look back at the "play" and place an importance on the proper play for the play to be an effective tool in developing the child in all age ranges; 5) Concept of participation stimulates the parents and teachers to be aware of the importance in the development of Executive Function-EF in early childhood and think, plan, and present the activities for Executive Function-EF in early childhood at school and home together; and 6) Concept of the play according to His Majesty's Footstep that emphasizes the ultimate goal that comes from the play, which is the learning of the children's brain that can think, search, do, and develop by itself.
2. In the trial of Executive Function-EF Model in early childhood, the research was found that the development of Executive Function-EF in early childhood after using the model was higher than before using the model, which showed that the Executive Function-EF Model that was developed can develop the Executive Function-EF in early childhood due to the following reasons:
    - a. The team of researchers has developed the Executive Function-EF Model by using the principle of collaboration between home and school, emphasizing the participation process. In the collaboration between home and school, parents will participate in thinking and planning the activities for better development. In the participation, each party helps each other, which causes the relationship and feeling of co-ownership in terms of responsibility. Parents are considered to be a very important people that can help to support the children in all ages, especially in early childhood, to become a good adult. The collaboration with the school will continually recharge the power in the child development to become appropriate, consistent, and be in the same direction, which will lead the children to have the mental stability and proper behavior expression in order to live in the society happily (Sumon Amonphiwat, 2002; Narinchai Phatthanaphongsa, 2004; Met Metkarunchit, 2004; Chitawadi Thongthua, 2014).



- b. The team of researchers had developed the Executive Function-EF Model by using the principle of happy learning by arranging the environment that supports that learning in the positive atmosphere both at home and at school, emphasizing the creative reaction techniques, which are eye contact, creative speech, and warm touch. It was conformed with Saisuri Chuthikun, 2000; cited in Aruni Hondan, 2005, Page 2-29), which stated that "The learning of early childhood needs to be happy. It must not be the learning among the restriction in the freedom of thought, reprimand, punishment, and reproach. It must not be imprisoned in which the body movement is not allowed. Most importantly, we must understand that the happy learning means the children are among those who they love and love them. There are confidence and trust among the environment that promotes, reinforces, and supports the way for them to learn and grow" because the forebrain relates to the thought and reason; the midbrain relates to the emotions and long-term memory; and the medulla is a part that works by instinct. These 3 parts of the brain work connectively. If the emotional brain is unhappy, it is hard for the thinking brain to work (Supawadee Hanmethi, 2018). This was conformed with Dawson and Guare, 2009; cited in Panatda Thanasetsakon, 2018, Page 64, which talked about the Executive Function-EF in children that the arrangement of adequate environment will allow the children to use their inner drive to develop the Executive Function-EF to an expert level, not forcing the children to do. Provide an opportunity for children to create the work that is suitable for their own ability and use their effort to increase the training until becoming masterful and successful. The good experience in childhood can develop into the safe relationship and effect the Executive Function-EF. Therefore, making the children to feel safe and trust is not only the matter of the mind, but it can also provide good effect to CEO of the brain.
- c. The team of researcher had developed the Executive Function-EF Model by arranging the activities through the play according to His Majesty's Footstep, which conforms with the method of Executive Function-EF in early childhood that provides an opportunity for the children to play and react with the surrounding things in the active learning and allows the children to practice, solve the problem, help other persons, plan, design, assess oneself, think independently, and learn from the actual situation by arranging the activities at home and school. Hence, 1) In the implantation by the family, the arrangement of activities by the parents is a part of the informal way of life of the family. The children are implanted by receiving the gradual training from play according to His Majesty's Footstep through the activities in the daily life of each family. The 4 main activities are playing with toys, traveling, enjoying the housework/life work, and having fun with the tale; and 2) In the learning management in school by teachers, the teachers arrange the integrative activities into the daily school activities, which are playing with toys, playing with music/movement and rhythm, having fun with exercise, and enjoying the tale, which conforms with the principle that is appropriate with the development of Executive Function-EF in early childhood. The environment must be arranged in proportion with the play area by opening an opportunity for the children to become the leader and emphasizing the activities that are useful for the development in terms of intelligence, emotion, and society at the same time as the physical development of children. The activities that are used in Executive Function-EF should be those that motivate the children and open the opportunity for the children to do an activity with friends at the same age. The activities must be those that the children feel loved, impressed, had fun, and happy to do. At the same time, it should be the activities that challenge the ability of children so that the children will not feel bored and should open an opportunity for the children to experiment with various new things for the children to get away from the previous capabilities (comfort zone/zone of proximal development) and get into a new capability that the children can do by themselves with only a little help. The children should be emphasized to do the activities that challenges their abilities simultaneously because the practice that gradually challenges the ability of the children is the key to develop the Executive Function-EF in small children to

