Cross-domain influences on early word and action learning

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Introduction

Word learning: new object + verbal label; often accompanied by actions (e.g., Matatyaho-Bullaro et al., 2014)

Action learning (e.g., tool use): new object + action; often accompanied by words (e.g., Elsner & Pfeifer, 2012)

How does information from one domain (speech/action) influence processing of information in the other domain?

1. How does verbal information during demonstration influence the action imitation of infants?
2. Do infants prefer to associate objects with words or actions? And how does it relate to later language development?

Method

Stimuli & Design

Object-action-pairing: Noun & Verb > Control
Noun & Verb = Noun / Verb

Two objects: Blue Yellow
Two actions: Upwards Sideways
Four object-action-pairings: Blue-up Blue-side Yellow-up Yellow-side

Study 1 (DV: Imitation)

Noun-Condition: “Look, a Tanu/Löki!”
Verb-Condition: “Look, I dax/neem!”

Pilot with action-presentation on eyetracker vs. live-demonstration

Study 2 (DV: Gaze Behavior)

Training: 8 trials of word-action-object triads
Test: Word-object vs action-object associations

Vocabulary Assessment: Elfra-1
Cognitive / Motor Development: Bayley Scale

Retention after one week

Results & Discussion

Study 1:
• None of the toddlers produced any of the actions
• Problem might be inherent to the actions themselves

Study 2:
• 12-month-olds show recognition only for word-object associations
• 18-month-olds? Retention? Correlation? Still to be analysed...

Discussion:
• Action-object association might not be strong in either of the studies
• Words as arbitrary sounds = arbitrary actions?
• Words + reference = goal-oriented actions?

Next steps:
• Adding a bell to the toys to elicit a sound effect during demonstration
• Using multi-step actions with a clear action-goal + action-effect
• Using highly familiar words instead of pseudo words
• Influence of action demonstration on word-object association

References


Stimuli & Design

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