Keeping Parents Informed about Research

The **Research Spotlight** section of the monthly newsletter is one way Children’s School parents can learn about research in progress. Also, each time your child participates in a study that involves playing a “game” with a researcher (i.e., as opposed to merely being observed), he or she will get a **participation sticker** suggesting that you, “Ask me about the … game” and a **study description** detailing the task. We also have **recent articles** resulting from Children’s School research posted on the school web site ([www.psy.cmu.edu/childrensschool](http://www.psy.cmu.edu/childrensschool)) and a notebook of articles in the office.

**Observations for Psychology Assignments:** Students from Dr. David Rakison’s Child Development class will be doing periodic observations this fall. For each assignment, they observe specific differences between preschoolers and kindergartners in motor skills, social interactions, etc.

**Research Methods Class Studies:** Students in Yevdokiya Yermolayeva’s Research Methods course will start with a lab to explore whether using color cues to highlight the one-to-one correspondence between two rows of objects will help children understand that the number of items does not change when they are spread further apart or pushed closer together. Then they will work in groups to conduct a study of their own design, which will be approved both by their teacher and by Dr. Carver.

Feel free to contact Dr. Carver to discuss any questions you have about research.

**Research Spotlight**

**The Classroom Game**

Karrie Godwin, a graduate student working with Dr. Anna Fisher, is replicating a longitudinal study of children’s **selective attention** that she pilot tested last year. The purpose of her study is to investigate how children allocate their attention in learning environments. She is particularly interested in examining how physical features of the environment (e.g., toys, posters, art work, etc.) can contribute to or hinder kindergartners’ ability to attend to the content of a lesson, and she is examining whether children’s ability to effectively distribute their attention has consequences for learning new content. The researchers are teaching children 15 mini-lessons in a small group format. For 10 of the lessons, the physical environment includes items that are typically found in early childhood classrooms that may be potential sources of distraction (e.g., posters, artwork, manipulatives, etc.). For the remaining 5 lessons, the physical environment only includes visual aids and materials directly relevant to the lesson. Each lesson lasts approximately 15 minutes. During each lesson, children listen to a short story and answer questions about the content of the story. For example, they might listen to a story about plants and then be asked to circle the picture, from among four choices like those to the right, that they saw in the book.
Testing Reasoning Skills

Graduate student, Karrie Godwin is working with Dr. Anna Fisher and several other research assistants to investigate young children's reasoning skills. In particular, they are interested in investigating the relationship between young children's reasoning skills and other general cognitive processes such as memory, attention, processing speed, and language ability. Because the study involves diverse measures, our 3 and 4-year-old children will participate in multiple research sessions with Karrie over the course of a month's time, and then again in the spring. As usual, parents will receive descriptions of each session on the day the child participates.

- **The Thinking Game**
  
  In the Thinking Game, children are presented with a variety of reasoning tasks from the Weschler Preschool and Primary Scale of Intelligence (WPPSI). They are presented with various objects and asked to answer questions about the objects or physically manipulate the objects (e.g., rearrange, build, or sort the objects). Children are also asked to label various pictures, complete a puzzle, and build a block tower.

- **The Memory Game**
  
  In the Memory Game, children will listen to a list of words. Subsequently, children will be asked to remember the words from the list. In the first part of the game, children will be read a series of familiar nouns and asked to repeat them in the same order they were presented. For example, children may be presented with the words "duck, house, chair" and then asked to recite the words in order. In the second part of the game, children will be asked to repeat the items but in the reverse order in which they were presented. For instance, if children are given the words, "duck, house, chair", the correct response would be "chair, house, duck".

- **The Help Zibbo Game**
  
  In this game, children will assist Zibbo as he organizes and counts objects. In this task, children will be told where Zibbo will put a particular object. Then children will be asked to predict where they think Zibbo will put other objects. For example, children may be told that “Zibbo will put his cup here. Where do you think Zibbo will put this cup/basketball?”). Subsequently, children will be shown pictures of various objects and asked to help Zibbo make “more-or-less” judgments about the pictures. For example, children may be shown 7 pictures of flowers (5 red roses and 2 white daisies). Then children may be asked to help Zibbo find out if they have more roses or if they have more flowers.

- **The Similarity Game**
  
  Dr. Anna Fisher’s research team is investigating how young children learn synonyms. They are particularly interested in examining how factors such as co-occurrence in child directed speech (e.g. bunny-rabbit) influence how children learn synonyms. In addition, they are exploring whether children are able to use their knowledge of synonyms in order to solve reasoning problems.  

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Research Spotlight continued …

• The Similarity Game continued …

In this study, the researchers will present children with reasoning tasks in which children must rely on their knowledge of synonyms in order to solve the problem. The goal is to determine the degree to which children utilize their knowledge of synonyms in various reasoning tasks. In the Similarity Game, children are shown identical pictures of doors or trees similar to the ones presented below. The children are told about objects that are hidden behind the doors/trees. For example, we might tell children that there is a turtle, a basketball, and a crab behind each door. The children 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.

Did you hear bee or pea?

Dr. Dan Hufnagle and Dr. Lori Holt are investigating how children learn sound categories. In Session 1 of this game, children hear a friendly space alien who is learning how to say words correctly. The children help the alien learn how to say bee and pea. Then, they hear those words many times and tell the experimenter which word they hear. Sometimes the sound is ambiguous (acoustically between “bee” and “pea”). In cases like this, adults rely on pitch as a clue. The experimenters are testing whether kindergartners similarly use pitch to disambiguate sound categories like “b” and “p” as a means of understanding how native language speech sound categories develop across time. The data from this session will establish a baseline for how strongly pitch affects the child’s responses. Adults judge a sound to be more “bee”-like when it has a lower pitch, all else being equal. A follow-up session then tests how sensitive children are to changes in pitch, such as those that might be encountered in listening to a person with a nonnative accent.

During Session 2 of this game, children hear bee and pea many times and tell the experimenter which word they hear. As in Session 1, sometimes the sound is acoustically ambiguous between “bee” and “pea”. The goal of Session 2 testing is to understand how kindergartners learn the cues that make up sound categories (like “b” and “p”) and how those categories develop across time. Session 2 emphasizes and de-emphasizes pitch to test how quickly children learn new patterns of how the secondary pitch cue relates to the sound categories. Adults learn to adjust perception very quickly when pitch varies, but psychologists do not yet know whether this quick learning is present early in language development. In an earlier experiment with different sounds (deer and tear), the same researchers found that pitch strongly influenced how children perceive ambiguous dear/tear sounds, but children did not learn to adjust the mapping of pitch to sound category when it varied in the experiment. In this follow-up study, the experimenters emphasize pitch more and use sounds for which adults are more sensitive to changes in pitch (“b” and “p”). Understanding whether children are able to flexibly remap how sound cues relate to speech categories will help psychologists understand the nature of auditory perception and language development.