

Integrating Novel Words into the Preschool Lexicon: Evidence from Taxonomic & Thematic Connections

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Introduction

Novel word learning is a multi-step process that involves, at a minimum, pairing phonological forms with meanings and integrating those pairs into the lexicon. The current literature includes evidence of children as young as 2 years of age learning new words with and without direct teaching (e.g., Brackenbury, Ryan, & Messenheimer, 2006; Carey & Bartlett, 1978; Dollaghan, 1985) and organizing known words into associative connections, such as taxonomies and themes (e.g., Waxman & Namy, 1997; Scheuner, Bonthoux, & Cannard , 2004; Blaye & Bonthoux, 2001). To date, Markman & Hutchinson (1984) is the only study that has examined the integration of novel words and associative connections. Their results suggest that children associate unfamiliar objects taxonomically when a novel phonological form is also present, but thematically when no spoken label is included.

Overall Research Question

When exposed to novel words, do children with typical language development create lexical representations of those novel words and connect those to known taxonomic and thematic words?

Method

Participants (greater Toledo area)	Experimental Group (n = 29)	Control Group (n = 10)
Mean age	4 yr; 8 mo (SD = 5.1 mo)	4 yr; 9 mo (SD = 6.1 mo)
Gender	13 males, 16 females	4 males, 6 females
Audiometric Screening (ASHA, 2007)	Within normal limits	Within normal limits
Mean Standard CELF:P - 2 Score (Wiig, Secord, & Semel, 2004)	103 (SD = 11.7)	100 (SD = 6.6)

Exposure Stories (Experimental group only): Two computerized stories provided indirect visual and verbal exemplars of 8 novel phonological forms with associated taxonomic and thematic phonological forms.

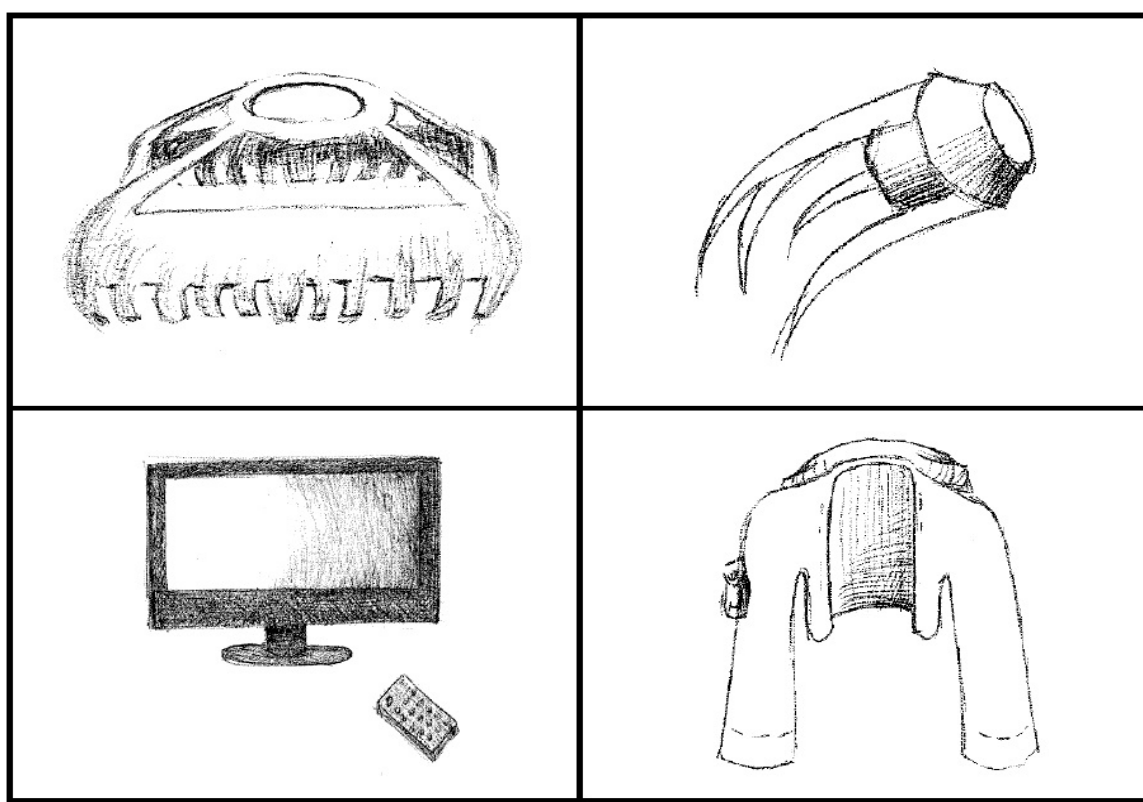


Story Text:

