

Latine caregivers' oral stories with their preschoolers supporting science learning and identity

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INTRODUCTION

- Cognitive development research has focused on storybooks and reading to foster children's language, literacy, and memory development.
- Oral storytelling represents a rich underexamined resource for science learning.
- In U.S. Latine communities with strong oral traditions (Haden, Melzi, & Callanan, 2023), storytelling can engender significant, culturally grounded opportunities for family science learning at home.
- In this study, we explored the oral stories U.S. Latine caregivers shared with their preschoolers when prompted to tell a science- or nature-related story.

THE CURRENT STUDY

Using inductive qualitative coding and quantitative analyses, we examined:

- The *types of stories* caregivers shared with their preschoolers about nature or science.
- Key *science topics* (e.g., animals, plants, outdoor recreation) and variations across story types.
- Caregivers' *reasons* for telling these stories (constructing identity and/or supporting learning).
- How *personal experience* stories (caregiver-child reminiscing, caregiver memories, and fictionalized personal stories) convey meaning-making that support children's science learning and identity.

PARTICIPANTS & PROCEDURES

- 226 U.S. Latine caregivers, in Chicago (N=78), New York City (N=75), and San José, California, (N=73).
- N=211 mothers, N=9 fathers, N=4 grandmother, N=2 other
- 49% of caregivers born in Mexico. The rest from: U.S., Venezuela, Ecuador, Colombia, Dominican Republic, Peru, Honduras, El Salvador, Guatemala, Puerto Rico.
- On average, caregivers earned less than \$50,000 annually.
- 85% of preschoolers live in Spanish-English bilingual households.

Demographic Information

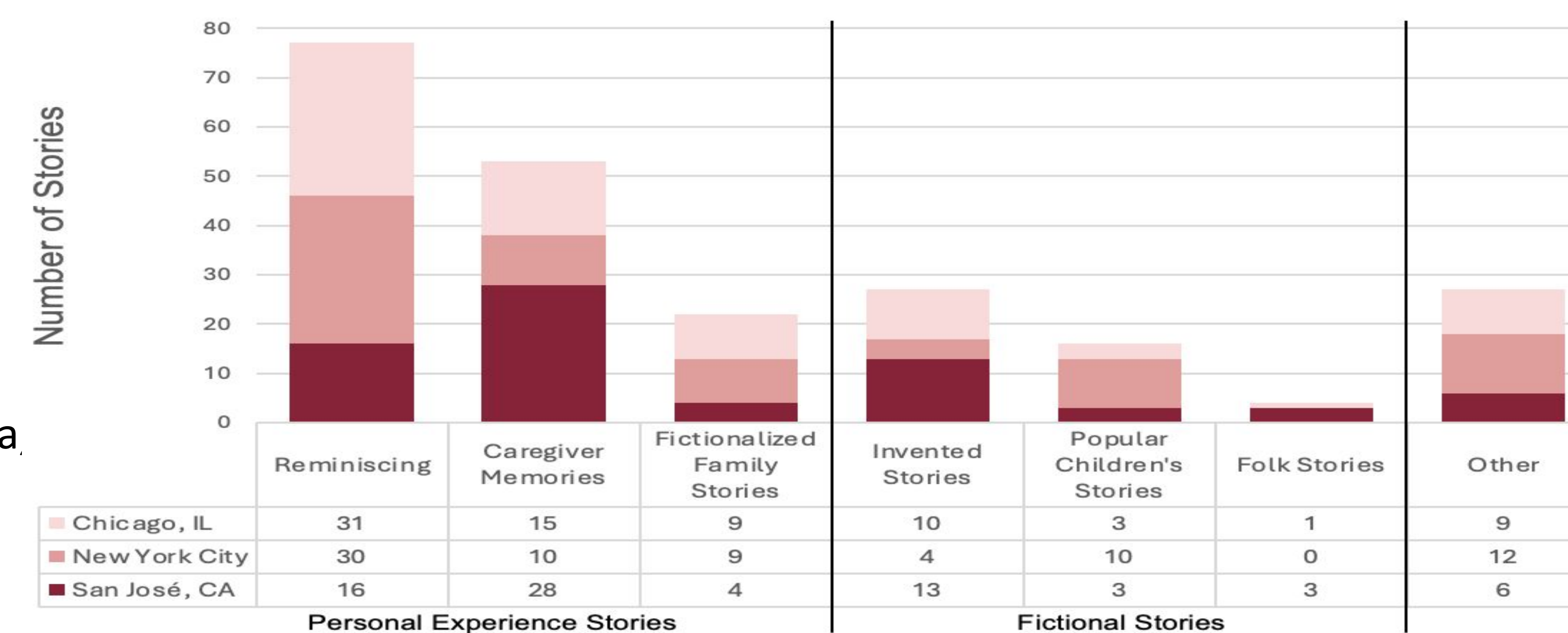
Caregivers' age	M = 34.06 , range: 18 - 57
Caregivers' schooling	M = 11.98 years , range: 3 - 20 years
Children's age	M = 51.72 months , range: 32 - 71 months
Children's gender	N = 112 girls, N = 114 boys

