Spatial Terms and Spatial Cognition of Chinese-English Bilinguals: An Eye-Tracking Study

Hui-Li Lin
Department of Clinical Psychology, Fu Jen Catholic University

According to the strong version of language relativity theory, spatial terms should affect or constrain the performance of spatial recognition tasks when cued by different languages. However, a weaker version of linguistic relativism proposes a "language as a category shaper" moderator point of view (Newcombe, 2005). To further explore this alternative viewpoint, the current study aims to investigate how categorizing boundaries in spatial terms between two languages may affect behaviors differentially as a function of task complexity. To achieve this goal, Chinese-English bilinguals' spatial cognition was assessed with eye-movement tracking techniques when they underwent visual recognition tasks cued with either Chinese or English spatial terms. The present study took on a 2 (cueing languages: Chinese vs. English) × 2 (task complexity: Less vs. More) complete between-subject experimental design. Seventy-three Chinese-English bilinguals were randomly assigned into 4 groups, ChLess, ChMore, EngLess and EngMore. Their eye moving patterns during visual encoding stage were observed and examined to see how they were affected by cueing languages under various degrees of task complexity. Eyetracking equipment was programmed to present task materials and record task performance, including eye-movement information. Total dwell time and total fixation count in specific areas of interest during the encoding phase were measured and compared among the 4 groups. We predicted that only when the visual information is complicated enough can the characteristic features of the cueing languages be shown. Our findings support this prediction, which is derived from the weaker version of language relativity theory. That is, our language does not change our cognition in a thoroughly one-way fashion. Instead, it moderates our thoughts as a category shaper.

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