

The Role of Bottom-Up vs. Top-Down Learning on the Interleaving Effect in Category Induction

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ABSTRACT

Interleaving has been shown to promote inductive category learning compared to massing. Interleaved presentation allows for the identification of features that are different between categories, thus enhancing discrimination learning of categories, whereas massed presentation promotes identification of features that are common among stimuli from the same category. Previous studies that found the interleaving effect employed the “bottom-up” learning approach (i.e. learning through exposure to exemplars) to inductive category learning. It is not known whether the same effects of interleaving can be observed in category induction using the top-down learning approach (i.e. learning when explicit information about the categories and the experimental procedures involved is given in advance). Thus, it would be interesting to compare “bottom-up learning” and “top-down learning” of categories. Using paintings from several artists, the present study investigated the effect of “bottom-up” learning (i.e. learning through exposure to exemplars) versus “top-down” learning of categories. One hundred and twenty undergraduate students participated in the present study, which used a 2 (Presentation style: Massed vs. Interleaved) x 2 (Learning type: Bottom-up vs. Top-down) mixed-factorial design. Consistent with previous findings, the benefits of interleaving were achieved using the “bottom-up” condition, while the current study also achieved some positive outcomes using the “top-down” condition. However, no significant effect of learning type was found, which indicates that performance in both groups did not differ significantly. Participants in both learning conditions perceived massing to be more helpful to learning than interleaving although their actual performance showed the opposite.

Keywords: Interleaving effect, inductive learning, category learning, category induction, bottom-up learning, top-down learning

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