

CHAPTER 3 METHODOLOGY

3.1 Participants

The subjects were the children aged three to six year olds. The total number of children was 7 persons: five girls aged 3.4, 4, 5, 5.4, and 5.6 years old, and two boys aged 3.3, and 4 years old. They came from middle-class socioeconomic status households and they lived in Bangkok, Thailand. Their parents have at least bachelor degrees. The children were already admitted to school. However, they had different background which depended on their families and cultures. Their background data were collected by unstructured interview from children and their parents.

3.2 Materials and Procedures

All materials were divided into four levels of reality, based on Miller Theory (Miller, 2006). However, this experiment was combined with replica objects, abstract object and imagination. The types of materials were a cooking, a carpenter, and a medical doctor set.

3.2.1 A Cooking set

The cooking set was printed out and made from 100 grams papers. Besides, PVC stickers were covered over all papers. Some cooking equipment was reduced in size to be appropriate for children. The objects were presented on side view such as a microwave, a blending machine, pots, a toaster, and a scale. Other cooking tools were

the same size as real things such as spoon, kitchen glove, and etc (see Figures 3.1 and 3.2).

Two objectives for the experiment are logical and symbolic reference (corrected reference). The children would continue to play by imagination, though there were missing tools. Moreover, they were able to refer the abstract paper toys to real things. The experiment was collected two times to confirm an experiment.

1. First time, the researcher set up to three tasks.

- The researcher had provided cooking tools for the children before telling them to cook a fried egg. However, there was a missing object (a gas stove). The researcher provided all kitchen tools and all ingredients. All ingredients included the illustrations that look like real things, and cartoon characters that represented the real things (see Figure 3.3). In addition, eggs were provided in many types (see Figure 3.4). The children had to choose by themselves but the parents were able to recommend.

- The researcher told the children to make a fruit smoothie before providing all cooking set which included a blending machine and a cup. However, the researcher did not provide any fruit.

The researcher asked the children to compare ingredients between pork (the illustration looked like the real thing.), pig illustration, a bad piggy (from the angry bird game) and a piggy bank (see Figure 3.5).

