

Linkages Between Children's Story and STEM Engagement During Tinkering

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Introduction

- In this project, we asked whether storytelling during tinkering might support children's engagement in STEM and how that may differ across boys and girls
- According to Bruner (1996), stories can help children to organize experiences by adding coherence, increasing understanding, and facilitating learning
- We observed associations between story and STEM in two contexts: home and museum exhibit

Participants and Procedures

STEM Activity: Families were observed during a tinkering challenge to build a playground ride for a toy and tell a story

Home – Observations via Zoom

- 61, 4 – 10-year-old children ($M = 8.10$, $SD = 1.72$); Boys = 30
- 59% White, 15% African-American, 8.2% Asian, 6.6% Latine and 9.8% Mixed
- Parental education, $M = 18$ yrs., $SD = 2.60$

Museum – Tinkering Lab Exhibit

- 40, 4-10-year-old children ($M = 6.7$, $SD = 1.34$); Girls = 24
- 55% White, 2.5% African-American, 12.5% Asian, 10% Latine 17.5% Mixed and 2.5% Native American
- Parental education, $M = 17.50$ yrs., $SD = 3.30$

STEM and Story Coding

Children's STEM Engagement

Planning/Goals	Problem Solving
Associations	Function of Materials
Reflection	Explanations/Science talk

