

The Development of Early Childhood Activity Models to Enhance Their Analytical Thinking Using the Guardian Role-Models as the Foundation in Suratthani Province

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Abstract

The purpose of this research was to develop the early childhood activities form to enhance analytical thinking using guardian role-model as the foundation in Suratthani province. There were 4 phrases as follows; Phase 1: to study and analyze basic information for developing the early childhood activities form to enhance analytical thinking, Phase 2: to design and develop the early childhood activities form, Phrase 3: to use and evaluate the early childhood activities form, and Phrase 4: to develop the activities, statistic for data analysis which were frequency, percentage, mean, standard deviation, and t - Independent.

The research findings showed that 1) The development consisted of one activity manual including three parts which were Part 1: Basic information about types of the early childhood activities form, which consisted of principles and rationale, objectives, concepts and fundamental theories, target groups, core contents, procedures, duration, media and materials, implementation guidelines, roles of people involved in the use of the activities, and an evaluation of success towards the use of the activities. Part 2: activity plans which consisted of four sections and each provided 10 activities, totally

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included 40 activities i.e. housework activities, kitchen activities, daily activities, and hobbies and recreation activities. There were 4 steps for each activity which were Perceiving (P), Provocating (P), Performing (P), and Reflecting (R), which was also called 3PR. Part 3: Appendix including the concepts of enhancing early childhood analytical thinking showed that the model was appropriate at the highest level. 2) The results of the study showed that the post-test scores of the early childhood analytical thinking which was higher than before the study with a significance at 0.05. 3) Knowledge and abilities of the guardians in arranging activities to enhance analytical thinking of early childhood was higher than before the study. 4) The satisfaction of the guardians towards the use of the early childhood activities form showed a high level.

Keywords: Activities form, analytical thinking, early childhood, guardian role-model

Introduction

Analytical thinking is considered as a tool to develop people for their better lives living in today's world. As His Majesty the King Bhumibol Adulyadej (1978) stated that

“...There are various purposes to think, good thoughts can bring prosperity, on the other hand, they will bring disastrous. So, to think precisely should be proceeded with justice...”

*The Royal Guidance of His Majesty the King Bhumibol Adulyadej
in the graduation ceremony of Ramkhamhang University
on October 26th, 1978.*

Accordingly, thinking skill is viewed as an essential thing to develop the valuable future of learning. It can be said that thinking skill is important to people's daily lives particularly analytical thinking. According to Muadthaisong (2011) claimed that analytical thinking is an important skill to everyone's daily life which enables people live effectively. As well as Seeluangpetch *et al.*, (2016) supported that analytical thinking is the skill needed to develop along with other thinking skills since people must think and make a decision for their everyday life. In doing so, analytical thinking and synthesis thinking are used. These skills are able to be developed in early stage of childhood.

The early childhood is viewed as an important time to be developed as the Office of the Education Council announced (2013) that early childhood is the stage needed to continuously develop particularly analytical thinking in creative way for all future development and parents play a crucial role.

In fact, parents are responsible for their own child since they were an infant. To promote babies to think could be simply start by having them sense various stimulus to provoke their brain then response and think. As Susoarat (2013) mentioned that analytical thinking is a developed skill from various learning environment. Interestingly, thinking process is worth when people think for themselves and make it as a part of their everyday life.

However, parenting problems caused by unexperienced parents have found from many families. Some families might ignore analytical thinking which can be seen as a life skill and enable children to live effectively. In contrast, the attention is paid too much on scores from classes since parents believe that their children will be successful if they study hard and get good grades. In addition, today's world is developed and grow rapidly by technology. And by technology without parenting from parents, many children spend their time useless playing online games, imitating unpleasant examples from social media which can cause children to be aggressive and irresponsible.

In fact, early childhood children are able to learn through playing and doing their everyday life activity in order to stimulate and develop the brain as a preparation for their future. As Chutabhakdikul (2018) proposed the idea that parents must bear in mind not to teach their children only to live for today but the future. So, they need to be well prepared at this age. Accordingly, the development of early childhood activity models to enhance analytical thinking using the guardian role – models as the foundation enables parents to create suitable and effective tools to develop analytical thinking for their children.

Objective

To develop activity models to enhance early childhood the analytical thinking using the guardian role-models as the foundation in Suratthani.

