A Longitudinal Study of Semantic Association and Categorical Relatedness on Children's Semantic Processing of Chinese Characters

Ciao-Han Wong,[1] Shiou-Yuan Chen,[2] and Tai-Li Chou[1,3,4]

[1]Department of Psychology, National Taiwan University

[2]Department of Early Childhood Education, University of Taipei

[3]Neurobiology and Cognitive Science Center, National Taiwan University

[4]Graduate Institute of Brain and Mind Sciences, National Taiwan University

Previous developmental studies with regard to semantic processing used cross-sectional approaches to examine developmental changes and did not make distinctions between semantic association and categorical relatedness. Semantic association was defined as character pairs produced by free association tasks; categorical relatedness was referred to character pairs within the same semantic category. The present study used a longitudinal approach to further investigate the roles of semantic association and categorical relatedness in the developmental changes of semantic processing. We orthogonally manipulated semantic association (strong, weak) and categorical relatedness (high, low) to examine developmental changes of 11-year-old children in a two-year interval. Children were asked to decide whether two visually-presented Chinese characters were semantically related and tested again two years later. There were two main results. First, the main effect of time was significant. Children performed better on accuracy of the second measure as compared with the first measure. Second, we found an interaction between semantic association and categorical relatedness on accuracy. The difference between the high and low categorical relatedness was significant for the strong semantic association, not for the weak semantic association. The difference between the strong and weak semantic association was significant for the high categorical relatedness, not for the low categorical relatedness. There are two implications in the present study. First, as age increased, accumulated learning experiences may enhance children to build more elaborate semantic representations. They may use more abstract manners to integrate different categorical relationships. Second, the interaction of semantic association and categorical relatedness suggests that semantic knowledge may be organized by both semantic association and categorical relatedness. The stable semantic enhancement is based on characters with strong semantic association and high categorical relatedness.

Keywords: *semantic development, semantic association, categorical relatedness*