- Caregivers were recruited from community organizations serving Latine families in Chicago, Head Start partnerships in New York City, and an Educare preschool and family resource center in San José, California.
- Caregivers were video/audio recorded sharing a nature or science-related story with their 3- to 5-year-old child and interviewed about their story-sharing practices.
- Oral stories and interviews were transcribed using ELAN software and coded by bilingual Spanish-English researchers. Stories were segmented prior to coding for the *types of stories*, the key *science topics*, and the *reasons* why caregivers shared these stories.
- Conducted qualitative analysis in ATLAS.ti Web (version 9.24.2) within personal experience stories to identify the kinds of meaning-making that occurred.

CODING

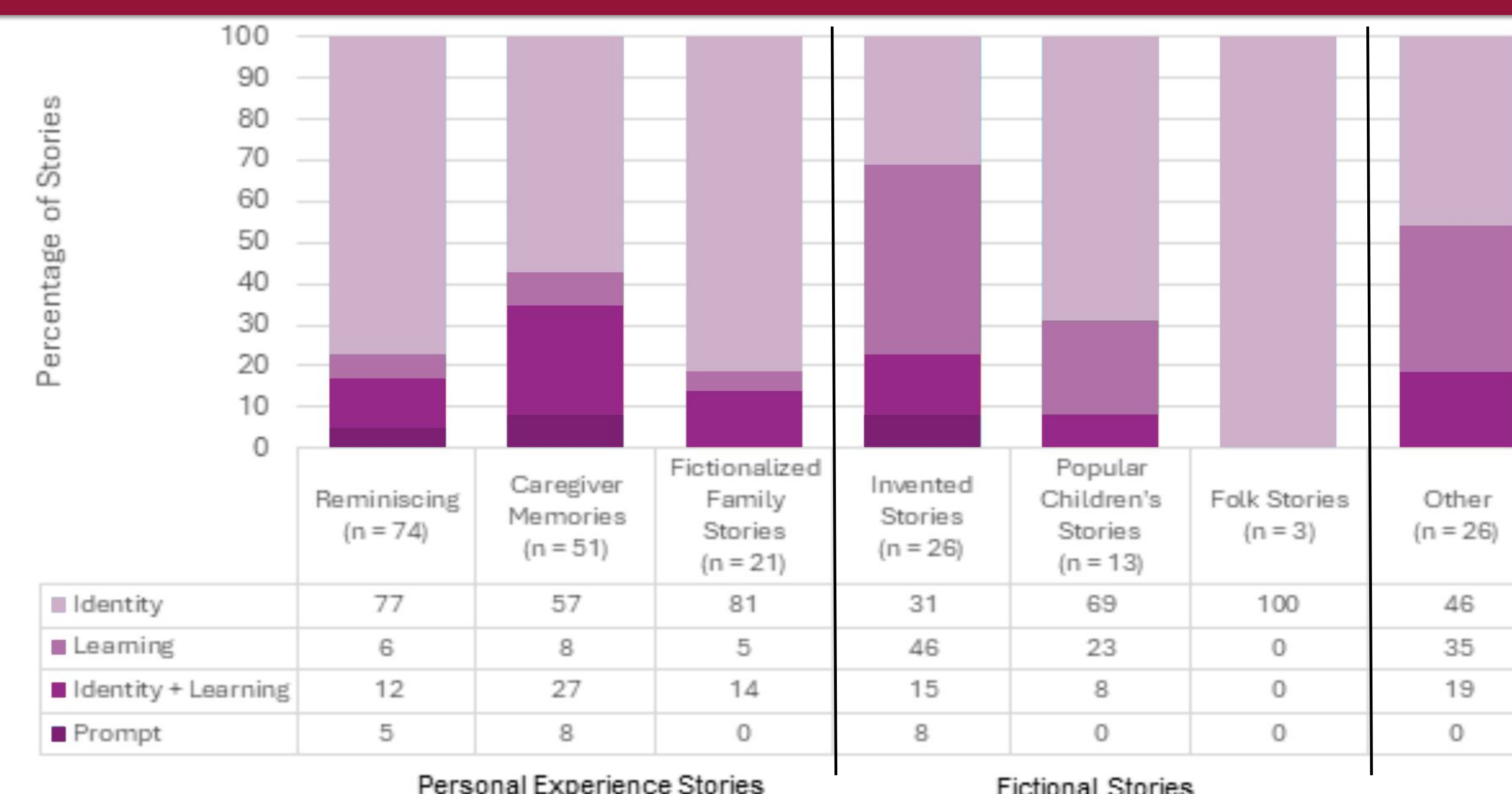
Analyses	Types of Codes
1. Types of Stories	Personal Experience Stories: (1) Caregiver-child reminiscing; (2) Caregiver memories; (3) Fictionalized family stories. Fictional Stories: (4) Invented stories; (5) Popular children's stories; (6) Folk stories; (7) Other/non-narrative conversations.
2. Science Topics	(1) Animals; (2) Plants and farming; (3) Natural environments; (4) Outdoor recreational activities; (5) Environmental challenges/ harm; (6) Other STEM; and (7) Human relationships.
3. Reasons for Telling Stories	(1) Constructing identity; (2) Supporting learning; (3) Following the prompt to tell a science or nature story (when this was the sole reason); (4) Constructing identity + Supporting learning (for responses that included both).
4. Personal Experience Stories	Orienting Information: (1) People; (2) Setting; (3) Time. Meaning Making: (4) Evaluations and emotions; (5) Connections to past experiences; (6) Connections to future experiences; (7) Teaching moments; (8) Moral of the story.

