



# Tinkering and Telling: Reminiscing about STEM Learning Experiences in a Children's Museum

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## INTRODUCTION

- This study was designed to examine narratives that families recorded shortly after visiting the *Tinkering Lab* at the Chicago Children's Museum.
- We view this work as intersecting with the event memory literature concerning variations in parental reminiscing styles for talking about past events (Fivush, Haden, Reese, 2006).
- The study also connects with efforts to assess learning in museum settings (Haden, Cohen, Uttal, & Marcus, 2016).

## PARTICIPANTS & METHODS

- 91 families video-recorded their narratives in *Story Hub: The Mini Movie Memory Maker*, choosing to talk about their experiences in *Tinkering Lab*.
- Child age 6-11 ( $M= 7.9$ ) years old.
- 44 Families had one or more male children (48%); 68 families had one or more female children (75%).
- 71% Caucasian, 12% Hispanic/Latino, 10% African American, 7% Asian.



## ANALYSES & RESULTS

- First, we characterized stylistic variations in the ways families approach the narrative reflection based on the frequency of adults' *Wh*-questions (e.g., *What kinds of tools did we use?*), children's responses to these questions (e.g., *We used a saw.*), adults' statements, and children's (unprompted) statements.
- As shown in Figure 1, cluster analyses revealed four distinct family narrative styles.

Narrative Style	Description
<b>Child Telling</b>	Narrative is primarily told by the child.
<b>Adult Eliciting</b>	Adults elicit much of the narrative by asking many <i>Wh</i> -questions, prompting children's responses.
<b>Collaborative</b>	Contributions to the narrative are fairly equal balanced between adults and children.
<b>Limited</b>	Brief narratives with very few contributions by adults or children.