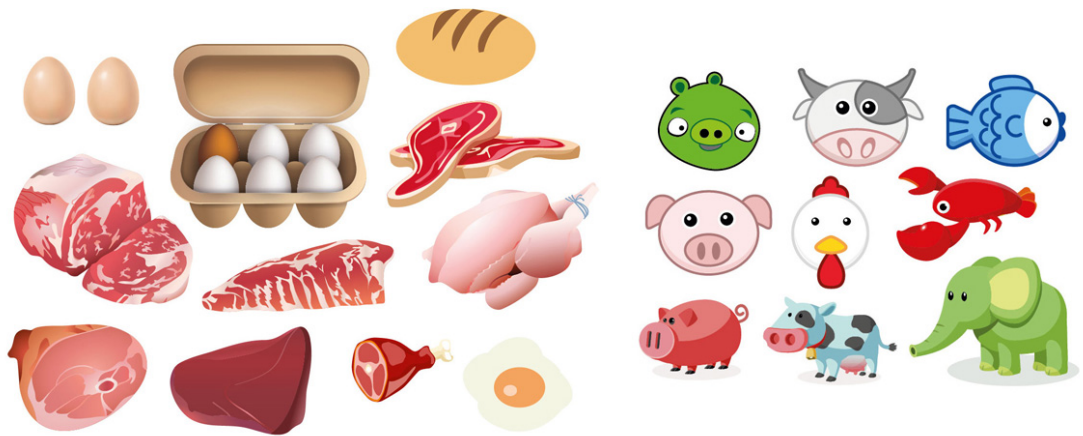


Figure 3.3 All ingredients

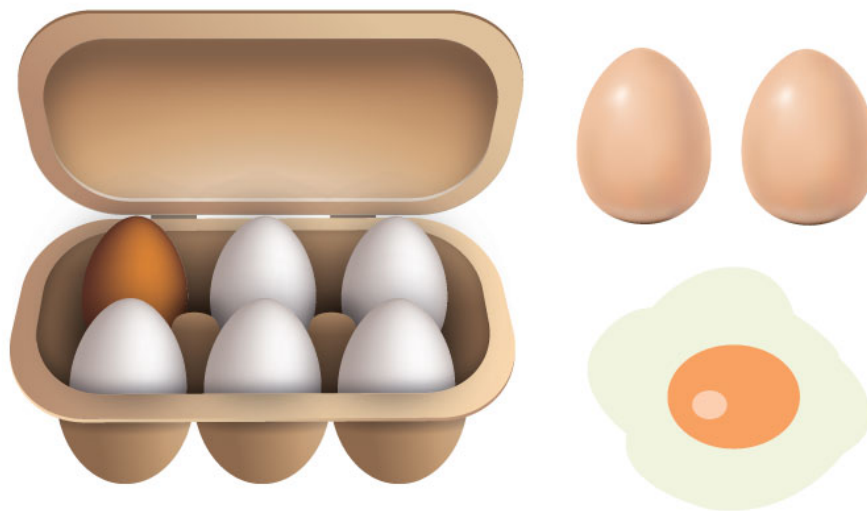


Figure 3.4 Many types of eggs

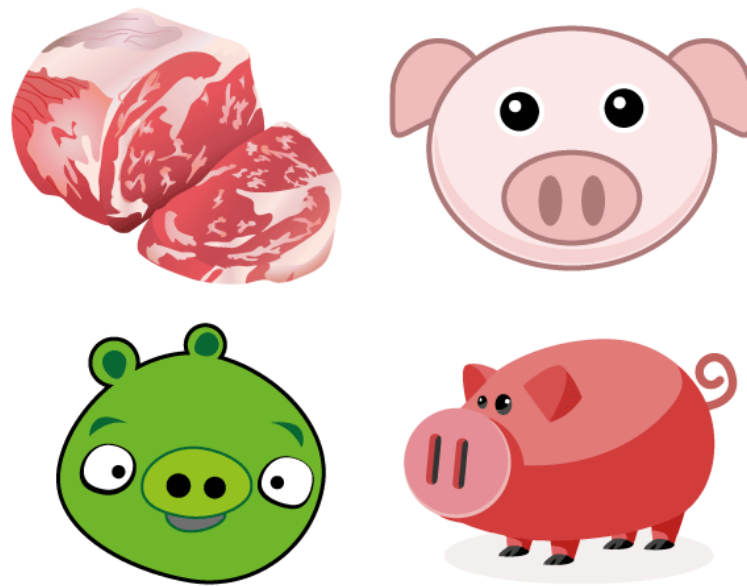


Figure 3.5 Pork or Pig ingredients

2. Second, the researcher set up two tasks.

- The researcher provided the missing object (gas stove) and gave a top view of pan illustration to the children (see Figure 3.6). The researcher told the children to cook fried egg again.

- The researcher told the children to make fruit smoothies and provided the tools like the first experiment. The researcher provided geometric fruit & vegetable ingredients to the children. The geometric fruit & vegetable ingredients were categorized into two sets of reality. For the first set, the researcher had provided geometric fruit & vegetable ingredients (see Figure 3.7(a)) and asked the children to indicate what it is. After that the researcher provided geometric fruit & vegetable ingredients, which increased the salience of a symbol more than the first set (see Figure 3.7(b)).

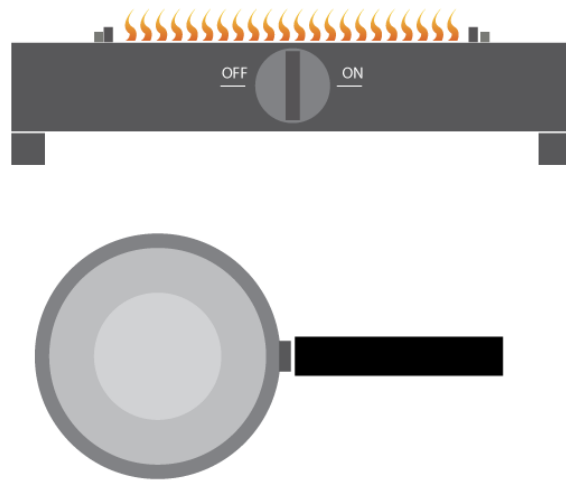


Figure 3.6 A gas stove and a top view pan

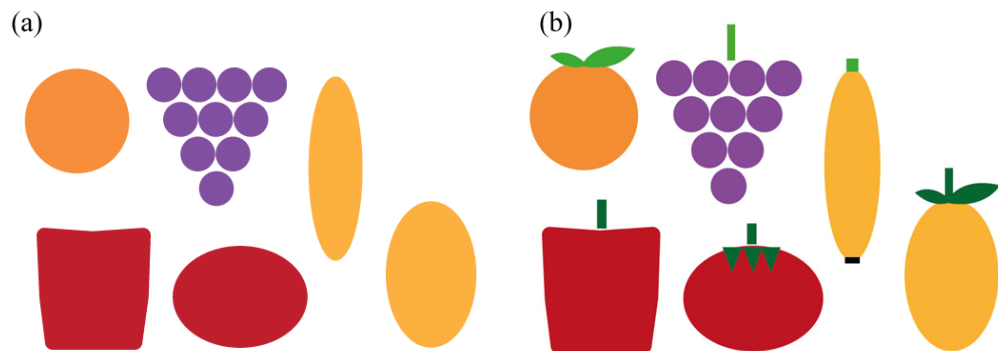


Figure 3.7

(a) Geometric fruit & vegetable ingredients (decreased the salience of a symbol)

(b) Geometric fruit & vegetable ingredients (increased the salience of a symbol)

3.2.2 A Carpenter set

The carpenter set was printed out and made from 100 grams paper. Besides, PVC stickers were covered over all papers. The set included carpenter equipment and planks (see Figure 3.8). The objective of this experiment was that the children were able to

develop a constructive play with their imagination. The researcher asked the children to build a house. However, it was not an obligation for the children. They were able to build anything they would like to construct.