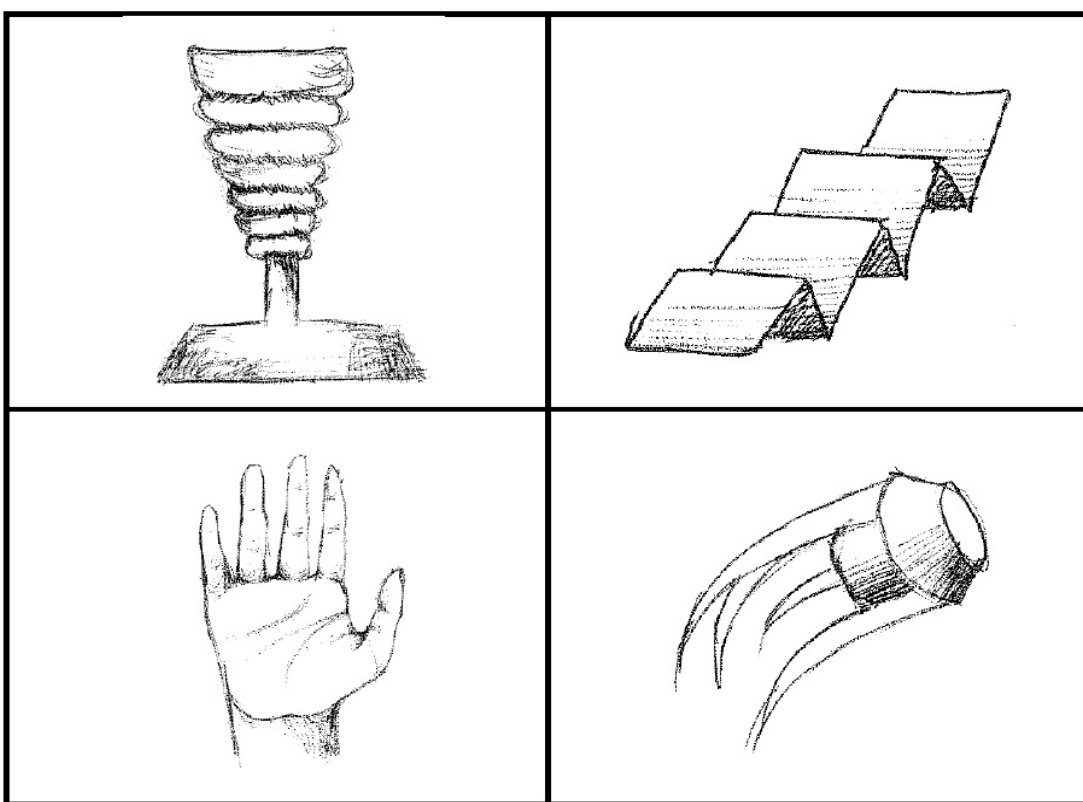
Suzie thought this would be a good time to get out her **puth**. She quickly pulled the **toy** out of her backpack. “Mom, do you want to play with it too?” asked Suzie. “No thanks, I think I’ll just watch you.” Suzie’s mom said. “Okay, but it’s really fun!” said Suzie, smiling. Suzie found a **stick** on the ground. She used it to send the **puth** high into the air. The **puth** came down really quickly. She was able to catch it, though. Suzie did this a few more times. The last time, the wind pushed the **puth** off course. It came zooming down right on her mom’s head. It didn’t hurt Suzie’s mom much. It did leave a small bump on her mom’s forehead. Suzie and her mom decided that it was time to see how Dad was doing.

Assessment Task: A picture-pointing task in which the children were asked to identify the target objects based the phonological forms. The Control group was tested once, without exposure to the stories. The Experimental group was tested immediately after exposure (Time 1) and 1 week later (Time 2).