Methodology

The procedures of this study were divided into 4 phrases as followings.

Phase 1 Study and synthesize the basic information of development activities, and the followings were objectives:

1) To study on parents' potential and needs about activities management to promote early childhood the analytical thinking in Suratthani. The participants were 400 parents of kindergarten 1 – 2 in academic year of 2016 2) To study about activities management which the guardian role-models used to enhance the

analytical thinking of early childhood 3) To study on Piaget's theory, Bruner's theory, theory of constructing the body of knowledge, contemplative education, principles of questioning, and concepts of activity development.

Phase 2 Construct and develop the activities basing on the results from Phase 1, the followings were the steps.

Step 1 Construction activities

1) To design the activities using the results from synthesis the activities used by Suratthani guardian role – models to promote children the analytical thinking. It consists of 4 groups 45 activities. 2) To determine the objectives including rational of each activity by using the results of the study on the development activities used by the guardian role – models to enhance early childhood the analytical thinking which showed the level at average to the lowest. As well as using the results of the study on parents' needs of activities development to enhance children the analytical thinking which showed the level from high to the highest level including knowledge and understanding aspects, skill development aspect and individual characteristics. and 3) To determine the steps of the activities using the results from the study on principles, concepts, Piaget's theory, Bruner's theory, contemplative education, and principles of questioning which was presented in Figure 1.

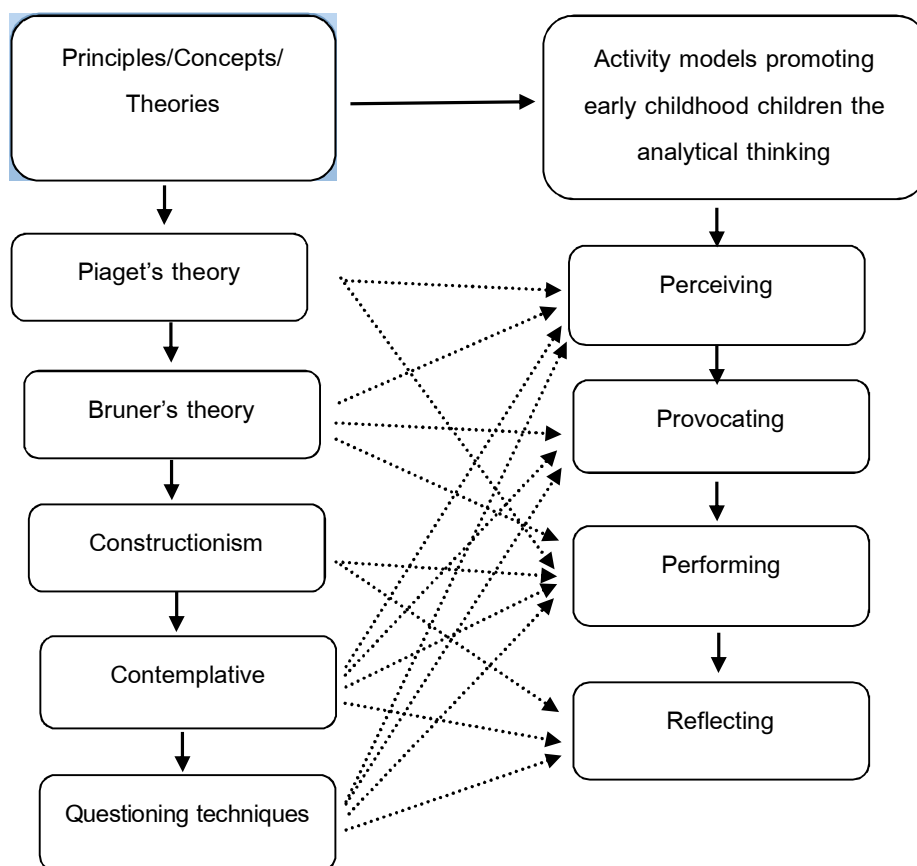


Figure 1 Principles, concepts, and theories of creating activities

From Figure 1, it has presented 4 steps of the activity model which was called 3PR. It was developed under principles, concepts, and theories as follows;

1) Piaget's theory; focus on using five senses to interact the environment in order that learners can organize the brain structure which is called 'Organization' and for 'Adaptation' through 'Assimilation' including brain structural expansion leading to the creation of brain fibers which is called 'Accommodation'.