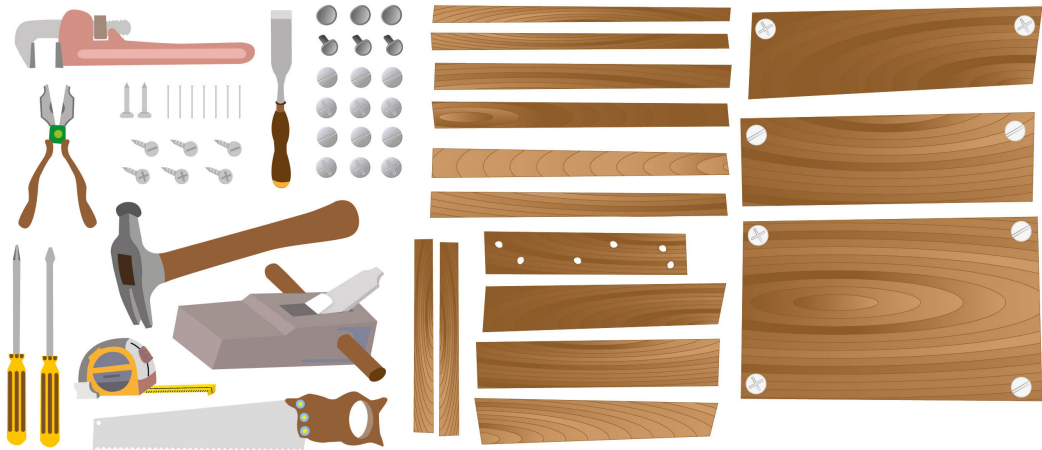


Figure 3.8 A carpenter set

3.2.3 A Medical Doctor set

The medical doctor set was printed out and made from 100 grams paper with the PVC stickers. The objects were two large capsule medicines and a needle (see Figure 3.9). The assumption of this experiment was that children were able to refer big-scale objects to real things and increase experience of learning. Moreover, the researcher would like to know that the big-scale objects would affect children's imagination play. The researcher told the children to play freely.



Figure 3.9 A medical doctor set

3.3 Data Collection methods and instruments

The data was collected from observation when the children were playing, through the method of taking notes on rubric (see Table 1.1), recording the video from children's play and having unstructured interviews with parents and children about children's background.

3.4 Data analysis methods

The researcher analyzed and observed children's behaviors from the video, recorded on rubric table (see Table 1.1) and wrote the result report. Furthermore, the first experiment of a cooking set result and unstructured interviews were synthesized for the next prototyping in the second experiment.

Table 3.1 Rubric

Index	Scores		
Quality	Level 1 (1 Point)	Level 2 (2 Point)	Level 3 (3 Point)
Cooking Set			
1st			
<ol style="list-style-type: none"> The researcher told the children to cook fried egg but a gas stove was missing. The researcher told the children to make fruit smoothie and provided all cooking set which included a blender machine and a cup. However, the researcher did not provide any fruit for the children. The researcher asked the children to compare ingredients between pork (the illustration looked like real thing.), pig illustration or a bad piggy (from the angry bird game application), and a piggy bank. 			
1. Skip and extended play. (An egg fried)	() Stop to play or ask about equipment	() Play and skip a missing object	() Imagine that there is a missing object or use other tools replace a missing object.
2. Playing process (Fruit)	() Stop to play	() Play, though no ingredients	() Extended play
3. Real thing reference (Compare all pig)	() Cannot make reference	() Have to imply	() Can make reference
2nd			
<ol style="list-style-type: none"> The researcher provided the missing object (gas stove) and gave a pan in top view to the children. The researcher told the children to cook a fried egg again. The researcher told the children to make fruit smoothie and provided the tools the same as the first experiment. However, this time provided fruits to the children. The fruit & vegetable ingredients were two steps of reality. <ol style="list-style-type: none"> The first step, the researcher had provided to decrease the salience of fruit & vegetable geometric and asked the children to indicate what is it. Second, the researcher provided the increase the salience of fruit & vegetable geometric. 			
1. Playing process	() Stop to play	() Tradition play	() Extended play
2.1 Real thing reference (Fruit first step)	() Cannot make reference	() Have to imply	() Can make reference
2.2 Real thing reference (Fruit second step)	() Cannot make reference	() Have to imply	() Can make reference
Carpenter Set			
The researcher asked the children to build a house. However, it was not an obligation for children. They were able to build anything they want to construct.			
Construct understanding	() Cannot play	() Traditional play	() Extended play
Medical Set			
The researcher told the children to play without condition and the researcher observed the children's play.			
Scale reference (Bigger than real things)	() Ignore the objects	() Traditional play	() Excited and extended play