

“You gotta tell the camera!”

Digital storytelling activities support children’s narrative and engineering talk

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INTRODUCTION

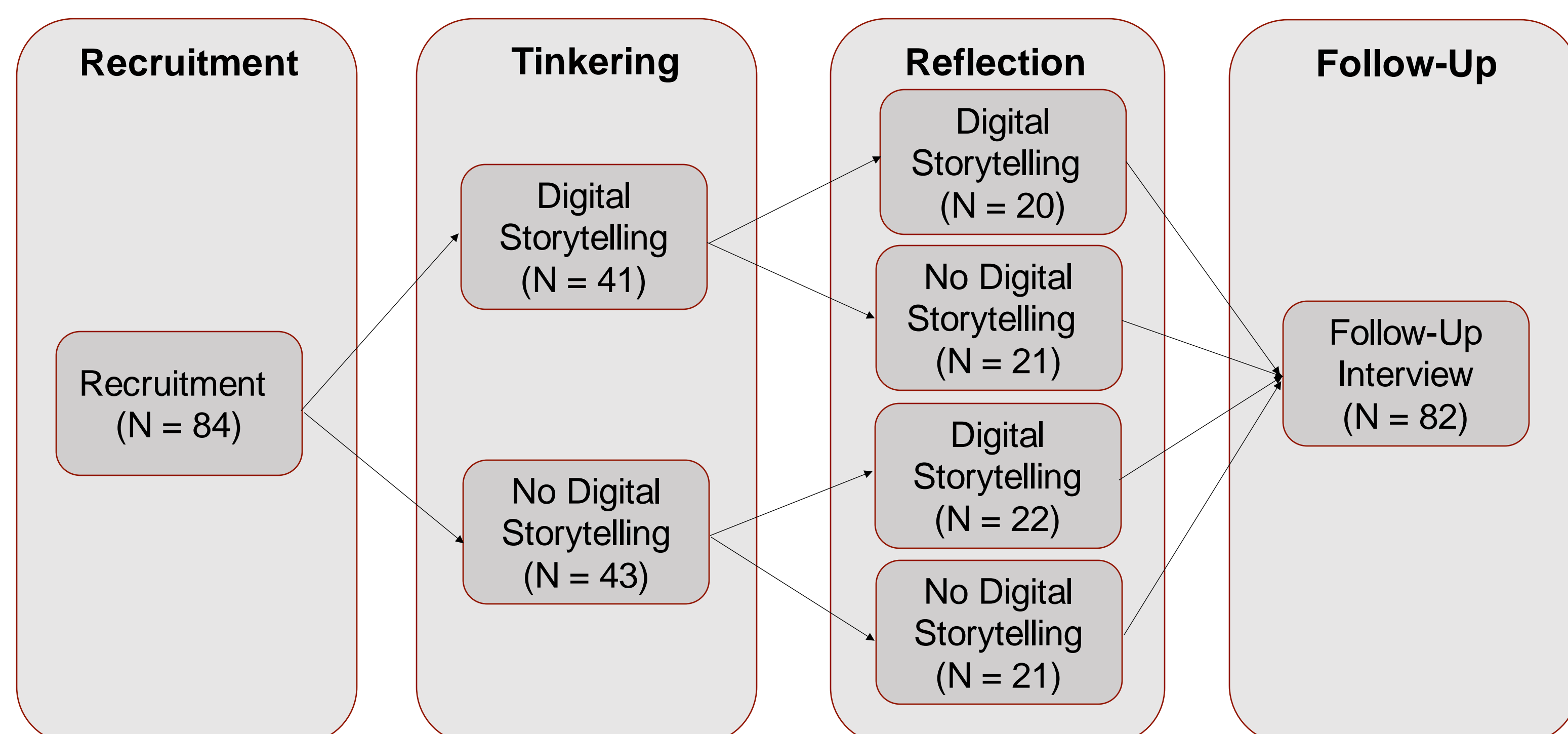
- Informal educational activities, such as tinkering, can be beneficial for children’s engineering learning (Bevan, 2017; Sobel & Jipson, 2016).
- Storytelling can help children organize and make meaning of their experiences (Brown et al., 2014; Bruner, 1996), thereby supporting learning.
- We examine whether digital storytelling activities during tinkering and reflection will be related to more engineering talk.
- We also explore whether children with previous digital storytelling experience will produce higher quality narratives than children without.

PARTICIPANTS

- 84 families met a researcher on Zoom and participated in a tinkering activity.
 - Children were between 5-10 years old ($M = 7.69$ years).
 - 48% Girls, 57% White, Average Parent Education = 18.8 years
 - 9 children had prior digital storytelling experience.

