

# Generalization of Matching-to-Sample Skills Across Novel Materials in Children with Autism



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## Introduction

- ❖ The focus of treatment for children with autism should include teaching the child to request, teaching receptive and expressive language, and teaching visual performance skills such as matching-to-sample (Sundburg & Partington, 2008).
- ❖ In order to maintain acquired skills, it is important for children to be able to learn how to generalize skills to novel environments, materials, and teachers (Sundburg & Partington, 2008).
- ❖ Children with autism have displayed difficulty in generalizing skills (e.g., matching-to-sample, labeling items, and receptive identification) to novel materials (Sundburg & Partington, 2008).
- ❖ Researchers have published conflicting results as to whether the use of objects (House & Zeaman, 1960) or photographs (Dixon, 1981) as training materials teaches children to generalize matching-to-sample skills to novel materials more effectively.
- ❖ When typical infants were taught to match-to-sample, the generalization rate of matching-to-sample skills was equivalent across participants when comparing the use pictures and objects as training materials (Daehler, Perlmutter, & Myers, 1976).
- ❖ The purpose of the current study is to determine whether teaching matching-to-sample skills to children with autism (using objects and pictures) will produce effective generalization skills when using novel objects or pictures, or if generalization will be found in both conditions.

## Method

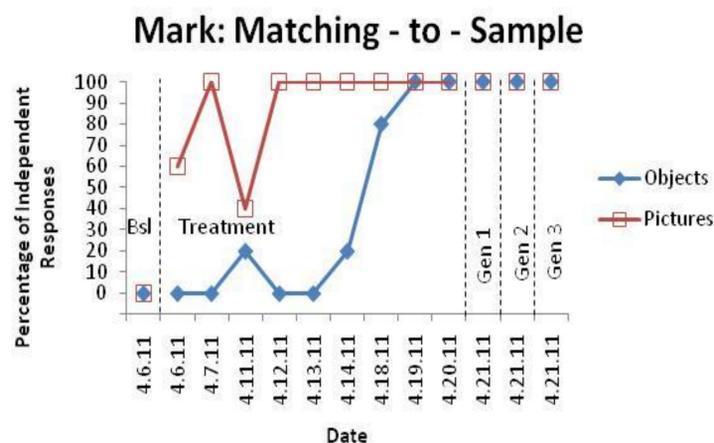
### Participants and Setting

- ❖ One child participated in the current study: Mark, 2 years, 7 months old.
- ❖ The participant was receiving approximately four hours of intensive-behavioral therapy each week at a university-based program.
- ❖ Experimental sessions were conducted at the beginning and end of the child's 50 minute therapy session Monday through Thursday.
- ❖ Sessions were conducted at a table in a therapy room (2.1 m by 4.6 m) located at the university-based program.

## Method

### Materials

- ❖ Two identical red toy convertibles and one non-identical blue toy convertible were used to teach matching-to-sample skills using objects.
- ❖ Two identical photographs of black cats and one photograph of a white cat were used to teach matching-to-sample skills using pictures.
- ❖ Object generalization materials included two identical green toy convertibles, two identical green toy buses, and two identical red toy bears.
- ❖ Picture generalization materials included two identical photographs of calico cats, two identical photographs of golden retrievers, and two identical photographs of red cars.



### Procedure

- ❖ The participant was taught to match-to-sample using both pictures and objects.
- ❖ The participant was taught to match-to-sample using a shaping procedure (Sundburg & Partington, 2008).
- ❖ The participant was seated at a table for all trials, with the target object or photograph and the distracter object or photograph in front of the participant.
- ❖ A correct response was defined as the participant placing his object or photograph next to the target object or photograph.
- ❖ If the participant completed the task incorrectly, a 2:1 least-to-most prompting procedure was used.
- ❖ Mastery criterion was defined as the participant emitting the correct response for five consecutive trials across two days.
- ❖ If the participant mastered objects before pictures (or vice-versa) maintenance trials were conducted twice per session until both skills reached mastery.

## Method

### Generalization

- ❖ Generalization trials were delivered once the participant reached mastery of the matching-to-sample skill using both objects and pictures.

### Generalization of Objects

- ❖ Three matching-to-sample generalization trials were delivered using objects.
- ❖ The first generalization trial tested to see if the matching-to-sample skill acquired during treatment generalized to another object with novel features.
- ❖ The second generalization trial tested to see if the matching-to-sample skill acquired in treatment generalized to objects of the same class, but in a novel form.
- ❖ The third generalization trial tested to see if the matching-to-sample skill acquired during treatment generalized to objects of a novel class.

### Generalization of Photographs

- ❖ Three matching-to-sample generalization trials were delivered using photographs.
- ❖ The first generalization trial tested to see if the matching-to-sample skill acquired in treatment generalized to another photograph of an animal with novel features.
- ❖ The second generalization trial tested to see if the matching-to-sample skill acquired in treatment generalized to photographs of the same class, but in a novel form.
- ❖ The third generalization trial tested to see if the matching-to-sample skill acquired in treatment generalized to photographs of a novel class.

## Results and Discussion

### Results

- ❖ The participant generalized the matching-to-sample skills to novel objects and photographs.
- ❖ During baseline, the participant was unable to match-to-sample.
- ❖ The participant achieved mastery criterion using both objects and photographs as materials.
- ❖ The participant emitted correct responses for all generalization trials.

### Limitations

- ❖ There was not enough time to effectively demonstrate experimental control.

### Future Research Ideas

- ❖ Future studies could use a multiple baseline design across participants to determine if the results of the current study are replicable.
- ❖ Future studies could use a multiple baseline design across skills to determine if the results of the current study are replicable for tacting, receptive, and expressive skills.

- ❖ We would like to thank the therapists at the Campus Autism Program, the parents and child that participated, and the Office of Research and Sponsored Programs.