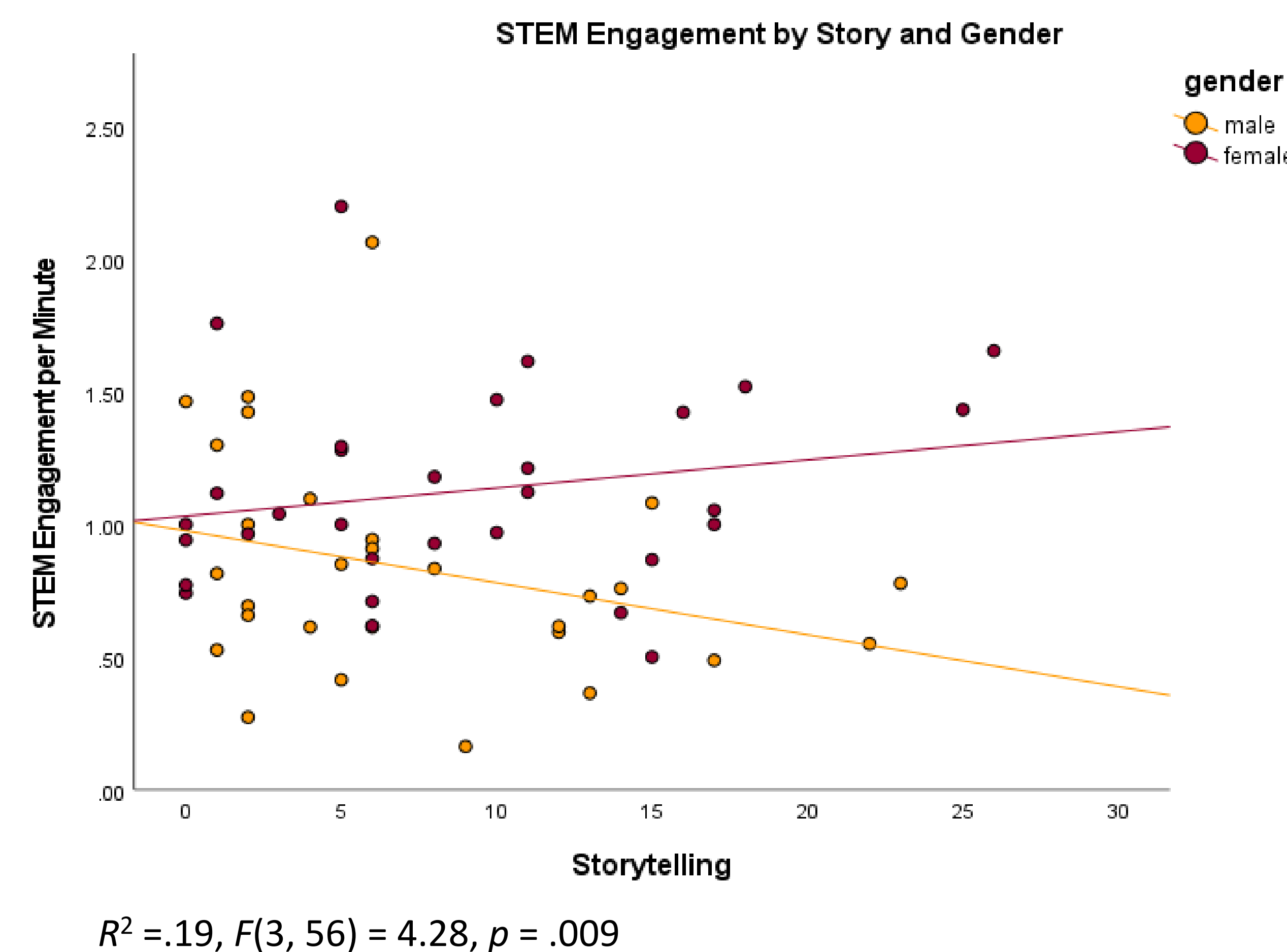
Children's Story Engagement

Toy's Name	Toy's Wants/Preferences
Toy's Actions	Imaginary Setting

Results

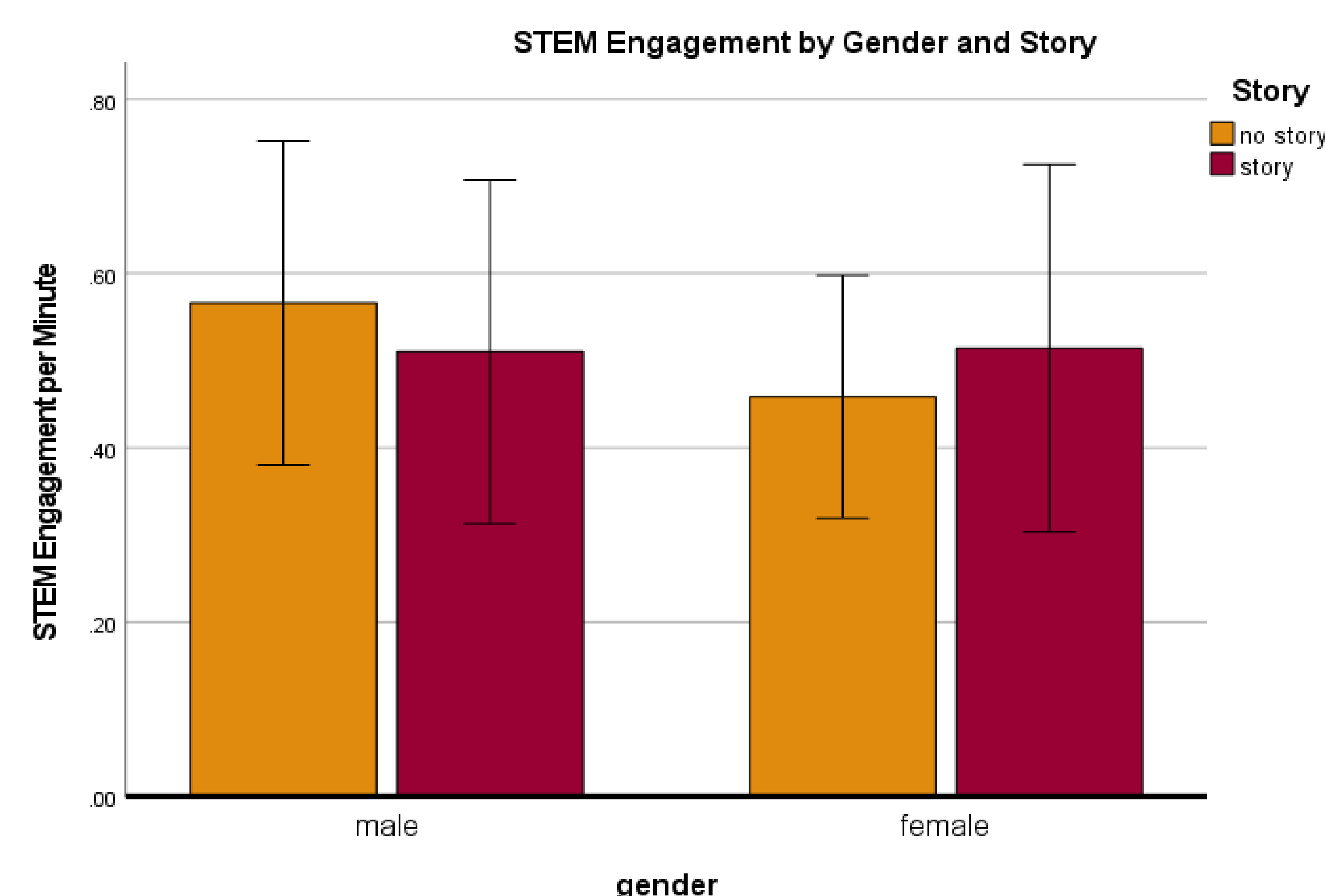
Home

- 92% of children engaged in storytelling
- Girls showed higher STEM engagement than boys, $t(59) = 2.82$, $p = .006$ but no differences in storytelling, $t(59) = 0.86$, $p = .39$.
- More storytelling predicting more STEM engagement among girls but not boys



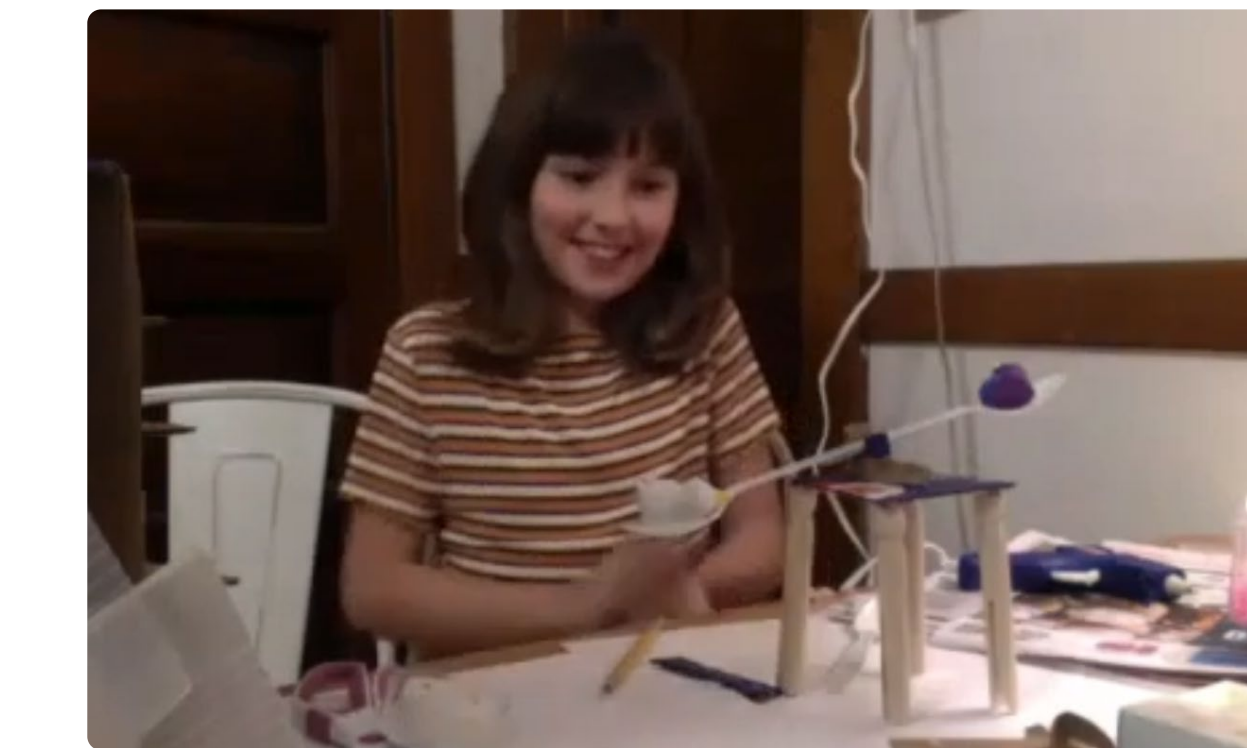
Museum

- Only 37% of children engaged in storytelling
- A 2-Way ANOVA based on presence or absence of story indicated no effects of gender, story or interaction effects ($p > .50$) on children's STEM engagement



Programs

Home



Museum



Discussion & Implications

- There were no gender differences in storytelling at the home or museum programs
- Children showed low story engagement at the museum
- Findings from the home program suggest that the association between story and STEM differs by gender
- Program design involving storytelling can promote STEM engagement, especially among girls (Letourneau & Bennett, 2020)
- As a future direction, we will examine how parents may engage in STEM talk and storytelling with boys and girls