METHODS

- Families viewed a video invitation (created by Chicago Children’s Museum) for the “Here to There” tinkering activity, which challenged them to “make a six-foot-long ramp to move something important from here to there.”

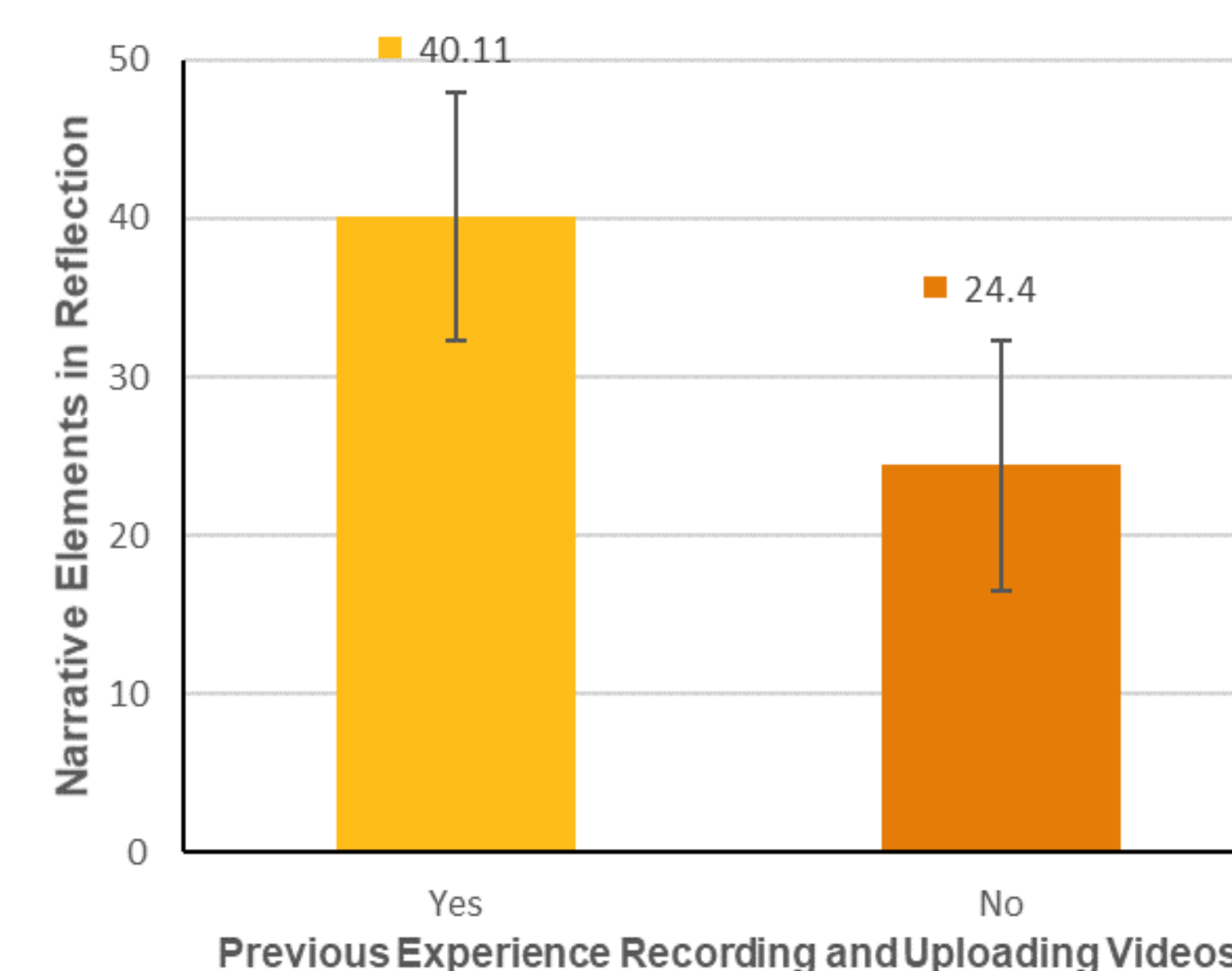


CODING

Engineering Talk	Tinkering interactions, reflections, and follow-up interviews were coded for talk about engineering practices: setting goals, brainstorming (i.e., referring to models/examples for ideas), planning, testing, identifying problems, and redesigning.
Narrative Quality Elements	Orienting Details Information about who involved in an event (agents, characters), where an event took place (location), and when an event occurred (temporal ordering).
	Actions Descriptions of what participants/characters physically did or said.
	Thematic Elements Evaluations or opinions about experiences (e.g., good, bad) and emotional and mental states.