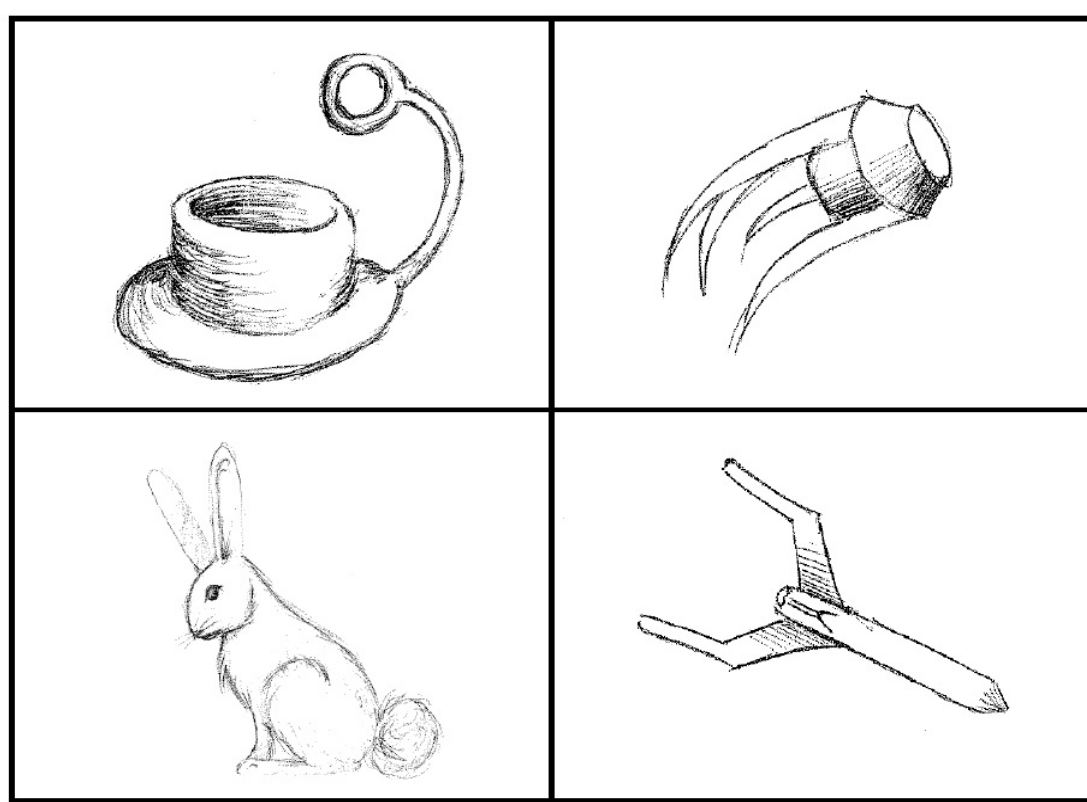
Point to the **puth**.



Show me the **toy**.



Show me what belongs with a **stick**.



Did the control children have prior lexical representations of the target objects?

Pairwise T-tests comparing their actual performance to chance.

Novel phonological form	=	Chance	$[t(9) = 0.000, p = 1.00]$
Thematic form	<	Chance	$[t(9) = -6.000, p = 0.01]$
Taxonomic form	>	Chance	$[t(9) = 11.129, p = 0.01]$