Figure 1. Families' Narrative Styles in *Story Hub*

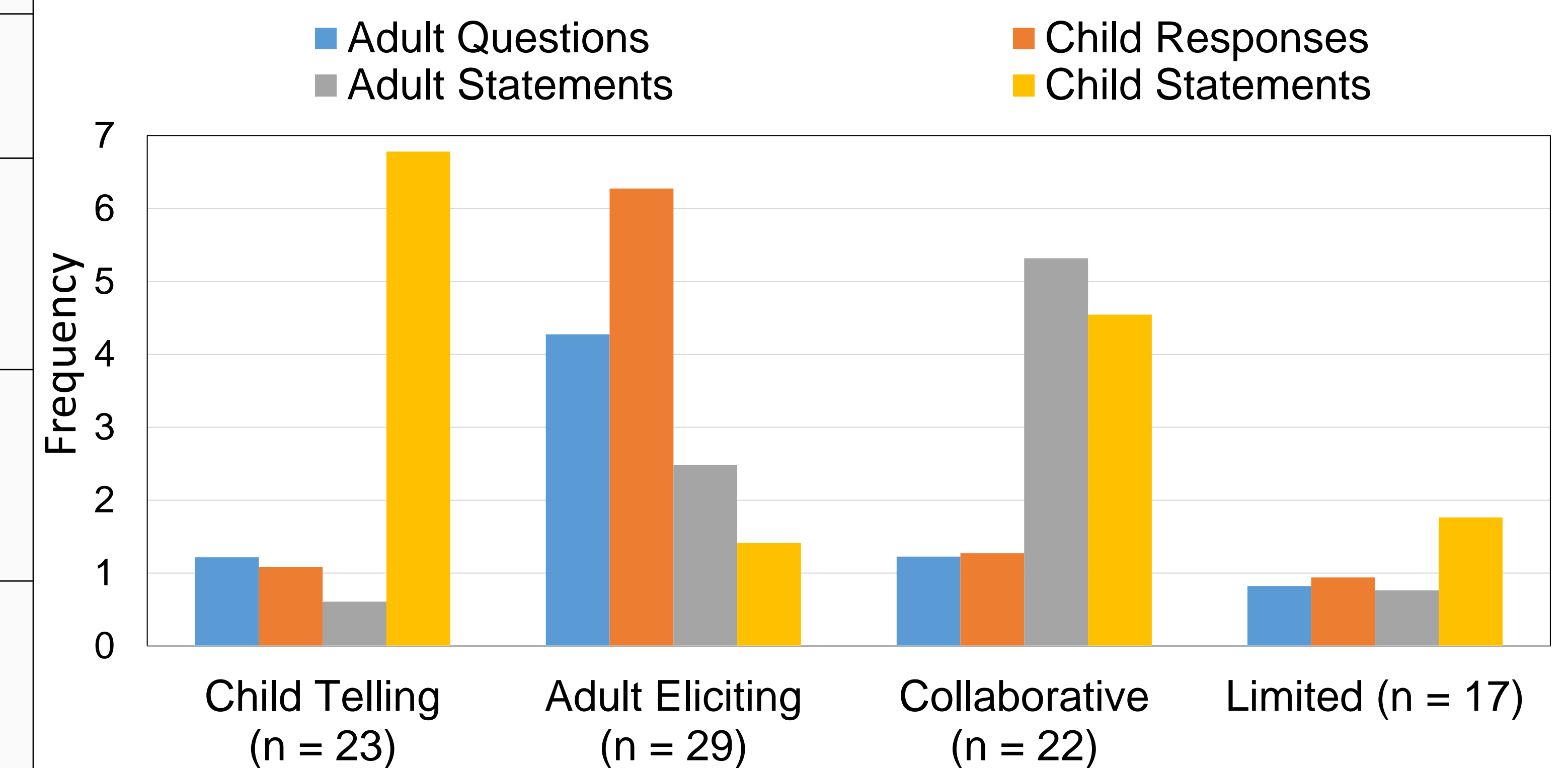


Figure 2. Content of Children's Talk in *Story Hub*

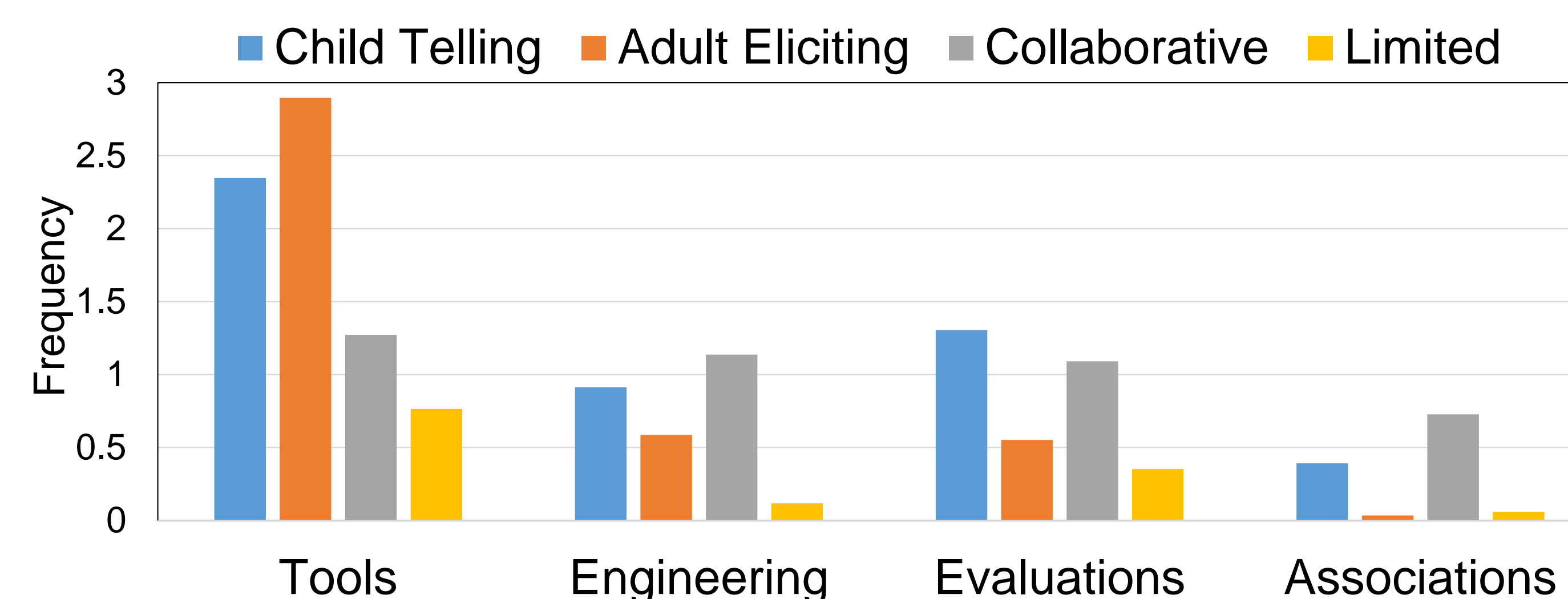
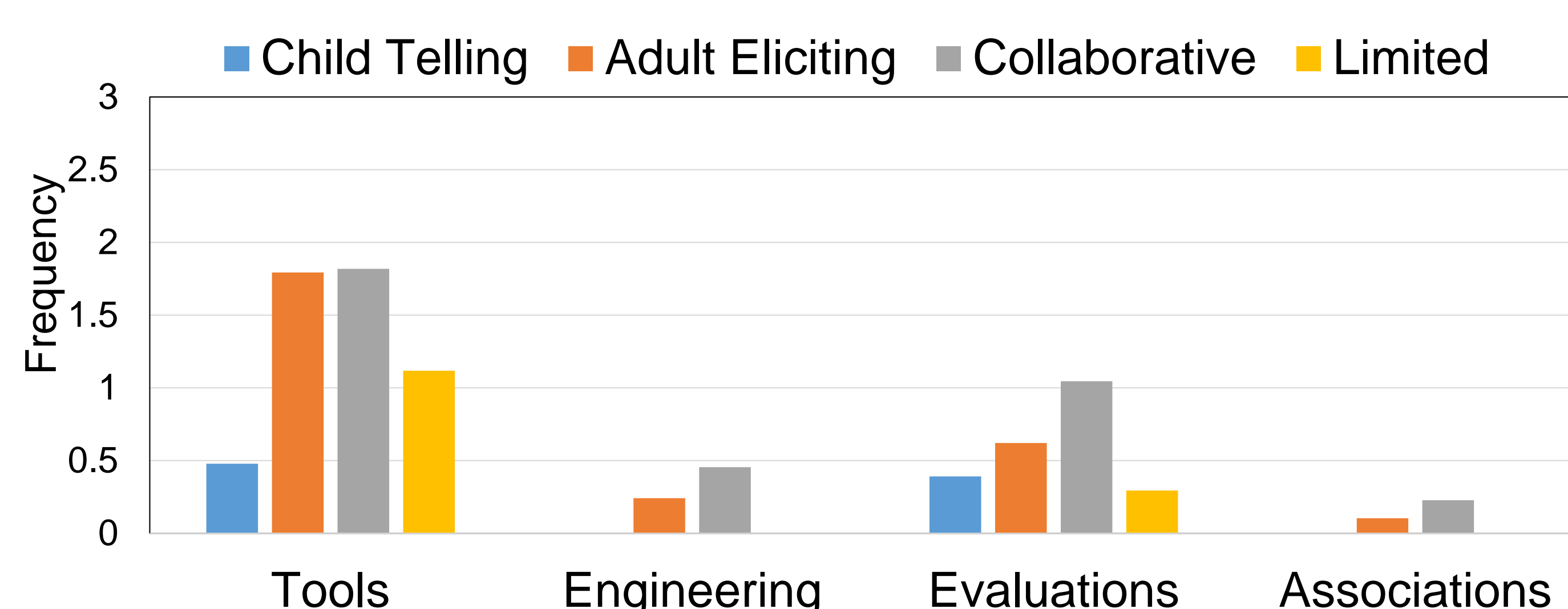