RESULTS

Children’s Narrative Talk at Reflection

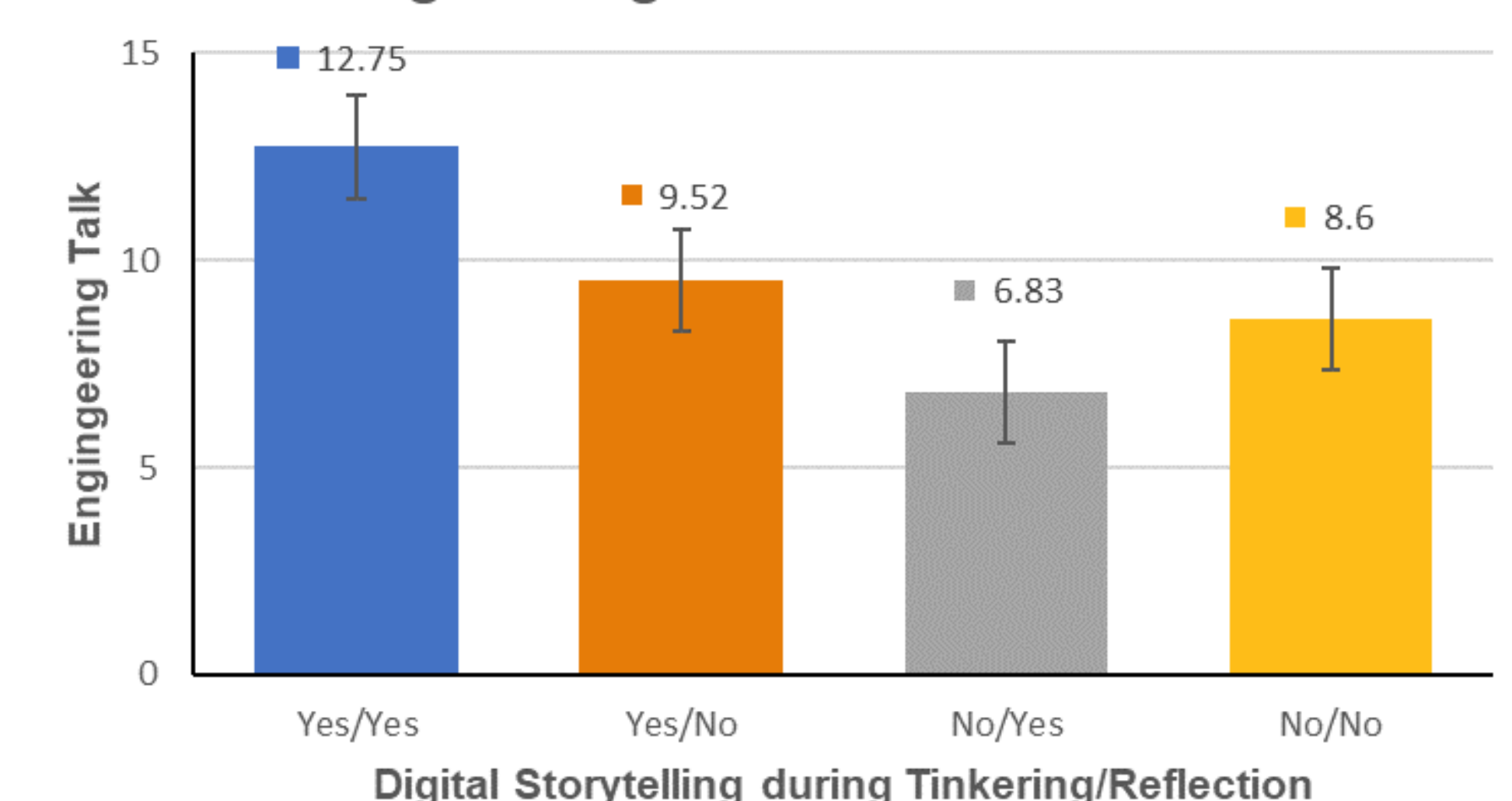


- As shown in **Figure 1**, children with prior experience uploading videos online used significantly more narrative elements in reflections than children without, $t(82) = 2.68, p < .01$.
- We found no effects of digital storytelling condition during tinkering ($F(1, 78) = 3.34, p = .072$) or reflection ($F(1, 78) = 0.67, p = .417$) on children’s narrative quality during reflection.

- We found no effects of digital storytelling condition on children’s engineering talk during tinkering, $F(1, 80) = 0.21, p = .646$.

