

Connections between digital storytelling and children's narrative and engineering talk

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This material is based upon work supported by the National Science Foundation under Grant No. 1906839/1906940/1906808

INTRODUCTION

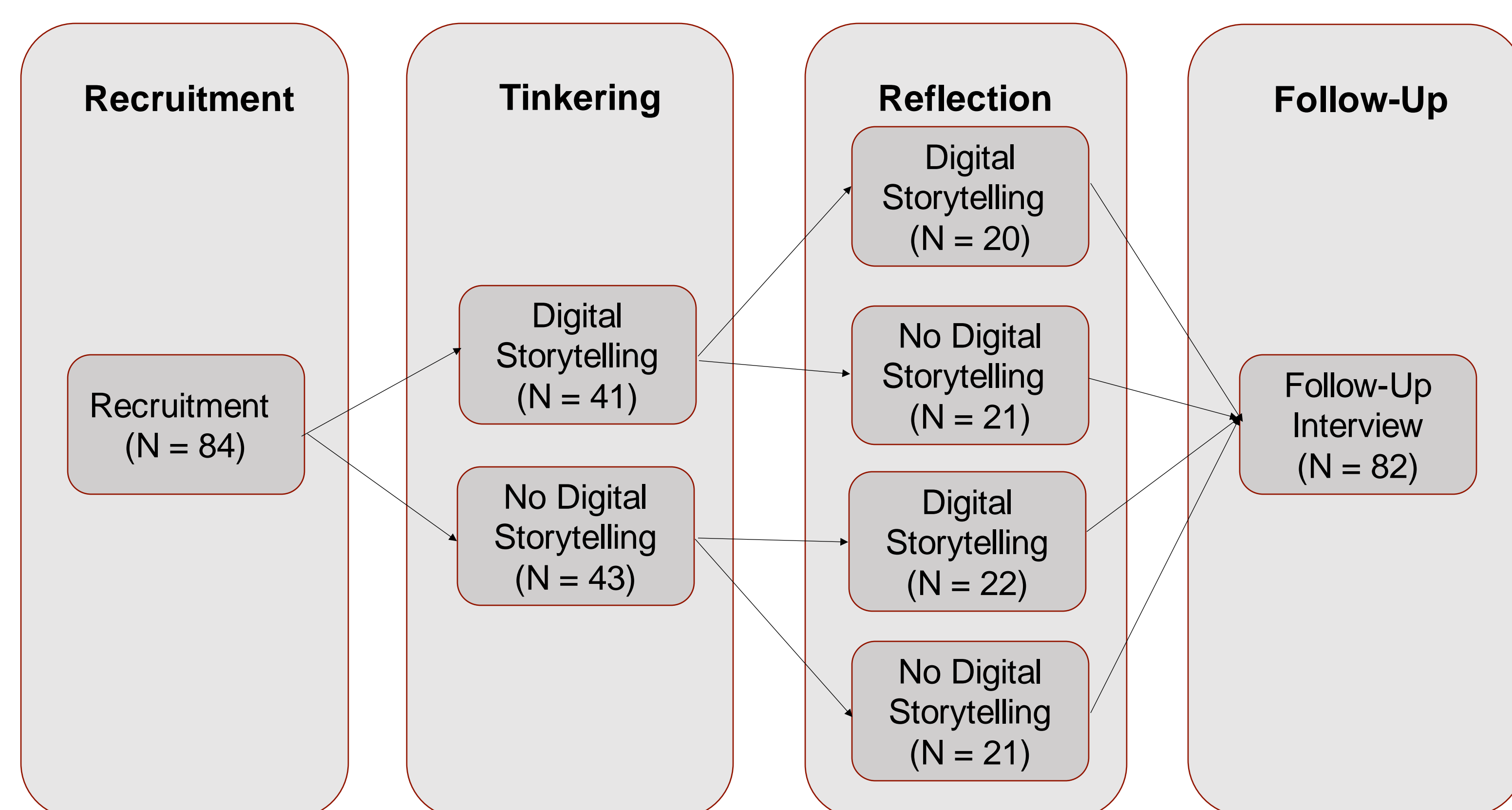
- Informal educational activities, such as tinkering, can be beneficial for children's engineering learning (Bevan, 2017; Sobel & Jipson, 2016).
- Storytelling can help children organize and make meaning of their experiences (Brown et al., 2014; Bruner, 1996), thereby supporting learning.
- Digital storytelling, in which narratives and reflections are combined with photos and videos in order to be shared with an audience, has become a familiar, enjoyable activity for many children (Robin, 2008).
- We examine whether digital storytelling activities during tinkering and reflection will be related to more engineering talk.

