Research Spotlight:

The Bug Game

Psychology graduate student Emily Keebler is working with Dr. Anna Fisher to extend our understanding of the different instructional techniques that are better suited to helping young children learn different types of categories. The research team is interested in whether visual context affects children’s category learning. More broadly, they are examining the role of attention in learning more and less challenging topics and the possible implications for designing early education materials. In The Bug Game, kindergarten children learn about fictional bugs through verbal descriptions and visual examples. The researchers are not using actual academic content, such as real bugs, in order to conduct valid tests of learning (i.e., children’s answers in this game are related to how well they learn completely novel categories, rather than how much they know prior to playing the game). After the experimenter introduced a category of bug, children viewed a series of bug pictures and classified each picture as belonging or not belonging to that category. When preparing their materials, the researchers manipulated the visual context in which children learn about the bugs so that some categories are shown on an unembellished background, and some are shown on vibrant, patterned backgrounds with related features of the habitat. In the game, children learn different types of categories. In some categories, all of the bugs look fairly similar, such that children can rely on perceptual similarity for categorization. However, for the more difficult categories, membership relies on one pair of critical features with all other features being incidental, such that the children need to focus their attention more precisely to determine if a bug belongs to the category. The researchers’ goal is to determine whether the presence of visual embellishments differentially affects category learning for easier and harder categories, based on different attentional demands.

The Spot the Difference Game

One of the groups from the undergraduate Research Methods in Child Development course is examining whether the timing of reward affect children’s performance on a task, specifically whether getting partial rewards intermittently during a task is more motivating for Preschool 4’s and Kindergartners than one large reward at the end. Each child is shown three sets of two nearly identical drawings and instructed to point to the differences between them. The experimenters either give children 5 small stickers after each of the comparison tasks or 15 at the end of the set of tasks. Children then use the stickers to decorate a picture to take home with them. The researchers will be comparing the accuracy and speed with which the children locate the differences between the drawings to test whether it will vary based on whether they receive intermittent small rewards or one larger reward at the end. They will also test the children’s intrinsic motivation to continue the game without reward by asking if they want to do extra Spot the Difference tasks after they decorate their picture with stickers. Previous research suggests that intermittent rewards may increase task performance and that extrinsic rewards may decrease intrinsic motivation to do tasks purely for their enjoyment, challenge, etc. This study is the first to investigate both issues simultaneously.