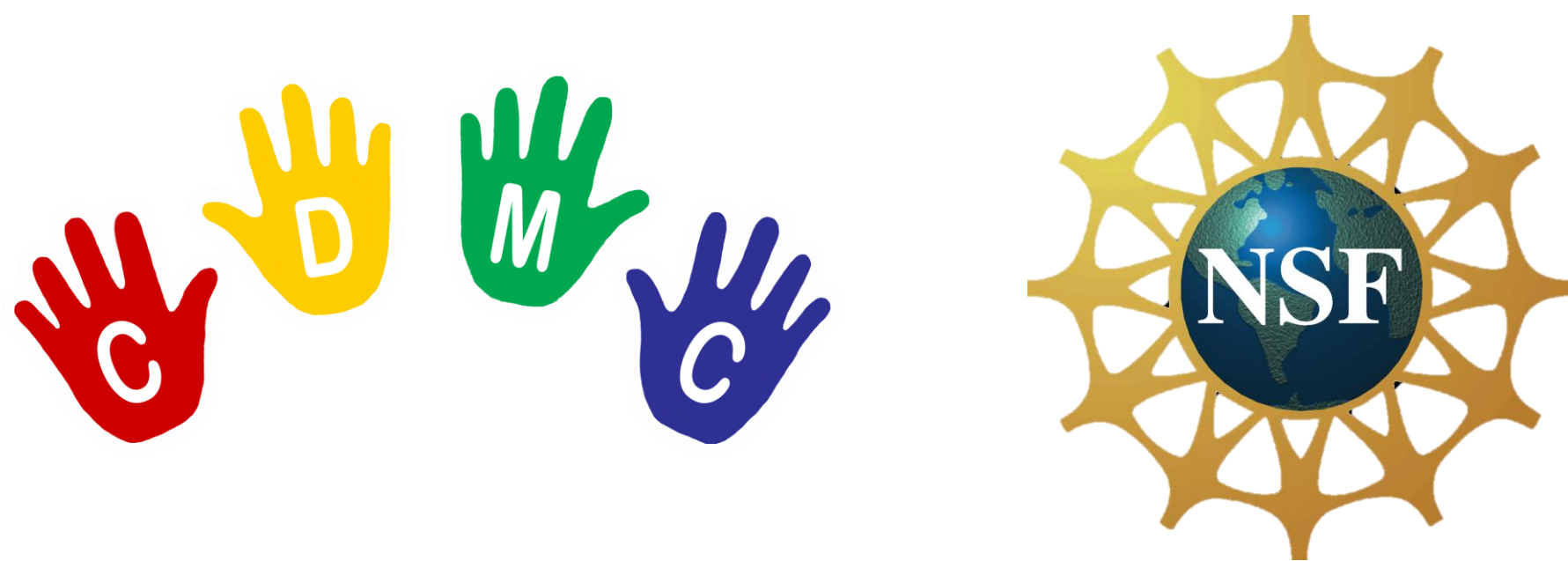



# Children’s Gender-Typed Toys Preferences and Early Math Learning



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## INTRO

Preschool-aged children often use gender to guide their cognitions and behaviors, like preferring and play with gender-stereotyped toys.<sup>1,2</sup> Intelligent characters are a recent development in children’s media that can be designed to match, or not match, children’s gender.<sup>3</sup>

## METHODS

1. Random assignment experiment
2. Collected data on children’s gender-typed toy preferences, parasocial interactions, and latency to correctly answer math problems from 90 4-year-old’s
3. Children matched or did not match the sex of the intelligent character

## RESULTS

$M_{\text{gender-stereotype toy preference}} = 2.73$  ( $SD = .90$ )

