

# Using Photo-Narrative Reflections to Foster Children's Learning and Remembering

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## INTRODUCTION

- Narrative reflection is the telling and sharing of experiences through conversations with others.
- Many museum exhibits are designed to encourage active, hands-on engagement with objects to promote learning (Paris & Hapgood, 2002).
- However, when objects are interesting in their own right, children might focus more on the characteristics of the objects and less on the concepts and principles they convey (Uttal, Liu, & DeLoache, 2006).
- Narrative reflection may foster learning and transfer of learning by helping children focus less on specific exhibit objects and more on the general concepts and principles that can be learned from manipulating objects (Haden, Uttal, Marcus, & Cohen, 2016).
- This project investigates whether and how the opportunity to reflect on an informal educational experience can promote children's memories for the experience.

## PARTICIPANTS

- We observed 64, 4- to 9-year-old children and their parents at the Chicago Children's Museum.
- Of these 64 families, **30** recorded memory conversations about their museum experience at two delay intervals.
  - *M* child age = 7.40 years, *SD* = 1.18
  - 60% Caucasian, 20% Latino/Hispanic, 10% Mixed

## METHODS



- All families were provided with engineering instructions.
- They were then observed building a skyscraper in the Skyscraper Challenge area of the Skyline exhibit.
- Families were randomly assigned to one of two conditions: (1) Photo-Narrative, or (2) No Photo-Narrative.

## PHOTO-NARRATIVE

- **Photo-Narrative (*n* = 13).** Immediately after building, families moved to a computer kiosk where they were prompted to tell a narrative about their building experience using photos that were taken during the building activity.
- **No Photo-Narrative (*n* = 17).** For these families, the kiosk was not made available for narrative reflection.



- All families were invited to record memory conversations about their building experience **1-day** and **2-weeks** after their museum visit.

## CODING

Families' memory conversations were coded for STEM content and associative talk.

- **Engineering evaluative:** talk that involved evaluating the sturdiness of the structure they built at the museum
  - *We didn't make it to the cloud, but we made it steady, and it wouldn't fall down.*
- **Associations to relevant prior experiences or knowledge**
  - *We made it [skyscraper] so high, it was as high as the roof on the Big Ben.*

