Research Spotlight

The Reasoning Game

In this study, Dr. Anna Fisher and graduate student Karrie Godwin are investigating young children’s understanding of categories and the development of category-based reasoning. In particular, they are interested in examining the role of conceptual and perceptual information on category-based reasoning and induction in early childhood. Specifically, they are interested in the degree to which children utilize their knowledge of categories and perceptual similarity in a reasoning task where these sources of information are in conflict. They are also interested in whether labels help children make inferences. In the Reasoning Game, children are shown sets of three pictures similar to the ones presented here. For example, we might show children a lemon, a tennis ball, and a lemon slice. For half of the trials, children may be told the object labels. For the other half of the trials, no labels will be used. Children will learn that one of the objects has a particular property, and then the children must decide whether this property can be generalized to the other two objects.

The Naming Game

In a related study, Dr. Anna Fisher and graduate student Karrie Godwin are investigating young children’s understanding of categories and the development of category-based reasoning. In particular, they are interested in examining the role of conceptual and perceptual information on category-based reasoning and induction in early childhood. Specifically, they are interested in the degree to which children utilize their knowledge of categories and perceptual similarity in a reasoning task and whether familiarity with labels helps children make inductive inferences during a reasoning task. In the Naming Game, children are shown a series of pictures similar to the one presented below. Then, children are asked to identify the animal or object pictured. For example, “We are going to play a game with pictures. I am going to show you a picture and I want you to tell me what the picture is called. Okay, let’s play the game. What is this called?”

The Balancing Game

One Research Methods team is studying the impact of encouragement on gross motor skills, which are actions that require movements of large muscles, such as running, jumping, walking, and balancing. Encouragement is particularly interesting because it is simple, free, and may have the power to motivate and increase children’s attention, according to current research. Encouragement, specifically high-fives, was shown in previous research to improve performance in children. In the Balancing Game, the students tested the effects of verbal (“Good job!”) and physical (high-fives) forms of encouragement on balancing task performance. Half of the children received encouragement immediately after performing each balancing task, and the other half received the encouragement after all of the tasks had been completed. The students plan to compare the length of time children balance on each task and compare the times for children receiving encouragement between tasks vs. those receiving encouragement at the end of the experiment (i.e., when it could no longer affect performance). Ideally, results from this experiment can be applied to other activities as well, such as reading or problem solving.
Research Spotlight, continued …

The Matching Game

One of the Research Methods groups is testing the effect of familiarity on working memory. The purpose was to explore the differences in the memory performance with high familiarity objects as opposed to low familiarity objects. Some examples of highly familiar objects shown below are apples and cats; low familiarity objects would be gooseberries (a fruit) and binturongs (an animal). Based on previous studies of familiarity effects with faces and objects, the students expected that children would have better memory and make fewer errors when matching high familiarity objects than matching the low familiarity objects because they could devote their cognitive resources to the object location instead of focusing on the object identity. Each child played this game three times in one session, once with high familiarity objects, once with low familiarity objects, and once with a mixed set. The students included a mixed board to determine whether the children matched familiar objects before unfamiliar objects. If this result is obtained, it will provide further evidence suggesting that how well children remember something depends on its familiarity. This is important because teachers could use familiar objects and concepts as a teaching method for conveying new ideas to encourage better memory. Additionally, the results could be used to show how repeated exposure to objects can help a child remember the objects better. As a result, teachers and parents could use this information to further reinforce various ideas/objects/lessons through repeated exposure.

The Copy Cat Game

Another Research Methods team is studying the effect of physical activity on creativity. Multiple studies have suggested that physical activity prior to a creative challenge increases creativity scores in adults. In the Copy Cat Game, students in the Developmental Research Methods class are investigating the connection between exercise and creativity. In this task, children are first asked to repeat actions of the tester. Children in the experimental (exercise) group mimicked behaviors like jumping jacks and running in place. Children in the control (stationary) group mimicked behaviors like smiling and touching their head. All children were then given a modified “alternative uses” task, which is a type of creativity measure, where they were asked to think of as many uses for a block as possible. A coder recorded all of the ideas generated, with the goal of comparing the number and originality of ideas from both groups. Based on the existing evidence that there is a connection between physical activity and creativity, they expect the children who did an exercise-oriented copy cat game to perform better than the children who did a more stationary version of the game. If this result is obtained, it will provide further evidence suggesting that physical activity is beneficial to children and adults alike in enhancing creativity, and perhaps other types of cognition.