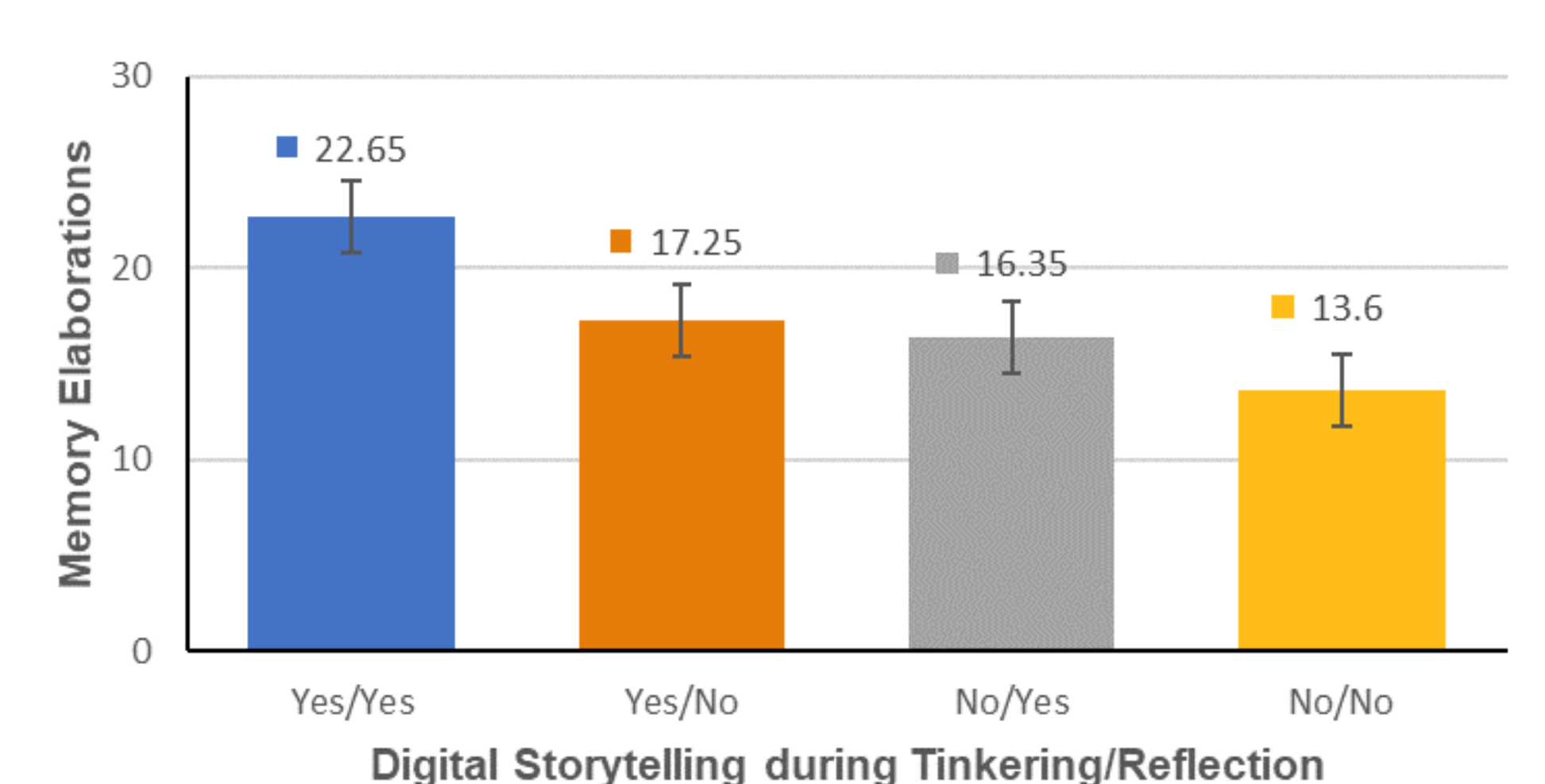
- As shown in **Figure 2**, children in the digital storytelling condition during tinkering talked significantly more about engineering at reflection ($M = 11.10, SD = 9.38$) than children in the no digital storytelling condition ($M = 7.65, SD = 4.45$), $F(1, 77) = 6.21, p = .015$.

Children’s Engineering Talk at Reflection



- As shown in **Figure 3**, children in the digital storytelling condition during tinkering provided significantly more engineering memory elaborations at follow-up ($M = 19.95, SD = 13.61$) than children in the no digital storytelling condition ($M = 15.02, SD = 7.79$), $F(1, 76) = 5.86, p = .018$.

Children’s Engineering Memory Elaborations



DISCUSSION

- Children with previous digital storytelling experience used more narrative elements in their interviews.
- Children who did digital storytelling while tinkering utilized more engineering talk during reflection and remembered more in their follow-up interviews.
- Informal learning settings may consider providing opportunities for families to create digital stories to support children’s memory and STEM learning.
- We are currently exploring whether children in the digital storytelling conditions during tinkering directed more talk at their imaginary audience.
- We are also exploring the types of stories families told (e.g., fictional vs. real) during tinkering and whether they were associated with engineering talk.

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