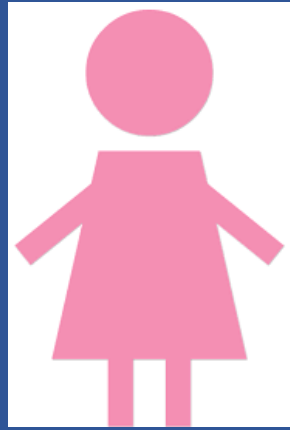
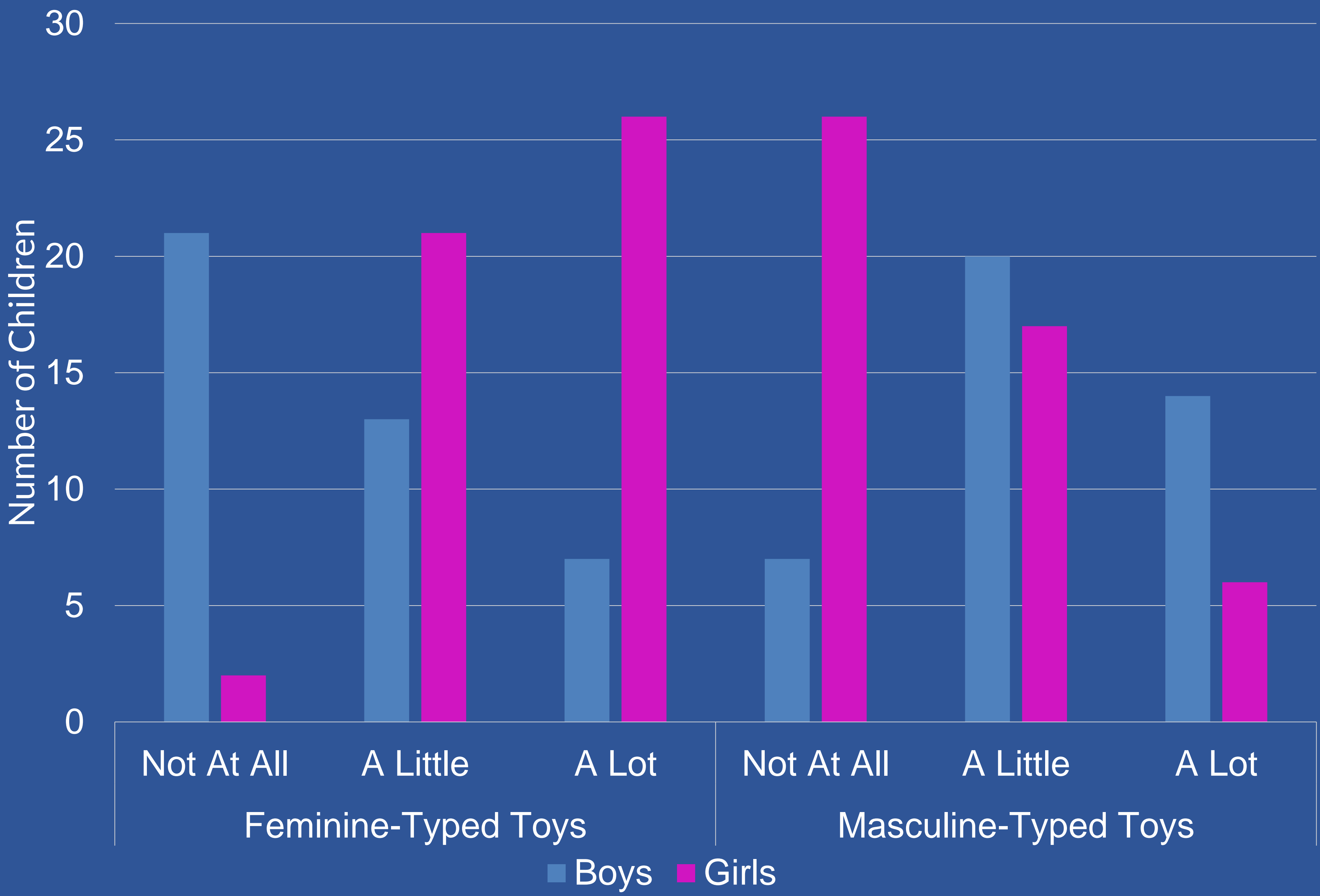
Boys and girls were similarly gender-stereotyped in their toy preferences,  $t(88) = 1.93$ ,  $p > .05$ ;  $M_{\text{Boys}} = 2.54$ ,  $SD = .92$ ;  $M_{\text{Girls}} = 2.90$ ,  $SD = .85$

Gender-typed toy preferences did not predict latency to correctly answer math problems in an OLS regression ( $b = -1.67$  (2.42),  $p > .05$ ). When toy preference was interacted with child-character sex match neither this interaction predicted latency ( $b = 6.93$  (5.11),  $p > .05$ ) nor did math talk alone predicted latency ( $b = -4.86$  (3.02),  $p > .05$ ).

## DISCUSSION

Gender-typed toy preferences were unrelated to math performance. The toys used in the current experiment do not foster skills related to STEM. Future directions should test how toys related to cultivating STEM skills (e.g., blocks) may be related to math performance in an intelligent character math game.

Children’s gender-typed toy preferences are not predictive of math performance when interacting with either a same- or opposite-sex intelligent character in a virtual math game.



Feminine Stereotyped Toys:  
doll, pony, tea set, fairy wings



Masculine Stereotyped Toys:  
action figure, monster truck, pirate costume, tool set

**Sample:** 49 girls, 41 boys  
 $M_{\text{years}} = 4.42$  (.33)

**Gender-Typed Toy Preference Task:**  
Children sorted 4 feminine stereotyped toys and 4 masculine stereotyped toys into buckets based on how much they wanted to play with the toy: (0) not at all; (1) a little; (2) a lot

Girls were more likely to report a preference for feminine toys compared to boys,  $X^2(2) = 28.03$ ,  $p < .001$ ; Boys were more likely to report a preference for masculine toys compared to girls,  $X^2(2) = 13.78$ ,  $p = .001$ .

A **composite variable** was created to capture the extent to which children wanted to play with toys gender stereotyped for their gender

(1) interested in both feminine/masculine toys – (4)= only interested in toys stereotyped for their gender)

**References:** 1) Leaper et al., 2015; 2) Martin & Halverson, 1981; 3) Calvert et al., 2018

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