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# Word Learning and Joint Attention: Implications for Autism Spectrum Disorder?

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## Introduction

- In typically developing children (TD), word learning often occurs within a rich, pragmatic environment, which includes such cues as:
  - Pointing, Eye Gaze, Direction of Voice
  - Child Directed Speech
  - Joint Attention, Referential Intent
- The prominence of these cues, and the robustness of word learning in their presence, support the argument that a rich pragmatic environment is a requirement for successful word learning.
- However, to date very few studies have examined the success of word learning in the absence of pragmatic cues.

## Current Study

- The goal of the current study was to examine the success of word learning in the absence of pragmatic cues by removing the speaker from the word learning episode.
  - Successful word learning in the absence of a speaker would support the position that pragmatic cues are needed for word learning.
  - While, unsuccessful word learning in the absence of a speaker would not support the position that pragmatic cues are needed for word learning.
- Importantly, these results could have implications for children with Autism Spectrum Disorder (ASD) who are often characterized by deficits in language and deficits in identifying, producing, and responding to pragmatic cues.

## Method

- Participants
  - Number — N = 30
  - Age — 2-year-olds (M = 32 months)
  - Gender — 19 Girls, 11 Boys
- Materials
  - Warm-up Phase — Wooden Blocks
  - Familiarization Phase — 2 Animated Videos; 8 Known Object Images
  - Test Phase — 5 Animated Videos; 20 Novel Object Images; 5 Novel Words

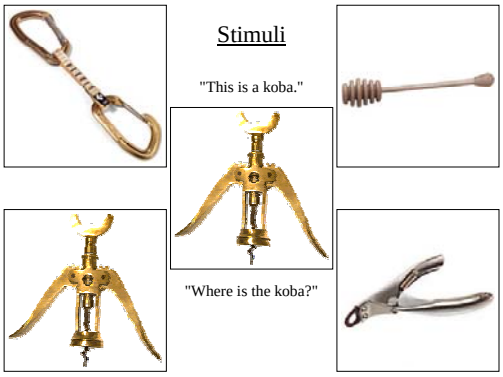
## Method

- Procedure
  - Warm-up Phase (4 Trials)
    - Children presented with wooden blocks
    - Children asked to categorize blocks (e.g., by color or picture)
  - Familiarization Phase (2 Trials )
    - Target image was labeled 3 times with a known word audio recording (e.g., “This is a dog.")
    - Target image and 3 known distracters appeared on screen
    - Children selected the image that corresponded to the word (e.g., “Can you help me find the dog?”)

## Method

- Test Phase (5 Trials, Fully Counterbalanced)
  - Experimental Condition (4 Trials)
    - Target image was labeled 3 times with a novel word by audio recording (e.g., “This is a koba.")
    - Target image and 3 novel distracters appeared on screen
    - Children selected the image that corresponded to the word (e.g., “Where is the koba?”)
  - Control Condition (1 Trial)
    - Target image was commented on 3 times by audio recording (e.g., “Wow.”)
    - Children selected the image that corresponded to a novel word (e.g., “Where is the blicket?”)

## Stimuli




## Hypotheses

- Hypothesis 1
  - Children will select the target in the experimental condition at a rate significantly higher than is predicted by chance.
  - **Experimental Condition > Chance**
- Hypothesis 2
  - Children will select the target in the experimental condition at a rate significantly higher than in the control condition.
  - **Experimental Condition > Control Condition**
- Hypothesis 3
  - Children in the control condition will not select the target at a rate that differs significantly from the rate predicted by chance.
  - **Control Condition = Chance**

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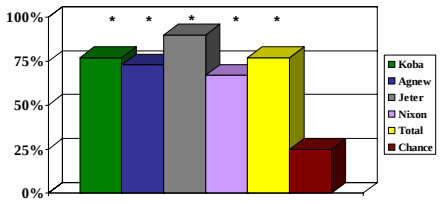
## Results

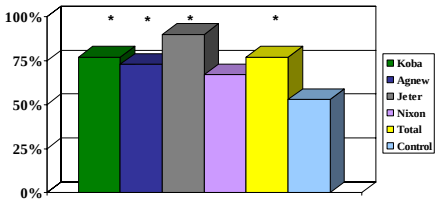
- Hypothesis 1 (See Figure 1)
  - Target image selected on 77% of all trials (i.e., 92/120)
  - Chance = 25% (i.e., 30/120)
  - **Experimental Condition > Chance**
- Hypothesis 2 (See Figure 2)
  - Target image selected on 77% of all trials (i.e., 92/120)
  - Target image selected on 53% of control trial (i.e., 16/30)
  - **Experimental Condition > Control Condition**
- Hypothesis 3 (See Figure 3)
  - Target image selected on 53% of control trial (i.e., 16/30)
  - Chance = 25% (i.e., 30/120)
  - **Control Condition > Chance**

**Figure 1: Experimental Trials Compared to Chance**



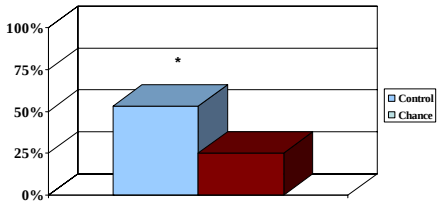

* p < .05

**Figure 2: Experimental Trials Compared to Control**




* p < .05

**Figure 3: Control Trial Compared to Chance**




* p < .05

## Conclusions

- Word learning can occur in the absence of a speaker.
- Success in the absence of a speaker (i.e., 77%) does not differ substantially from success in the presence of a speaker (i.e., 68%).
- Previous exposure to the target may influence children's selection.
- **Word learning can occur in the absence of pragmatic cues.**
- The deficits in identifying, producing, and responding to pragmatic cues that are frequently characteristic of children with ASD may not alone explain deficits in language .
- This has important implications for language and developmental interventions for ASD which often directly or indirectly target pragmatic cues.