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Author

Marchand, Elisabeth

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Comparison of small sets and number word comprehension

Elisabeth Marchand

University of California San Diego, La Jolla, California, United States

Abstract

Humans can encode number both using non-verbal and verbal systems of representation. Here, we investigated the relationship between 2- and 3-year-old childrens (N=122) understanding of number words and their ability to compare sets of small sizes (e.g., 2 vs 3) to test whether the acuity of small number representations changes as a function of number word comprehension. Childrens comprehension of number words was measured using Wynns (1990) Give-Number task, while small number discrimination was measured using a computerized adaptation of Feigenson and Careys (2005) crawling preference paradigm. We found that children were able to compare small sets within and beyond the small number range, independent of how objects are presented (i.e., simultaneously vs sequential). We also found no relation between this ability and children's comprehension of number words (i.e., knower-level), which argues against the hypothesis that non-verbal number acuity is related to the acquisition of verbal labels for exact number.