CHAPTER I

INTRODUCTION

1.1 Problem statement

Child growth and development has been known to rapidly develop by the age of 1-2 years [1, 2, 3]. During this critical period, stimulation is an important process for infant development [4]. Play material or toy is one of a limited choice for the very young children that can be used to stimulate their developments. Toys offer children an opportunity to develop a variety of transference reactions [5]. A number of studies demonstrated an association between toy playing and child development such as cognitive and social development [6, 7], language development [8], communication skills [9]. Choices of toys, for each development millstones, that are appropriate for each age of children had been proposed [10]. However, this was done based on researcher's perspective. Regarding children perspective, one should also focus on their preferences for toys.

Infants' preferences for toys have been mostly investigated for sex differences as girls and boys differ in their preferences for toys such as dolls and trucks [11, 12]. In one study, toy preference has been discussed in terms of Cohen's (1972) model of attention-getting and attention-holding [13, 14]. These provided basis of toy selection for parents and caregivers so that they have opportunities of full engagement with children and their development benefits. However, there are many factors influencing selection and purchase of toys. A study suggested that sex of the child was a minor importance in toy selection while safety and teaching new skills were extremely important for parents to choose for their children [15].

Vast varieties of toys are available either commercially and non-commercially including self-created toys. Some are dangerous, for instance, due to suffocation, toy rubber balloons are cause of death for many children [16]. Parents need not purchase the most frequently advertised or expensive toys to promote their child's growth and development but they need to be able to select or create appropriate toys. Some authors suggested that the appropriated toys should be safe, colorful, sounding and varieties in surface and shapes but not too small and could not be extracted into small

items [17]. Those are based on parents' opinion. In fact, by the end of the first year almost 90% of children had at least one favorite toy [18]. Nevertheless, the main goal for children play remains their development.

Cognitive development, in particular, is one of the most important children development milestone. A number of studies suggested that cognitive development was influenced by many factors such as parent factors [7, 19, 20], infant factors [21, 22, 23, 24, 25, 26], genetics and environments [27], supportive parenting [28], culture, family size [7, 26], iodine consumption, life events, and number of sibling [29]. Most of these factors are difficult to modify to achieve the cognitive development goal. As the nervous system is largely developed by the age of 2 years [2]. Stimulation in such a "golden period" is essential [4]. Play is one of such stimulation and toys are tools to play. In one study, toys are applied to allow children with motor disabilities to play so that their cognitive and social development can be best enhanced [6]. In addition, a study demonstrated that appropriate play materials influenced cognitive development in children aged 20-40 months [7]. Similarly, a study suggested that provision of toys is associated with better child cognitive and language development [8].

Majority of recent studies investigating roles of play materials on child development have been conducted on children with special needs or developmental disabilities [9, 30, 31, 32, 33]. Most studies involved a small sample size, with as small as three [32, 33] while studies with larger sample size are mostly not greater than a hundred. These studies are mainly involved preschool children older than one year old. To our best knowledge, there is no study involving play materials among children at their first year of life.

In normal children, a longitudinal study demonstrated that availability of play materials in infancy was related to cognitive development at 3 years of age [34]. A study also found that children with access to a variety of play materials are found to reach higher levels of intellectual achievement [35]. Type of play materials and how they are used are equally important [17]. There was evidence that type of play materials influence children's responses [33].

In light of the above evidences, this thesis explored infants' preference for toys. Toys that promote child's attention-getting and attention-holding were identified for children at their first year of life. This thesis also determined if type of

play materials is associated with children's cognitive development among children aged of 1 year. These were based on a large cohort study of children in Thailand.

1.2 Objectives of the study

This thesis has 2 aims, both of which involves children aged of 1 year.

Aim 1. To determine children's preference for toys

Aim 2. To investigate an association between type of play materials and children's cognitive development

1.3 Justification for the study

In Thailand, information on child development is scarce. This led to the first birth cohort in Thailand- the Prospective Cohort study of Thai Children (PCTC). It is an observational, community-based study followed 4,245 infants from birth in October 2000 to September 2002 until three years old. Information of child development had been collected such as growth, social-emotional development, cognitive development and child rearing. Data on play materials had been intensively collected. This thesis utilized this component of the study. It can be viewed as the first piece of evidence for Thai children in this area. It is the evidence that was based on the largest cohort study of Thai children.