RESULTS: TYPES OF STORIES SHARED



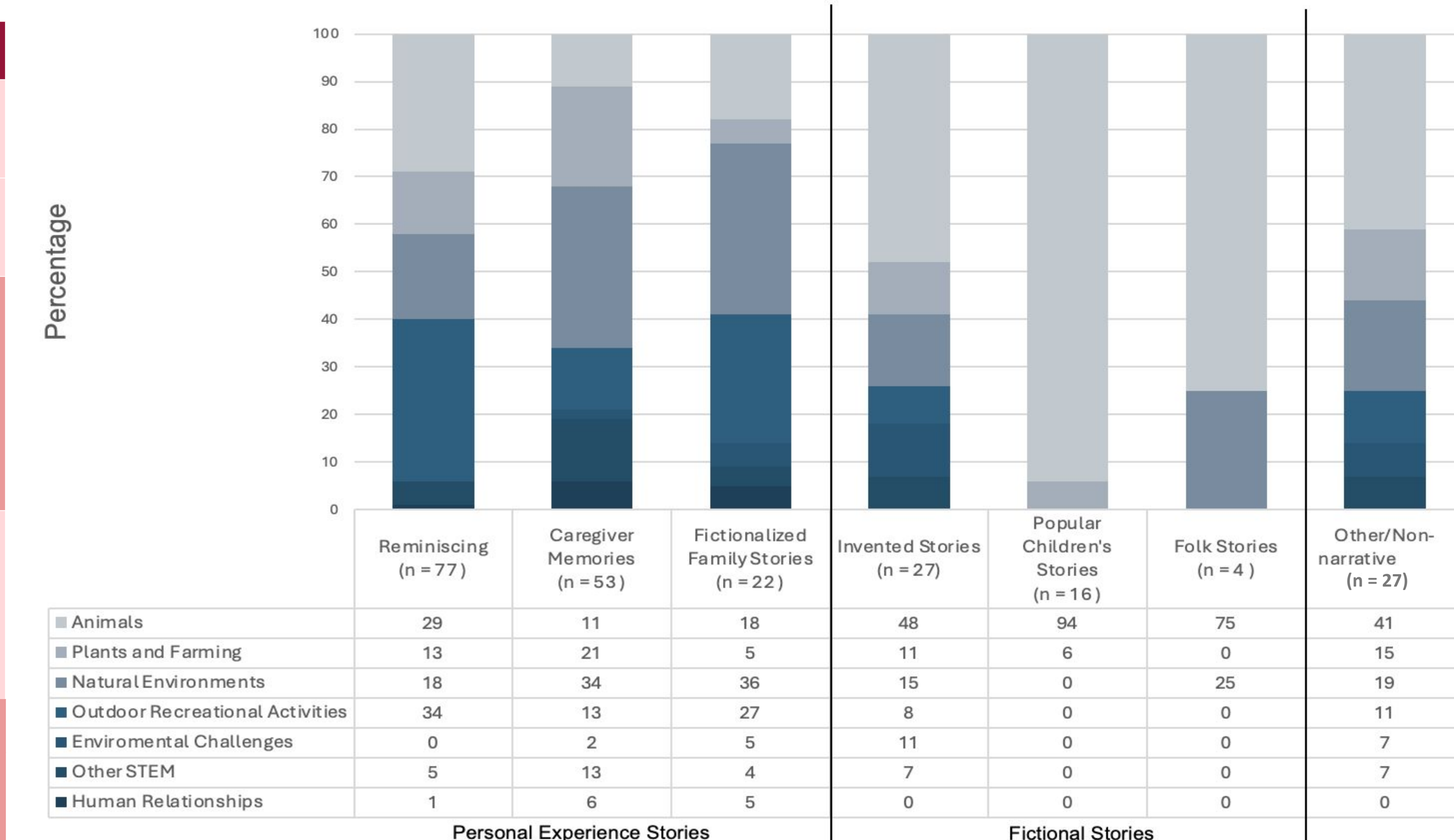
Caregivers shared 152 personal-experience stories: 34% reminiscing (n=77), 23% caregiver memories (n=53), and 10% fictionalized family stories (n=22). In 47 interactions, caregivers told fictional stories: 12% invented (n=27), 7% popular children's stories (n=16), and 2% folk tales (n=4). Another 27 caregivers engaged in other non-narrative conversations.