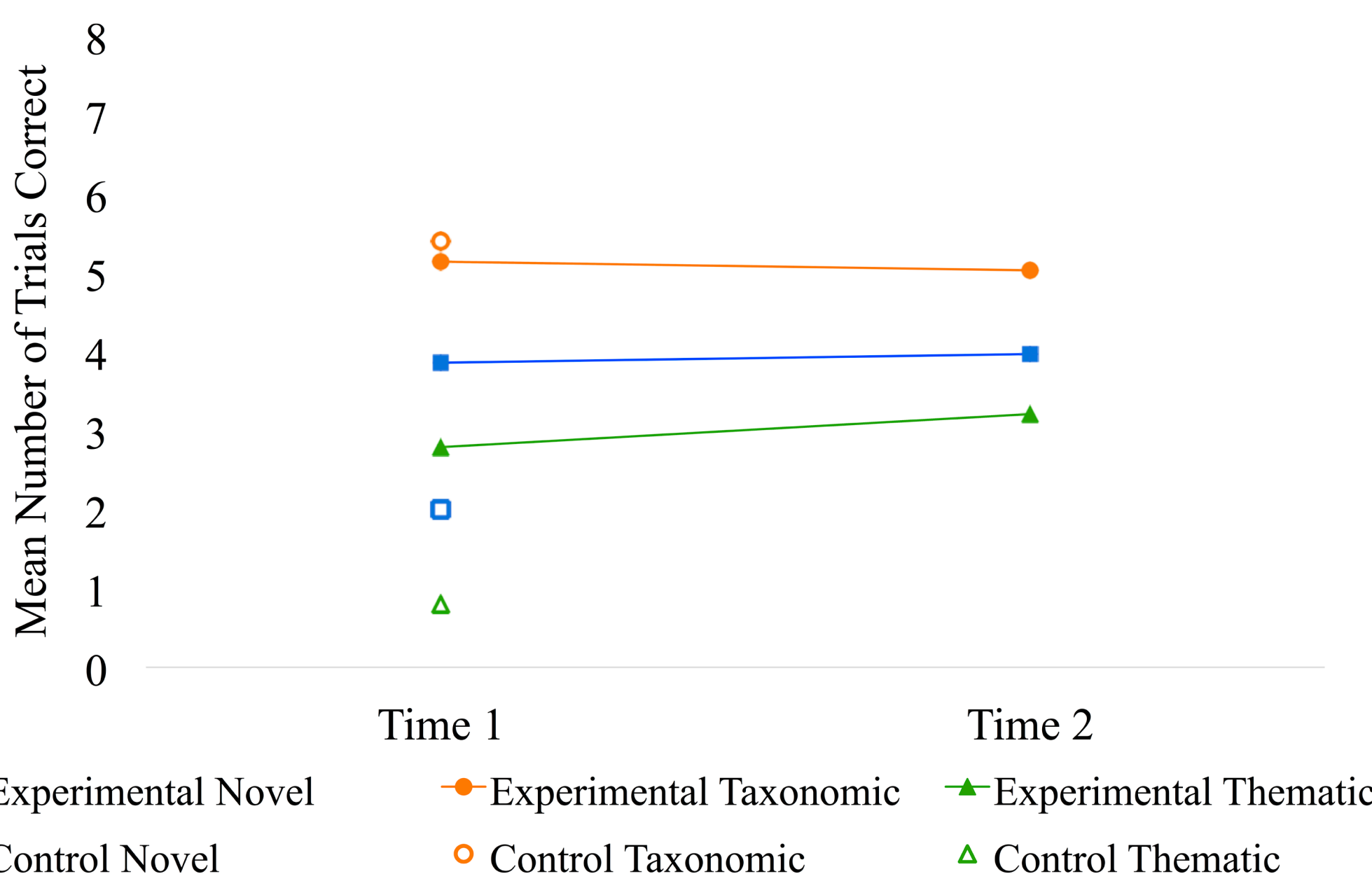
Did the experimental children create lexical representations of the target objects?

Pairwise T-tests comparing their actual performance to chance.

Repeated measures 3 (Phonological Form) x 2 (Time) ANOVA.

Main Effect:	Phonological Form	Significant	$[F(2, 27) = 26.033, p = 0.01, partial \eta^2 = 0.659]$ Taxonomic > Novel > Thematic > Chance $[ps. < 0.05]$
Main Effect:	Time	Non-significant	$[F(1, 28) = 0.237, p = 0.63, partial \eta^2 = 0.008]$
Interaction:	Form x Time	Non-significant	$[F(2, 27) = 1.299, p = 0.29, partial \eta^2 = 0.088]$

Comparison of lexical representations made for each Phonological Form, between groups and across Time



