JAPANESE CHILDREN'S UNDERSTANDING OF TEN AS A UNIT

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International studies, both large and small scale, have shown that students from Far Eastern countries such as Japan, Korea and China consistently outperformed their counterparts from the West. Some researchers have noted that the number words in those countries reflected the base-10 numeration system very closely, and such language structure may be a contributing factor for their superior performance. For example, Fuson & Kwon (1992) discussed how Korean language structure may have helped Korean children to develop efficient methods for simple addition and subtraction problems. Miura & Okamoto (1989) suggested that the Japanese children's cognitive representation of numbers positively affected their understanding of place values.

Although a number of researchers speculated that the number word structures in Far Eastern languages may have contributed to their children's performance, there has been no study that investigated Asian children's understanding of ten as a unit. Thus, a small scale, exploratory study was conducted to analyze Japanese young children's concepts of ten.

A convenient sample of 12 Kindergarteners, aged 5 years and 5 months to 6 years and 3 months, and 12 first graders, aged 6 years and 8 months to 7 years and 3 months, participated in this study. These students attended the Kindergarten and the Elementary School affiliated with the College of Education of a national university in Japan.

Each child was individually interviewed. There were four types of interview questions for children in both age groups. These tasks were adopted from Steffe and his colleagues' work (e.g., Steffe & Cobb, 1988) and involved individual counting squares and ten-strips. These interviews were semi-structured in that there were a set of common questions for each age group. However, based on children's response, the interviewer asked additional questions, and or or altered the size of numbers. Each interview took approximately 20 minutes. All interviews were videotaped for later analyses.

In our presentation, we will present our analysis of these interviews, focusing specifically on these children's understanding of ten as a unit.

References

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