Research Spotlight

The Discovery Game

Dr. Audrey Kittredge, a post-doctoral researcher in the Psychology Department and member of the Program in Interdisciplinary Education Research, is working with Dr. David Klahr to compare the effect of different teaching styles on children’s goal-directed exploration. Children in the 3 year-old, 4 year-old and 5 year-old classrooms will participate in the Discovery Game at least once, and may come back for a few more sessions to investigate long-term effects of teaching styles. During the Discovery Game, the child is asked to play two games. In the first game, they are asked to find animals in a forest. In the second game, the child is asked to make 3 different roofs out of Lego blocks for 3 toy animals that are stuck in the rain. Each child will get a specific kind of instruction: (1) instruction that simply describes the goal of the game, (2) instruction that additionally demonstrates one way to play the game (one way to find animals or one way to make a roof), or (3) instruction that demonstrates one way to play the game while reminding the child that there could be many other ways. Depending on how much the child explores the forest or the possible structures s/he can build, s/he might discover just one way to play the game or multiple ways to play the game. Will the instructions that children hear impact how much they explore? Will the influence of instruction be long lasting, affecting how children explore novel environments and problems in the future? The results of this research may reveal the ability of different instructional techniques to encourage independent exploration in early childhood. This information, in turn, would allow educators to choose curricula and instructional techniques in a more informed manner.

The Remember That Game

In collaboration with Dr. Anna Fisher, graduate student Karrie Godwin is conducting a set of three studies for her dissertation to investigate the relationship between learning and other general cognitive processes such as attention, memory, processing speed, executive function, and general reasoning ability. In the Remember That game, she is examining how children allocate their attention in learning environments. In particular, she is interested in examining whether children’s ability to effectively distribute their attention has consequences for learning new science content.

In the Remember That computer game, children are presented with a series of pictures of animals or plants. Children are told the name for each picture. At the end of the game, a memory assessment is administered to see which items the children learned. For example, after learning the names of different types of butterflies and moths, children may be asked to identify the swallow tail butterfly (e.g., “Point to the swallow tail”).
Research Spotlight continued …

The Hearts and Flowers Game

As part of Karrie Godwin’s dissertation research on the relationship between learning and other general cognitive processes, she is measuring children’s cognitive control and their ability to inhibit a behavioral response.

In the *Hearts and Flowers* computer game, children are presented with a series of hearts and flowers. Children are instructed to respond to each object as follows: When children see a heart on the computer screen, they are told to press the response button on the same side that the heart was presented (e.g., if the heart appears on the left hand side of the screen, the correct response would entail pressing the left response button). However, when children see a flower, they are instructed to press the opposite response button (e.g., if the flower appears on the left hand side of the screen, the correct response would entail pressing the right response button).

The Button Game

Another part of Karrie Godwin’s study involves measuring children’s sustained attention and inhibitory control.

In the *Button* computer game, children are presented with a series of pictures. Children are asked to press a button in response to specific pictures and not to press the button when they see other pictures. For example, children may be asked to press the space bar whenever the picture of a *ball* appears but *not* when they see other objects.