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BIRTHDAY CAKE ACTIVITY STRUCTURED ARRANGEMENT FOR HELPING CHILDREN DETERMINING QUANTITIES

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Abstract

Few researches have been concerned about relation between children's spatial thinking and number sense. Narrowing for this small research, we focused on one component of spatial thinking, that is structuring objects, and one component of number senses, that is cardinality by determining quantities. This study focused on a design research that was conducted in Indonesia in which we investigated pre-school children's (between 2 and 3.5 years old) ability in making structured arrangement and their ability to determine the quantities by looking at the arrangements. The result shows us that some of the children were able to make such arrangement. However, the children found difficulties either to determine quantities from those arrangements or to compare some structures to easily recognize number of objects.

Keywords: structures, structured arrangement, cardinality

INTRODUCTION

Recent years, theories about relation between spatial thinking and number sense have been developed in the educational research community. The developers in this domain believe in early mathematical thinking young children mentally apply spatial configuration to determine an amount (Nicol et al., 2004; Mulligan et al., 2004). Some studies have been concerned on primary group children that are more than and equal to 4 years old (van Nes et al., 2006; Nicol et al., 2004; Mulligan et al., 2004), spreading out in some countries in Europe, America, and Australia. These studies showed the role of structured arrangement for the development of children's number sense.

Considering the important of that domain and realizing that lack of research about this domain in Indonesia, we designed a study to examine young children's ability in determining quantities by looking at the arrangements they made. I worked with pre school children, between 2 and 3.5 years old in order to rich the results of the domain. Besides, most children develop fundamental number sense before they receive formal education in primary school (Jordan et al., 2006), and pre school

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