



Social Learning Lab  
Stanford University

# When (or when not) to adopt her view? Four-year-olds consider others' epistemic states to selectively take their visual perspectives

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## Introduction

### Visual Perspective Taking (VPT)

- VPT is critical for communication and social interaction.
- However, it is difficult for young children.
  - Children (and even adults) commit "egocentric errors" in perspective taking tasks (e.g., Keysar et al., 2000; Epley et al., 2004)
  - Children before 4–5 yrs of age fail to report what the same object looks like from others' viewpoints when it conflicts with their visual percepts (Level-2 VPT) (e.g., Piaget & Inhelder, 1956; Flavell et al., 1981; Moll et al., 2012)

### Whether VPT is appropriate and useful depends on the communicative context!

- Young children are sensitive to others' epistemic states and goals, and use them to selectively inform others (e.g., Moll, Carpenter, & Tomasello, 2007; Liszkowski et al., 2008; Gweon, Shafto, & Schulz, 2014; Gweon, Chu, & Schulz, 2014)
- Even though VPT is difficult, children might spontaneously take others' perspective when it is helpful for others!

### Central Question

Do 4-year-olds consider others' epistemic states and goals to decide when to take others' perspectives?

## Participants

Experiment 1a: 40 **4-year-olds** M(SD) = 4.49(.28)

Experiment 1b: 158 **adults** from Amazon Mechanical Turk

Experiment 2: 40 **4-year-olds** M(SD) = 4.53(.26).

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## Experiment 1

Are 4-year-olds (and adults) more likely to spontaneously take another's visual perspective when they are **teaching** than when they are **being taught**?

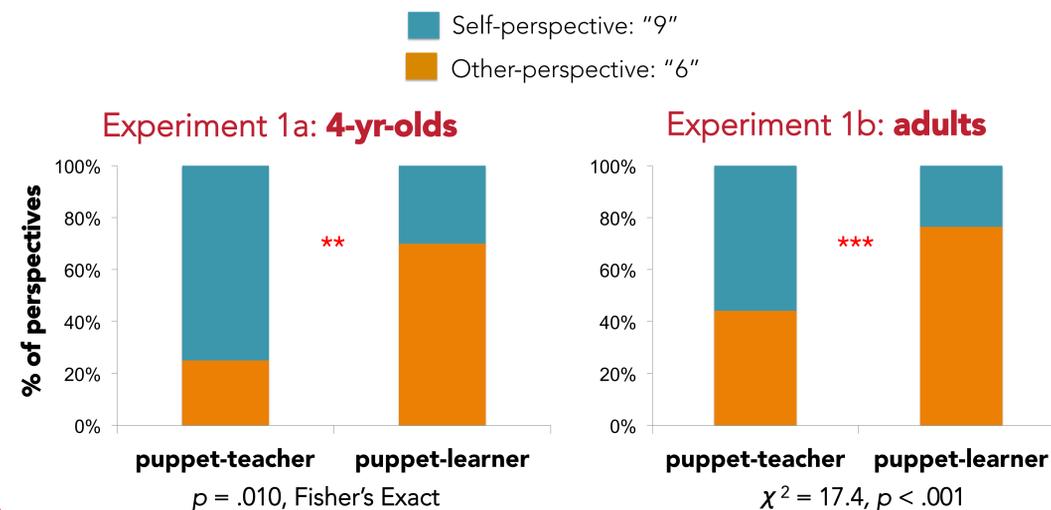
**Puppet-teacher condition:**  
"Oh! I **know everything** about numbers, and I **want to teach** you about numbers..."



**Puppet-learner condition:**  
"Hmm... I **know nothing** about numbers, and I **want to learn** about numbers..."

"I have a question for you: **What's the number on the table?**"

Participants directly responded to the puppet's question.



### References:

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Keysar, B., Barr, D. J., Balin, J. A., & Brauner, J. S. (2000). Taking perspective in conversation: The role of mutual knowledge in comprehension. *Psychol Sci*, 11(1), 32–38.

Moll, H., Carpenter, M., & Tomasello, M. (2007). Fourteen-month-old infants know what others experience only in joint engagement with them. *Dev Sci*, 10(6), 826–835.

Moll, H., Metzloff, A. N., Merzsch, K., & Tomasello, M. (2012). Taking versus confronting visual perspectives in preschool children. *Dev Psych*, 49(4), 646–654.

Piaget, J., & Inhelder, B. (1956). *The child's conception of space*. New York: Norton.

## Experiment 2

Do 4-yr-olds appropriately **evaluate others** depending on when they took their own vs. another's visual perspective?

**Puppet-teacher condition**

**Puppet-learner condition**

"... **What's the number on the table?**"



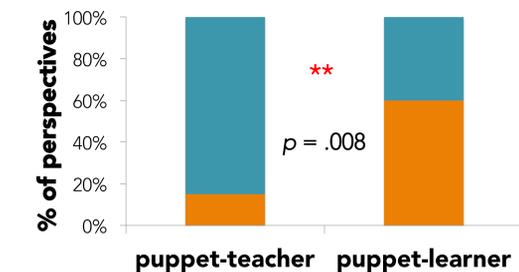
"It's a **9!**"

"It's a **6!**"

Self-perspective

Other-perspective

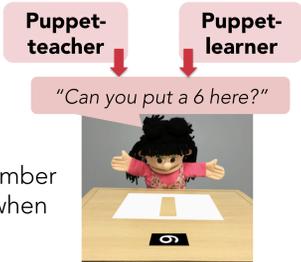
Question: "Who did a better job answering Emma's question?"



## Experiment 3

Can 4-yr-olds (or even younger children) actively manipulate objects to **create perspective-specific reality**?

Prediction: Children would be more likely to rotate the number to make a "6" for the puppet ("9" from their viewpoint) when she is learning from them rather than teaching them.



## Conclusions & Future Directions

- Four-year-olds considered others' mental states to...
  - selectively take others' visual perspectives only when it was helpful for others
  - evaluate others based on when they took their own vs. others' perspectives
- Explicit VPT tasks might have underestimated children's ability to spontaneously take others' viewpoints
- Future direction: Do toddlers show spontaneous, selective perspective-taking behaviors in Level-1 VPT tasks?