

## Establishing Classification Reasoning in Young Children

The purpose of this study is to examine the impact of learning experiences on the emergence of hierarchical reasoning in young children. This study is the activity participants would wait for in the earlier study (rule-governed helping).

### **Participants:**

We hope to recruit 4-6 participants initially ages 3-5 years.

### **Time commitment:**

Participants will meet with experimenters as part of this protocol and the joined study for approximately 15 minutes per session. We hope to conduct sessions daily to several times per week for approximately 4-6 weeks.

### **Design:**

The experiment will be conducted in a multiple baseline across hierarchical classes within participants.

### **Measurement**

Data will be collected on picture sorting in response to prompts (“put all the animals here and all the not animals there”) as well as set naming. “These pictures are all the same in some way. How are they the same?”

### **Procedures:**

- *Preference Assessment:* Prior to participation in the study the children will participate in a brief preference assessment to identify potential reinforcers. All reinforcers will be submitted for parental and staff approval before incorporation into the study.
- *Baseline:* Participant will be asked to sort groups of picture cards into requested sets that conform to hierarchies. Hierarchies will be identified based on pre-assessment to identify new learning for participants. For example a hierarchy might contain Animals, Dogs & Fish, with specific examples of dogs and fish within those categories.
- *Lower Hierarchy Training:* Children will be taught through modeling, practice, and feedback to sort the lowest level set (e.g, beagles & poodles are dogs or pines and oaks are trees).
- *Upper Hierarchy Training:* Children will be taught through modeling, practice, and feedback to sort the upper level sets (e.g, dogs and fish are animals).
- When these two hierarchies have been taught the goal is to test for the emergence of untaught transitive class containment relationships: if dogs are animals, and beagles are dogs, then dogs must be animals). If this reasoning function emerges we will also test for transfer of feature

- (TOF): if all animals eat, then dogs and beagles must eat. If the children do not exhibit transitive class containment and TOF, we will progress to the final stage.
- *Multiple Exemplar Training*: Systematically through the hierarchies the children have learned they will be taught individual critical instances of hierarchical class containment and TOF. The goal is to observe for emergence of generalized hierarchical class containment and TOF through multiple exemplar training.