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

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

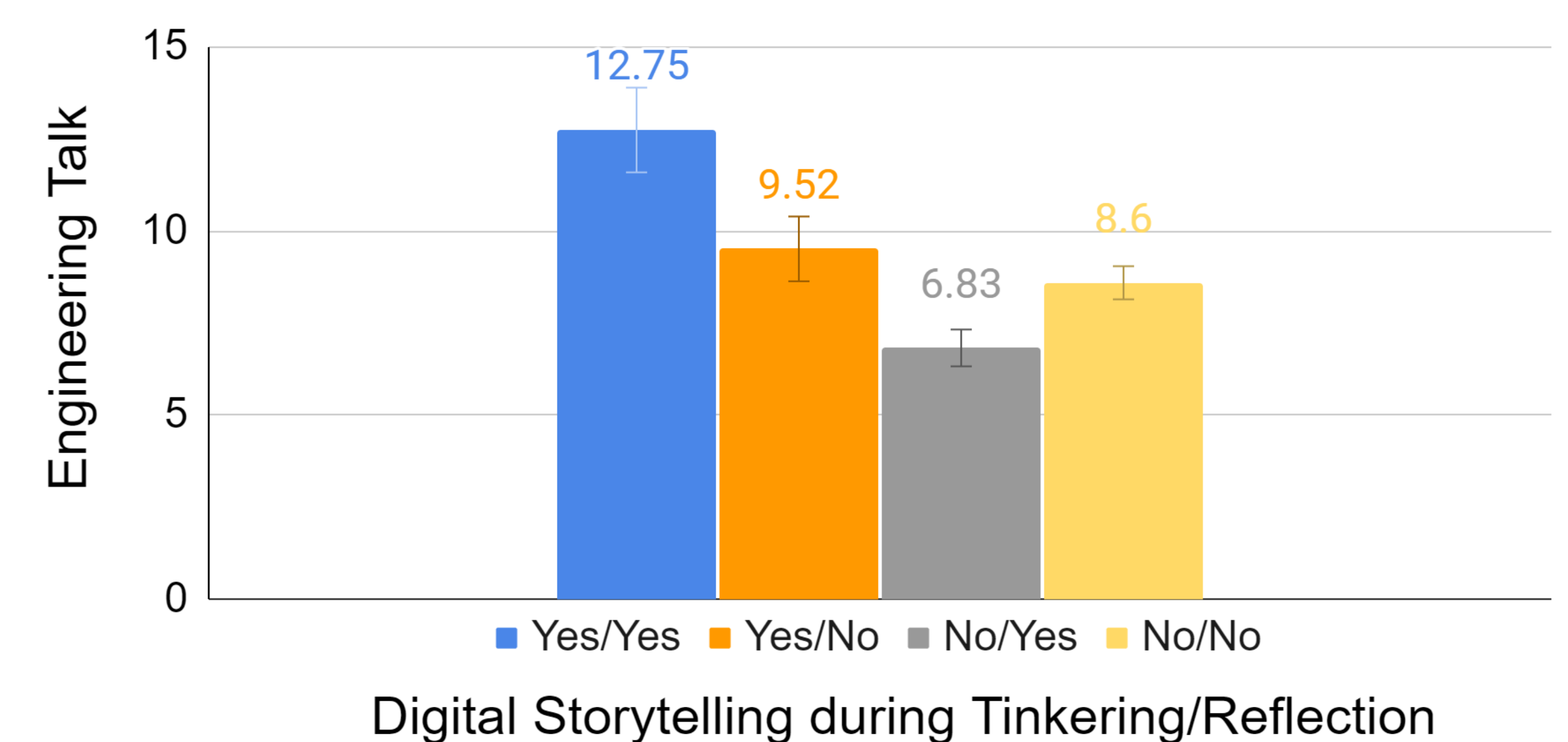
Families' tinkering activities, reflections, and follow-up interviews were coded for talk about engineering-related practices, such as setting goals, brainstorming (i.e., referring to models/examples for ideas), planning, talk about testing, identifying problems, and talk about redesigning (i.e., changing or fixing).