2) Bruner's theory; focus on social learning process which aims at learning through social interaction, environment, and experiences by oneself from intrinsic motivation and extrinsic reinforcements.

3) Constructionism; focus on the learners' experiences from doing and practicing through experiencing, exploring, experimenting, discussing, and hypothesizing focusing on constructing their own knowledge to apply for their daily life.

4) Contemplative education; focus on learners' capability. Learners learn with their freedom to understand themselves and one another through experience of awareness which can be said as 'Head' and the deep feeling which is called 'Heart' then to appreciate learning by being as an active listener to practice which is called 'Hand' and 5) Questioning techniques which aims to question to encourage thinking skill in order to find out the answers to various questions such as questions for memorizing, questions for understanding, questions for analyzing, questions for synthesizing, and questions for evaluating.

Step 2 The preliminary outline

The preliminary outline was divided into 3 main parts.

Part 1 The basic information: It was about activities which consisted of principles and rationale, objectives, concepts and theory, target groups, procedures, duration, materials, implementation guidelines, roles of people who involved in using the activities, and an evaluation of success in using the activities. Part 2 The activity plans: They were divided into 4 groups with 45 activities which were Housework for 10 activities, Kitchen work for 10 activities, Daily routine for 12 activities, and Hobbies for 13 activities. Part 3 Appendix: It was about the main points of promoting early childhood the analytical thinking which was used to prepare parents before using the created activities.

Step 3 Approval

The created activities need to be approved by 5 experts. The instruments used were a questionnaire including 5 levels and analyze for mean. The result was showed a highest level at ($\bar{x} = 4.89$).

Step 4 Experiment

The pilot experiment carried out on people of the relevant population who were 30 kindergartens 2 from Ban Yoong Thong School and 30 parents. The instruments used were 1) a test of analytical thinking of early childhood which included 3 sets i.e. set 1: Analysis of sub - element, set 2: Analysis of relationship, and set 3: Analysis of principles and they showed $IOC \geq 0.5$, the difficulty was at 0.43 – 0.83, the discrimination was at 0.38 – 1.00 and the reliability was at 0.98 2) a questionnaire of guardians' knowledge and ability about activities of analytical thinking for early childhood basing on Stryker and Serpe (1994). The questions provided 6 levels including 20 items and each showed $IOC \geq .05$ with the reliability at 0.81 3) a questionnaire about the guardians' satisfaction towards the created activities which provided closed – ended questions with 5 levels and open – ended questions, each question showed $IOC \geq .05$ with the reliability at 0.83.

Phrase 3 Use and evaluate the developed activities which aimed to 1) compare the analytical thinking of early childhood using the guardian role – models as the foundation in Suratthani before and after the study, 2) compare the ability of the guardian role - models in activities management to enhance the analytical thinking of early childhood before and after the study, and 3) study on the guardian role – models’ s satisfaction towards the developed activities. The participants were 34 kindergartens and 34 parents from Anuban Suratthani School.

Phrase 4 Revise the developed activities which aimed to 1) revise the activities basing on the evaluation of the results from parents’ discussion and 2) develop the completed activities.

Result

The results of the study will be presented as follows.

The result of activities development showed that there were 3 main parts. Part 1 The basic information; the activities designed consisted of principles and rationale, objectives, concepts and fundamental theories, target groups, core contents, procedures, duration, materials, implementation guidelines, roles of people involved in activities used, and an evaluation of success towards the used of the activities. Part 2 Activity plan; there were 4 groups and each consists of 2 activities, altogether were 40 plans as Table 1.

Table 1. Activity plans

Groups	Activities	Topics
Housework	Good helper (Poo Chuoy Mue Dee)	Sweep the floor (Kward Ban Saard Ta) Mop the floor (Too Ban Too Ruen) Help mom dusting (Ched Phun Chuay Mae Dai) Leave of keep (Cha Ting Rue Cha Keb) I play I keep (Chan Len Chan Keb)
	Think and do (Long Kid Long Tam)	Do the laundry (Suk Pa Na Ban), Hanging up the clothes (Tak Pa Mahasanook) Take the clothes away (Keb Sue Pa Natee Noo) Bathroom is a classroom (Hong Nam Hong Rien Roo) Wash the car (Lang Rod Suay Roo)