1.4 Definition of terms

- Play materials refers to any objects which an infant frequently played
- Cognitive development refers to fine motor, problem solving, and language skill of infant at aged one year which was assessed by Capute scale.
- Play area refers to the space prepared by the PCTC researcher at the hospitals that are the sites for investigating toy preference.
- Type of toys that were used for Aim 1- Children's preference for toys (appendix C).
  - Soft dolls – human: a small replica of a person; it used as a toy made from cloth; it might be child or adult, man or woman.

- Soft dolls – animal: a small replica of an animal or a strange animal; it used as a toy made from cloth; it might be real or not.
- Wooden dolls: a small replica of a dog; it used as a toy made from wood.
- Squeeze sound toy: a toy which makes a noise when pressing.
- Rattling sound toy: a toy makes a noise when shaking.
- Pull toys: a small replica of a train; it used as a toy made from wood and has a string for pulling.
- Walker (push along): a small replica of a wheel toy; it used as a toy for pushing along.
- Pictorial book: a small picture book made from thickness paper, colorful and consisting of pictures of animals or things.
- Push button sound toys: a small replica of a piano or keyboard; it used as a toy made from plastic with several buttons and makes a song or melody when pressing.
- Pounding sound toys: a small replica of xylophone which makes a noise when beating.
- Throwing balls: a 2-3 inch diameter ball with colorful.
- Abacus toys: a wood frame with colorful beads sliding on mental bend wires.

• Types of objects that were used for Aim 2- Association between type of play materials and children's cognitive development

- Dolls and other soft toy: a small replica of a person or animal; it used as a toy made from soft material, e.g. cloth, knitting wool.
- Sound toy: a toy made a noise by pressing or beating or shaking or blowing.
- Creative materials: multi-shape, size and color things which taught children to learn different color, size and shape.
- Stacking toys: a set of matter that had many pieces that a child plays by fitting together
- Home utensil: any implement for practicable use in household.

- Junk material: any matter waste from practicable use in household, e.g. powder bottle.
- Natural material: any matter from nature, e.g. wood, leaf.
- Self-invented toys: any play materials made by their parents/ caretakers.
- Writing materials: any matter for writing or drawing or painting.
- Cassette: any musical tape cassette for children, especially.

- Gestational age was the age of a newborn infant at birth in weeks which classified into two groups: preterm group (infant that born with age less than 37 weeks) and term group (infant which born with age equal or more than 37 weeks).
- Birth weight was weight at birth in grams which classified into two groups: low birth weight group (infant that born with weight less than 2,500 grams) and normal group (infant which born with weight equal or more than 2,500 grams).
- Parent's education was classified into three groups: under secondary school, secondary school, and higher than secondary school.
- Family size was number of person in an infant's main house.
- Income was family income in baht. It was divided into three groups using 25^{th} and 75^{th} percentile of income as cut points.
- Number of sibling was number of siblings that still alive.
- Marital status was classified into two groups: married and single.
- Breast feeding involved duration of breast feeding in months which classified into three groups: <3 (infant that breast-fed less than three months), 3-5 (infant that breast-fed between three to five months) and 6+ (infant that breast-fed more than five months).
- Parent attachment was number of mother's responsiveness which was observed during data collection at aged one year. The detail was in Appendix B5.
- Life events were critical events that had occurred during first year of infant's life. It was classified into 3 groups: 1) no was there was no any

event, 2) yes: not affected to family was at least an event was occurred but it did not affect them, and 3) yes: affected to family was the event had affected the family's life.

- Health status was based on an infant's hospital admission during the previous six months. It was classified into yes and no.

1.5 Scope of the study

This study used data in the PCTC, an observational, community-based cohort study. The main participants were children selected from four districts and an area at Bangkok Metropolitan.

Northern region (N): All children who were born between March 20, 2001 and March 19, 2002 in Muang District, Nan Province.

Northeastern region (NE): All children who were born between January 20, 2001 and January 19, 2002 in Kranuan District, Khon Kaen Province.

Central region (C): All children who were born between October 15, 2000 and October 14, 2001 in Panomtuan District, Kanchanaburi Province.

Bangkok Metropolitan (BKK): All children who were born between September 7, 2001 and September 6, 2002 in Ramathibodi University Hospital

Southern region (S): All children who were born between November 17, 2000 and November 16, 2001 in Thepa District, Songkhla Province.