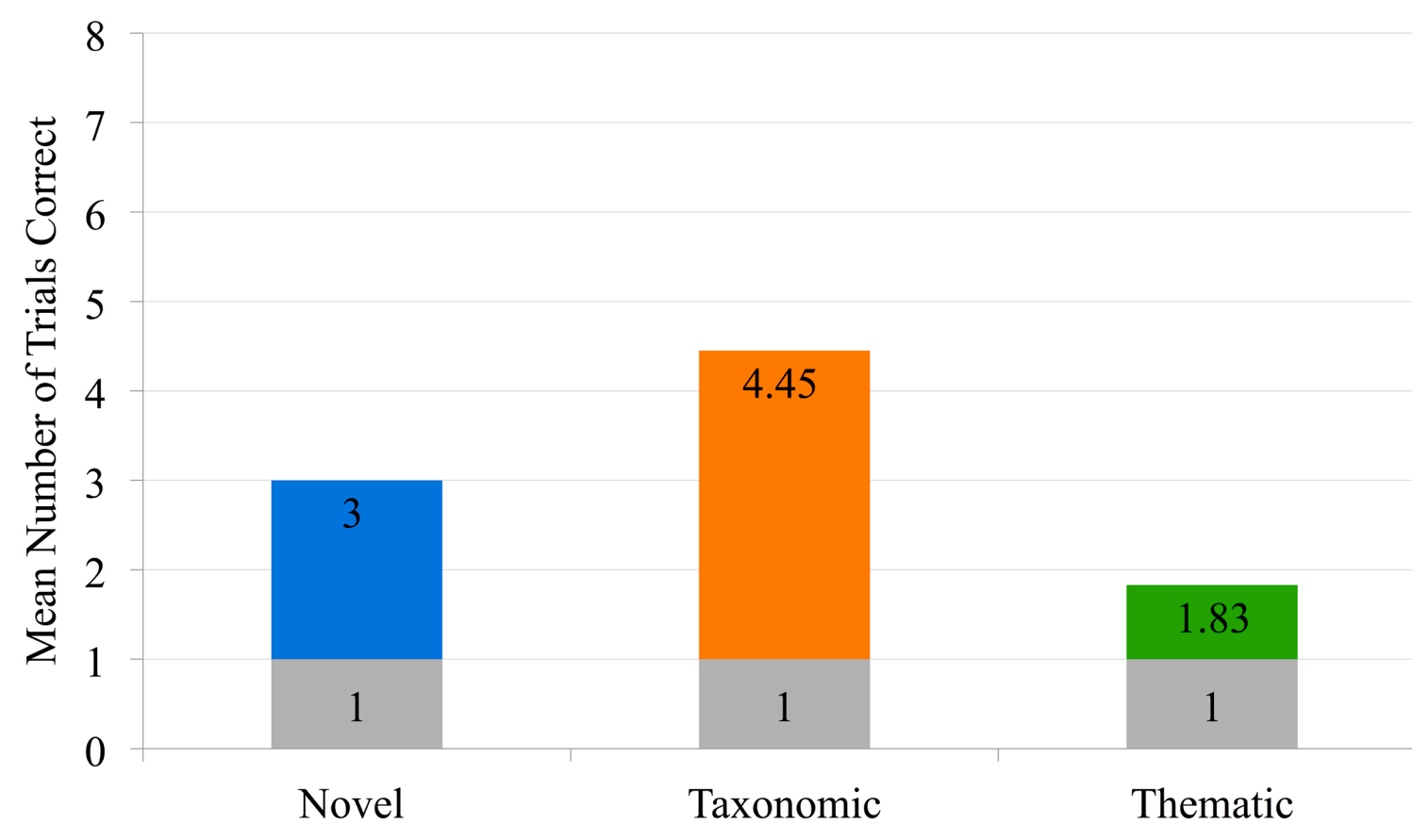
Did the experimental children’s lexical representations of the target objects remain stable over time? In other words, were their responses correct at both Time 1 and Time 2?

Pairwise T-tests comparing their actual performance to chance.

Pairwise T-tests comparing the phonological forms.

Taxonomic > Novel > Thematic > Chance $[ps. < 0.05]$
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Stability of Phonological Forms compared to chance level