Groups	Activities	Topics
Kitchen work	A junior chef (Chef Tuo Noi)	Wash vegetables (Lang Pak Saard) Pick vegetables (Ded Pak Noo Tam Dai) Let's taste (Chuan Chim) Cook rice (Hung Kao Samakkee) Enjoy my cook (Aroi Kab Fee Mue Noo)
	A manager (Nak Jad Karn)	Set the tables (Jad Toh Arhan Jad Jan Suoy Roo) Do the dishes (Lang Jan Sam Ran Jai) Changes of water (Nam Plien Roop Rang) A little waiter/waitress (Nak Serve Tuo Noi) Kitchen utensils grouping (Jad Muod Moo Krueng Chai Nai Krou)
Daily routine	I can do it (Noo Tam Dai)	Showering (Arb Nam Soo Saa) Washing hair (Sa Pom Bom Nisai) Brushing teeth (Prang Fun Saard) Choosing clothes (Lueng Sue Lueng Pa) Getting dressed (Tuo Eang Tang Eang)
Daily routine	Help each other (Ruom Duoy Chuoy Kan)	Good food (Arhand Dee Mee Prayote) We love each other (Rao Rak Kan) Making the bed (Kep Tee Non Sorn Nisai) Amazing shoes (Rong Tao Mahadsajan) Keep calm (Jai Sa-ngob Jai Saard)
Hobbies	Follow the dream (Tam Fun)	Imaginating and drawing (Ward Pap Jintanakarn) Games (Game Prissana) Enjoy tales (Plerd Plern Kab Nitan) Fun music (Don Tree Sand Sanook) Fun sports (Keela Pa Plern)
	Worldwide learning (Rien Roo Soo Loak Kwang)	Favorite cartoons (Cartoon Sood Proad Len Plerd Plern) Planting the plants (Rod Nam Pruon Din) Let's make toys (Pradid Kong Len Kan Tue) Eager to learn (Rien Roo Rob)

Each activity consisted of 1) Activity names, 2) Objectives with 3 aspects of analytical thinking, 3) Steps of 3PR i.e. perceiving, provoking, performing, and reflecting. Perceiving was the step to stimulate materials and activities. Parents will encourage and question their children to be curious to know and learn using various senses. Provoking was the step which parents will question their children in order to encourage them to think and find the answers to the questions. Performing was the step which encourages children to experience everyday life through exploring, searching, experimenting, discussing with their family members for finding the answers. Reflection was the step to provide children freedom to present what they have experienced and found out from previous activities such as discussion, telling stories, answering questions, and drawing pictures. 4) Everyday life materials, 5) Developmental evaluation of objectives, 6) Result recording; the answers, questions from children, children's behaviors, parents' opinions while doing activities and suggestions were recorded.

Part 3 Appendix; this part complied about the main issues of creative analytical thinking for early childhood children. It was used for preparing parents before using the activity designed which consisted of the importance and necessity for creating early childhood children the analytical thinking, the guidance from parents, techniques to create analytical thinking, parents' roles to enhance the analytical thinking and conclusion. As well as the activities were evaluated and overall showed the result in a highest level at 4.89.

The early childhood for those whom their parents used the developed activities to enhance the analytical thinking showed the result at ($\bar{x} = 64.15$, S.D. = 2.95) which was higher than before the study ($\bar{x} = 27.12$, S.D. = 6.32) with a significance at 0.05.

The guardian role- models who used the developed activities showed the ability of activities management to enhance the analytical thinking of early childhood at ($\bar{x} = 4.92$, S.D. = 0.38) higher than before the study at ($\bar{x} = 2.67$, S.D. = 0.20) with a significance at 0.05.

The satisfaction of guardian role - models towards using the developed activities showed the result a high level in overall at ($\bar{x} = 4.16$, S.D. = 0.65).