become successful and can support the Executive Function-EF to stay longer, which might be several months or many years after receiving the training. However, if not receiving the practice simultaneously, the Executive Function-EF of children will grow less and the durability from the practice will gradually reduce. Hence, the Executive Function-EF must be created at home, school, and other places that the children live in the daily life for the children to gain experience, which is the most important thing (Childcare aware of America, 2012 and Diamond, 2012; cited in Dutsadi Uppakan, 2017).

## 5. Recommendation for Future Research

1. The Executive Function-EF should be developed to adapt in the early childhood in other areas with different environments.
2. The use of Executive Function-EF that is developed should be aware of the integration of the learning process of Executive Function-EF through play according to the His Majesty's Footstep, which can be arranged at home and at school, which are 1) In the implantation by the family, the arrangement of activities by the parents is a part of the informal way of daily life of the family. The children are gradually implanted by play according to His Majesty's Footstep through the daily activities of each family; and 2) In the learning management at school by the teacher, the teacher should integrate the activities into the daily activities of the school.

## 6. Conclusion

1. The Executive Function-EF Model in early childhood that is developed consists of 4 components, which are 1) Principle, which is the collaboration between home and school, happy learning, and play according to His Majesty's Footstep; 2) Objective, which is to develop 5 basic skills that are the inhibition of behavior, memory for use, flexibility thinking, emotional control, and management plan; 3) Learning process in which the first section is to arrange the environment that supports the learning in the positive atmosphere by emphasizing the creative reaction by making eye contact, creative speech, and warm touch for the children to feel secure with love and relation as foundation and the second section is to arrange the integrative activity through play according to His Majesty's Footstep by integrating the activities into the daily activities of the school and the way of daily life of each family. In the implantation by the family, the arrangement of activities by the parents are a part of the informal way of daily life of the family. The children will gradually be implanted through play according to His Majesty's Footstep through 4 main activities in the way of daily life of each family, which are playing with toys, traveling, enjoying with housework/life work, and having fun with the tale and the learning process in school by the teachers in which the teacher will arrange 4 main integrative activities into the daily activities of the school, which are playing with toys, playing with music/movement and rhythm, having with exercise, and enjoying the tale; and 4) Evaluation by observing the development of Executive Function-EF of the children, record the trail of learning via pictures, and record the student behavior from the activities at school and at home.
2. The result of the trial of Executive Function-EF in early childhood was found that the development of Executive Function-EF in early childhood in the overall and each aspect after using the model is higher than before using the model with a statistically significance level at .001. Moreover, teachers and parents agree that after using the model, the development of Executive Function-EF of children in early childhood is increased.
3. The result of the development of Executive Function-EF in early childhood was found that the Executive Function-EF Model that is developed is appropriate to be used and it is possible to be practiced in the good level. The handbook for Executive Function-EF in early childhood for publication consists of 5 sections, which are 1) Knowledge about Executive Function-EF; 2) Executive Function-EF Model; 3) Play according to His

Majesty's Footstep by the family; 4) Play according to His Majesty's Footstep by the school; and 5) Authentic assessment.

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