RESULTS: REASONS BY TYPE OF STORY



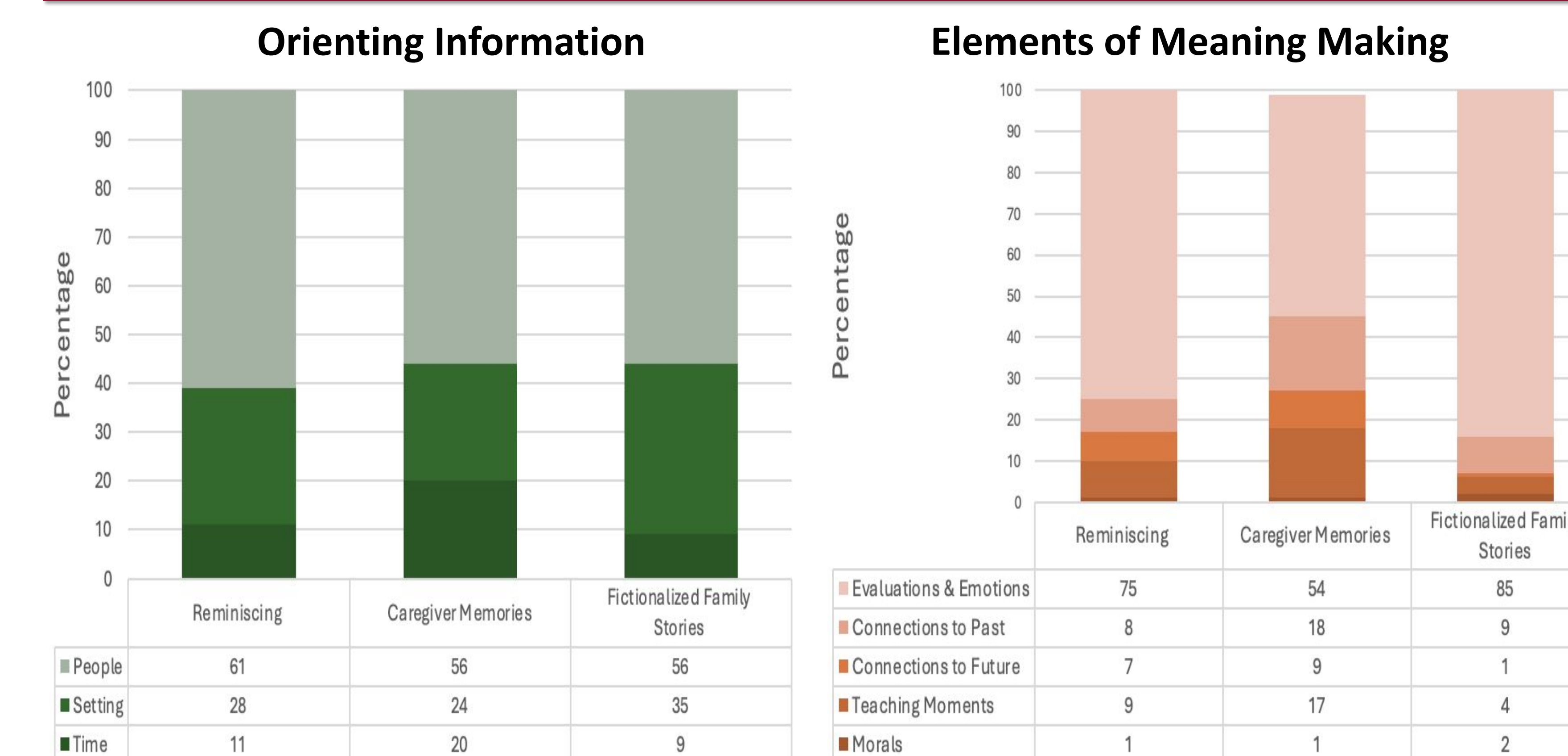
Caregivers telling personal experience stories cited identity-related reasons more often; in contrast, those telling fictional stories tended to focus on supporting learning, $\chi^2(2, N = 178) = 25.51, p < .001$.

RESULTS: SCIENCE TOPICS BY TYPE OF STORIES



Personal Experiences Stories comprised the majority of stories shared (n = 152, 67%) with most describing science topics in relation to outdoor activities, whereas Fictional Stories - invented stories, popular children's stories, and folk stories - emphasized animals, $\chi^2(4, N=189) = 36.76, p < .001$.

RESULTS: PERSONAL EXPERIENCES STORIES



Meaning-making elements differed significantly across personal experience story types, $\chi^2(6, N=1,183) = 99.72, p < .001$, appearing through emotion and evaluation in fictionalized family and reminiscing stories, and through teaching moments and connections to past and future experiences in caregiver memories.

DISCUSSION

- The Latine caregivers in our study frequently relied on their own lived experiences when telling science and nature stories to their children, with reminiscing and caregiver memories making up the majority of these narratives.
- Caregivers most often pointed to identity-related reasons for sharing these stories.
- The science and nature stories caregivers shared commonly centered on animals, natural environments, and outdoor recreational activities.
- Personal experience stories emerged as oriented around people, places, and time-based cues.
- These personal experience stories were also rich with meaning making, often including evaluations and emotions.
- Storytelling can serve as a family learning practice that can enhance children's understanding of science and support science identity.