Figure 3. Content of Adults' Talk in *Story Hub*



- Second, we considered to what extent the content of the conversations varied by families' narrative style.
- As shown in Figures 2 and 3, talk about tools and engineering, as well as evaluations and associations differed across families with differing narrative styles.

Content Code	Definition
<b>Tools</b>	Names or descriptions of the function of tools.
<b>Engineering</b>	Discussions of planning, testing, trying new things, making mistakes, and being successful or unsuccessful.
<b>Evaluations</b>	References to how parents and children felt about the exhibit or their creation.
<b>Associations</b>	References to children's prior knowledge or experiences, or future endeavors

## DISCUSSION

- The variations in narrative styles illustrate substantial differences in the ways families approached reminiscing about their experiences as they made their memory movies in *Story Hub*.
- The content analyses revealed that families with a more Collaborative narrative style were recounting the most about engineering, and making the most associations. Talk about tools was most prevalent by children in the Child Telling style group, and adults in the Adult Eliciting style group. Evaluations of the exhibit or what was made in *Tinkering Lab* were most common for children in families demonstrating a Child Telling narrative style, and children and adults with a Collaborative narrative style.
- The variations in style and content observed in this study may correspond to differences in the experiences families had together while in *Tinkering Lab*. This is something we plan to investigate in the future as a way to better understand how and what children learn while tinkering.