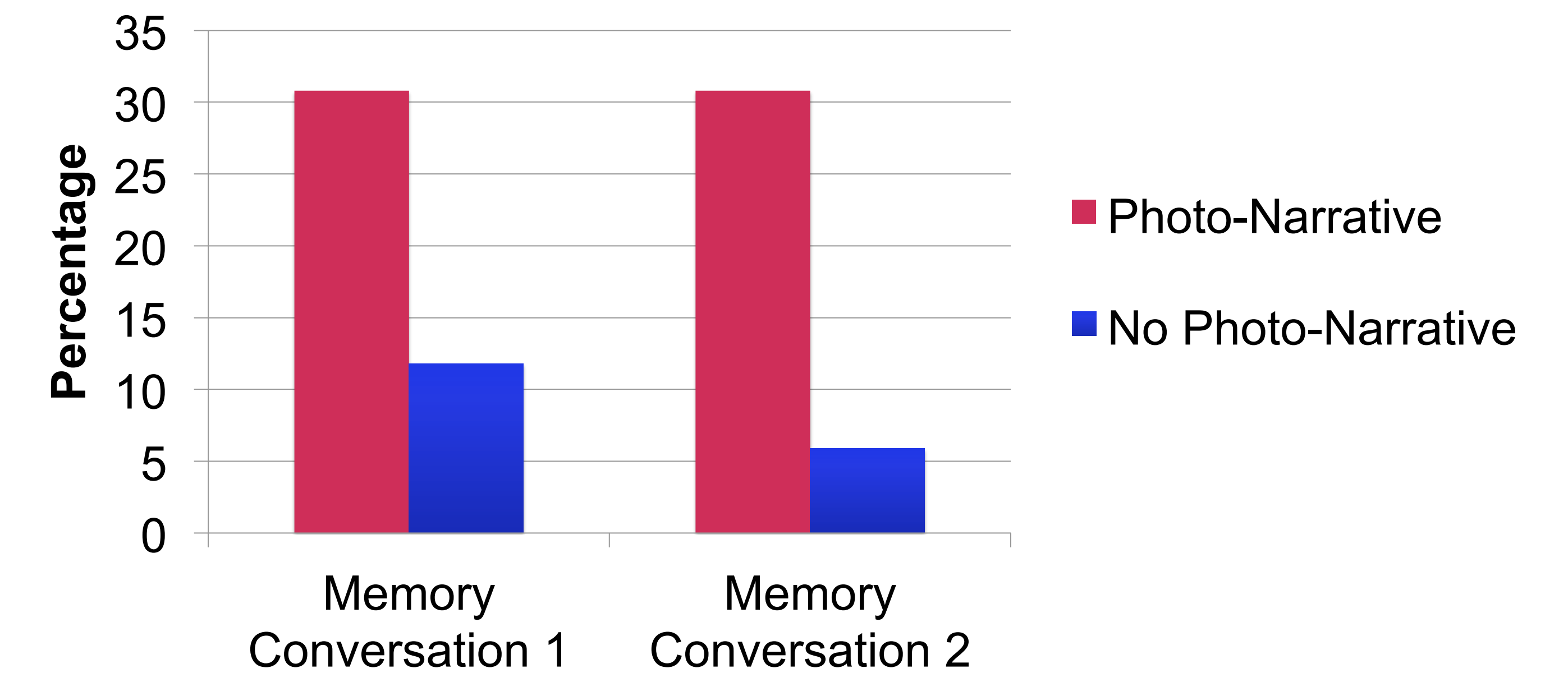
## RESULTS: MEMORY CONVERSATIONS

### Engineering Evaluative Talk

- At the first delay interval, the percentage of children who talked about the sturdiness of their structure did not differ by condition,  $\chi^2(1, N = 30) = 1.66, p = .20$ .
- However, more children in the Photo-Narrative condition than in the No Photo-Narrative condition talked about the sturdiness of their structure 2 weeks after their museum visit,  $\chi^2(1, N = 30) = 3.29, p = .07$ .  
 This was despite the fact that there were no differences between conditions in the sturdiness of the buildings families constructed in the museum,  $F(1, 28) = 1.43, p = .24$ .

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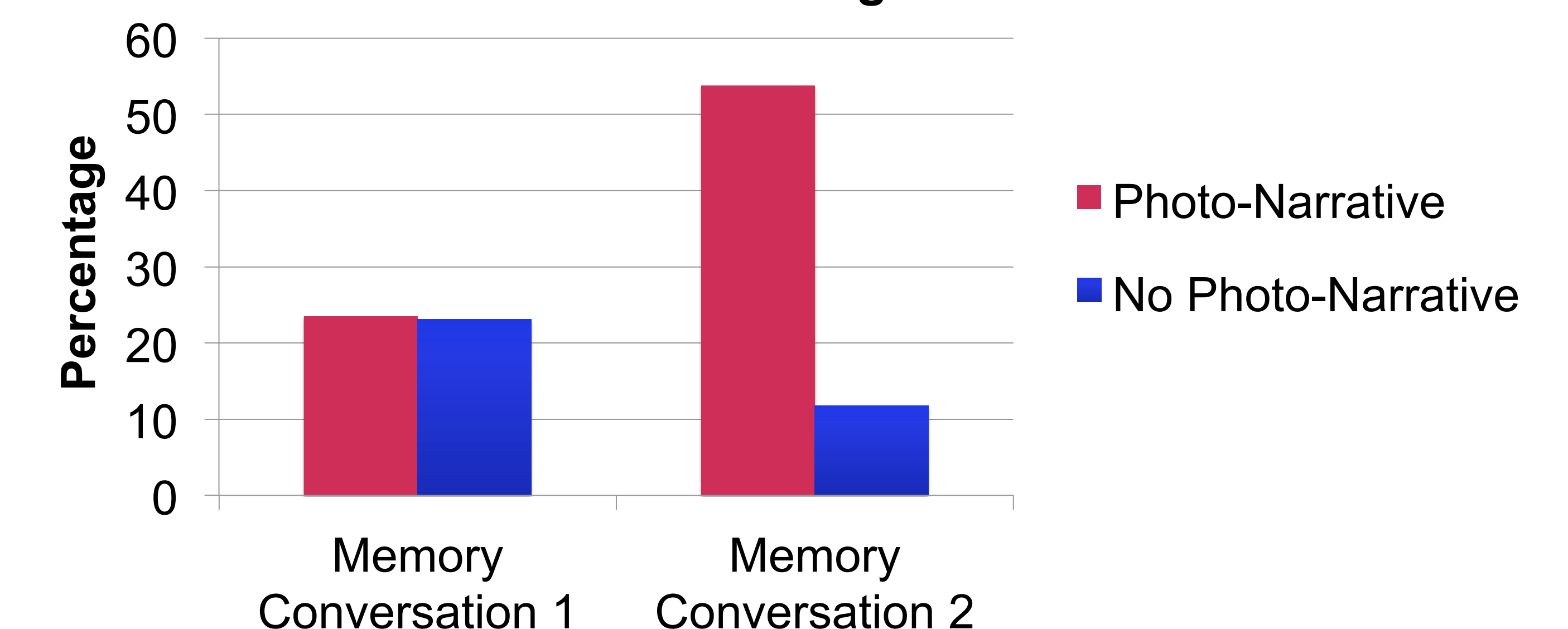
Percentage of Children Who Talked About Engineering



### Associative Talk

- At the first delay interval, the percentage of children who made an association to relevant prior experiences and knowledge did not differ by condition,  $\chi^2(1, N = 30) = .001, p = .98$ .
- Nevertheless, more children in the Photo-Narrative condition than in the No Photo-Narrative condition made associations to relevant prior experiences and knowledge 2 weeks after the museum visit,  $\chi^2(1, N = 30) = 6.21, p < .05$ .

Percentage of Children Who Made Associations to Prior Knowledge



## DISCUSSION

- The results revealed that providing families with the opportunity to reflect on their building experience helped them encode the engineering information in such a way that it seemed to become more accessible when reporting on the experience weeks later.
- Future work will examine whether the experience of telling a narrative facilitates children's abilities to apply the information learned in the museum in new situations.

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