

The University of Hong Kong
Department of Psychology

Departmental Seminar

**Strategic Counting: A Novel Assessment of
Place-Value Understanding**

Date: October 8, 2012 (Monday)
Time: 11:30 a.m. to 12:30 p.m.
Venue: Social Sciences Chamber, 11/F The Jockey Club Tower, Centennial
Campus, HKU
Speaker: Ms. Winnie Wai Lan Chan
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Children's counting strategies, such as counting from one or by groups of tens, reflect how much they understand the place-value structure of numbers. In a novel task for assessing place-value concept, namely the strategic counting task, children were asked to count small squares, which were arranged with or without correspondence to the base-ten number structure. The counting strategies of kindergarteners and first graders revealed that children developed from perceiving number as an undivided entity to seeing it as a collection of independent groups of tens, indicating a trend of increasing place-value understanding. First graders' strategic counting task scores at the end of fall semester predicted their mathematical achievement at the end of spring semester, over and above age, intelligence, and measures of simple counting, number representation, place-value understanding, and arithmetic calculation. Based on item analysis, a brief version containing only five items was developed for more user-friendly classroom administration. First graders' scores in the brief version uniquely predicted their mathematical achievement even at the end of second grade. Growth curve modeling revealed that children who were low mathematics achievers at the end of second grade had already shown poor performance in the brief version in early first grade and remained lagging behind their peers over the 18 months. Early poor understanding of place-value concept, then, seems to persist to upper grade and impede mathematical development. Implications for early support to children with difficulties in place-value concept will be discussed.