Research Spotlight

Research Methods Class – The Mouse Game

Students in Dr. Stephanie Siler’s Developmental Research Methods class will start the semester with a lab entitled The Mouse Game. They will work in pairs and small groups to conduct a study of whether very young children are able to test a simple hypothesis. Children in first- and second-grades have been found to be able to test a simple hypothesis in a well-structured task. However, it is unclear whether younger children are able to do so and when this ability first emerges. Previous research has shown that, in tasks in which children are asked to test a hypothesis, they often instead adopt the goal of creating a practical outcome, i.e., more of an engineering goal than a science goal. In fact, even older children—those in late elementary and middle school—often apply practical goals when given lessons on science inquiry, which impedes their learning of key experimental principles, like the importance of controlling variables.

To assess whether children are able to test a hypothesis, in this project, children are read a story in which a pair of siblings discover that a mouse is living in their house. However, they disagree on whether the mouse is big or small. They decide to try to determine whether the mouse is large or small by leaving mouse food in a box that has either a small entrance (where only a small mouse could enter to eat the food) or a box that has a larger entrance (where either a small or a large mouse could enter). The child’s task is to choose the box that will allow the siblings to discover whether they have a small or large mouse. Afterward, the child is asked which box to use in order to feed the mouse (regardless of whether it is large or small). This last question assesses the child’s ability to apply a practical goal.

A secondary question investigated in this study is whether the amount of detail included in pictures shown to children in this task affects their performance. To address this question, in one condition, children are shown pictures that are minimally detailed (e.g., see the pair of mice shown to the left below). In a second condition, children are shown pictures that included more potentially-distracting detail (see the pair of mice shown to the right below).

Because hypothesis testing is a fundamental aspect of science inquiry, the findings of this project may inform educational practices designed to support learning of science inquiry skills, in particular, how much detail to include in instructional images. Results from this study may also inform theories of cognitive development and inform educational practices, such as when it is feasible to introduce hypothesis testing in the school curricula.