RESULTS

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

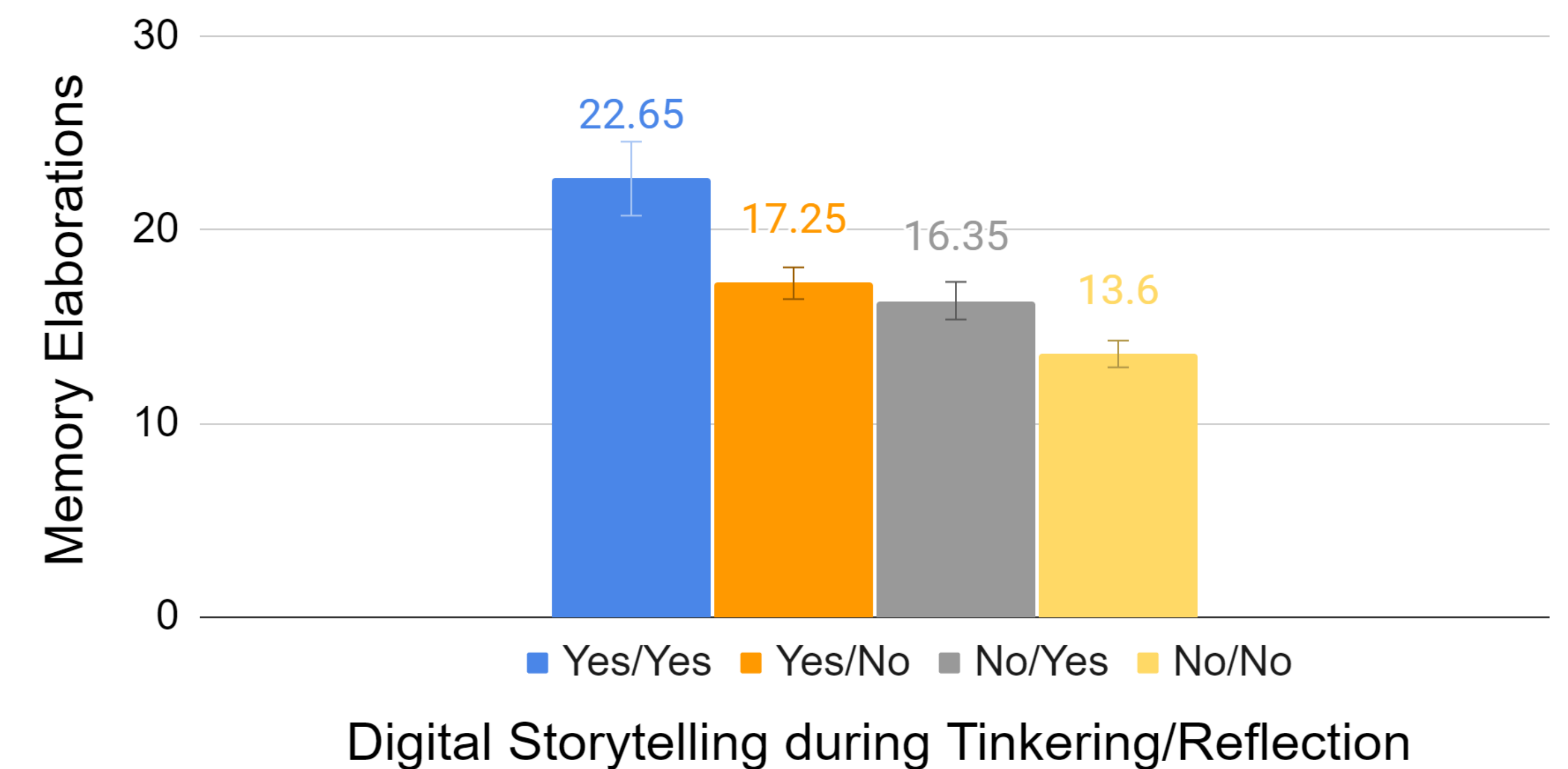
- As shown in **Figure 1**, children in the digital storytelling condition during tinkering talked significantly more about engineering at reflection ($M = 11.10, SD = 9.38$) than children in the no digital storytelling condition ($M = 7.65, SD = 4.45$), $F(1, 77) = 6.21, p = .015$.

Children's Engineering Talk at Reflection



- As shown in **Figure 2**, 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 who did digital storytelling while tinkering utilized more engineering talk during reflection and 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 than children in the control condition.
- 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.

ACKNOWLEDGMENTS

We would like to thank Kim Koin, Tsivia Cohen, and Natalie Bortoli at Chicago Children's Museum for their work creating the at-home tinkering activity videos. We also thank our partners at Northwestern University, including Dr. David Uttal.