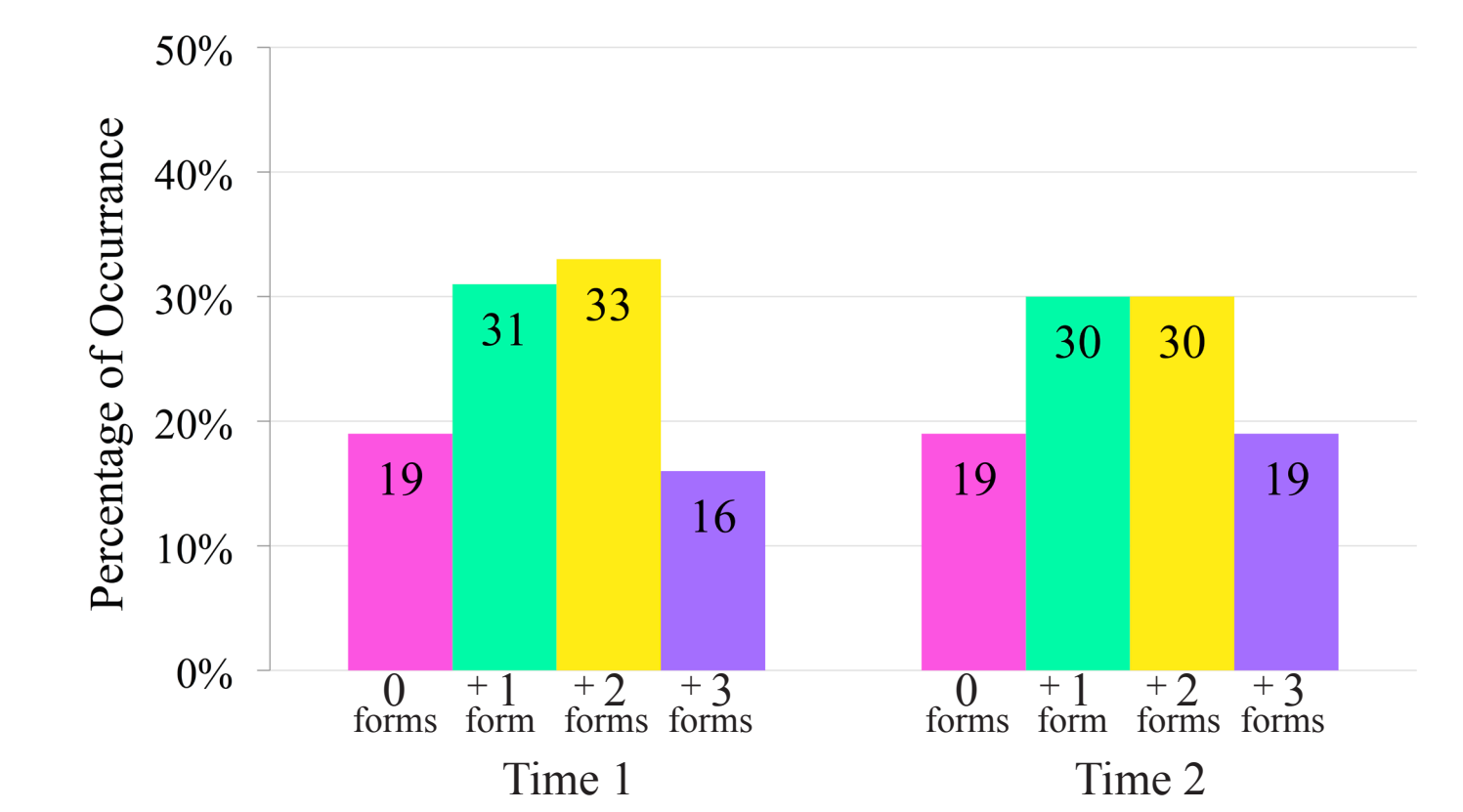


How complete were the experimental children’s lexical representations of the target objects? How many of the phonological forms did they correctly identify for each target object?

Pairwise T-tests comparing the number of correct phonological forms (0 - 3) from Time 1 to Time 2.

Time 1 = Time 2 $[t(28) = -.775, p = 0.445]$
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Histogram of target object completeness, based on the number of accurate Phonological Forms across Time



Conclusions

Children access their current lexical knowledge when viewing unfamiliar referents.

Children associate unfamiliar referents with a) novel, b) taxonomic, and c) thematic phonolgical forms, following limited exposure.

These associations persist across at least a week’s time, without additional exposure.

Taxonomic associations were constiently stronger than novel forms, which were consistently stronger than thematic associations.

Children typically associated 1 or 2 of the phonoloical forms with the unfamiliar referents.

It is unclear if exposure to the taxonomic and thematic associations influenced the children’s novel word learning.