Discussion

The result of developing the activities was to create the manual which was divided into three parts and each part was able to enhance early childhood the analytical thinking as follows;

1. The developed activities which created from the study showed a result at a highest level at 4.89. Since the manual of the developed activities consisted of the fundamental of use including lesson plans and appendix which were designed to make it easy to understand and use. Similarly, Art-in (2011) developed a model of learning management on analytical thinking in science as well as Nachareun (2013) developed a training model for student teachers in early childhood program to promote their skills on barriers confronting for teaching practice. There were steps to develop the activities which were 1) To study the fundamental of parents' potential and needs about created activities in order to enhance the analytical thinking of the early childhood. 2) To study about the created activities which the parents used to enhance their children the analytical thinking in order to frame the learning strands. and 3) To combine the steps of activities with the principles, strategies, concepts about enhancing the analytical thinking of early childhood as Phonprasert (2011) developed his model on learning experience to develop analytical thinking of early childhood. As well as, Watthananoi *et al.* (2016), created his teaching model using experimental learning on robot kinetics.

2. After parents used the developed activities to enhance the analytical thinking for their children, it showed the result at ($\bar{x} = 64.15$, S.D. = 2.95) which higher than before the study at ($\bar{x} = 27.12$, S.D. = 6.32) with a significance at 0.05. As a result, the following factors were effected; 1) The plan with 40 activities which was practically use for daily and relevant to childhood competency as Sirisopon (2010) supported that a 4 - year - old kid is able to shower, get dressed, fold the small piece of clothes, and pick up the small piece of things, a 5 - year - old kid is able to make bed, make a phone call, pour some milk, put on their shoes while a 6 - year - old kid is able to take the dishes to the sink, sweep the floor, help their mother in the kitchen, take off their clothes and put in the basket. As well as, the Office of the Education Council (2010) stated that telling stories, cooking, planting, washing the dishes, setting the tables, filling up the water, separating rubbish, watching documentary, watching movies and meeting new people can promote children the analytical thinking. They included principles, strategies and concepts which support analytical thinking for kids and they were used effectively by the role models. 2) The steps are as follows; 1) Perceiving; it is the step which stimulates the kids to be eager to learn and perform experiments, refer to Piaget's principle which relevant to learning through environment around them like doing laundry; kids notice the smell, color of detergent, types of clothing materials, for instance. From those activities, kids are provided opportunities to explore, question, present new information which provoke their intrinsic motivation and get reinforcement as Bruner's concept. 2) Provocating; it is the stage that parents elicit and question their kids to find out the answers and experience environment around them. 3) Performing; it is the stage which provides the kids experience in their everyday situation through exploring, researching, experiment and discussion to discover the answers by themselves. 4) Reflection; it is the stage that encourages the kids to present their ideas or what they have discovered by sharing, answering questions and drawing as reflection about what they have done under constructivism, a learning theory which promote the kids to learn and construct their new knowledge by having their parents to provoke their learning and encourage them to apply their knowledge for daily life under contemplative education. 3) The processes and steps of all activities are created to promote the kids to do by themselves these encourage them to practice basic skills of analytical thinking for example, observation, telling components, exploring, classification and comparison. Most importantly, all activities are practical for kids and relevant to their old experience in daily life which enable them to learn easily. As Patyoung (2017) studied about the development of analytical thinking ability of kindergarten 2 by having them do the science experiment. It showed that the kids showed their analytical thinking ability at a higher level than before. It can be said that the practical activities effected to the analytical thinking of early childhood.

3. The guardians who used the developed activities showed the ability about activities management on analytical thinking for early childhood at ($\bar{x} = 4.92$, S.D. = 0.38) higher than before the study ($\bar{x} = 2.67$, S.D. = 0.20) with a statistical significance at 0.05. In addition, it showed the satisfaction towards activities use in overall at ($\bar{x} = 4.16$, S.D. = 0.65). Since the roles of parents were just to prepare and arouse their kids to interact among themselves, stimulate thinking skills and trial and error, challenge to perform, encourage with positive reinforcement, support and get them involved in doing activities, promote thinking skills for performing and switch turns doing so, then finally link to analytical thinking. As the team of Executive Functions: EF (2018) supported that providing an opportunity was the important factor of brain development which was the same to develop early childhood the analytical thinking. As a result, it can be said that the developed model using the guardian role – model as the foundation in Suratthani were practical and effective to enhance early childhood the analytical thinking.

Recommendation

1. Studying about the components of created activities such as the basic information, how to use, and plans of activities arrangement before doing the experiment in order to understand the overall and processes of activities. As well as, monitoring and consulting should be done continuously.

2. The learning strand should be adapted according to children's everyday life however, should bear in mind that some activities might not be done for some family for instance, doing meditation and offering food to monks.

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