

Supplemental Materials

Toy task rationale

In addition to the food preparation task, children in this study also participated in an analogous toy preparation task, in which they assembled a toy airplane. The primary purpose of this task was to validate our general method. Previous research has found that 5- and 6-year-old children prefer toys that they assembled themselves to toys that they did not assemble (Marsh, Kanngiesser, & Hood, 2018), and that they consider whether someone created an object or originated an idea when deciding who owns the final product (Kanngiesser, Gjersoe, & Hood, 2010; Kanngiesser & Hood, 2014; Kanngiesser, Itakura, & Hood, 2014; Li, Shaw, & Olson, 2013), so we hypothesized that children would interact more with toys they assembled themselves than toys they did not assemble. This is an important comparison to include: If we were to obtain no effect of preparation on the food task, this would allow us to determine if the issue was the domain of food per se or if the issue was the task we developed.

Toy task procedure

The toy task was designed to be analogous to the food task. An experimenter (E1) said, “Today, you are going to make an airplane. Everything you need to make an airplane is right here. I will help by reading you the instructions.” As in the food task, children wore an apron while assembling the toy and E1 pointed out and labeled the toy components – the airplane body, the front wings, the back wings, and a clear plastic nose (see Figure S1 for images of the materials). The airplane body and wings were made of precut red or blue foam (color counterbalanced across participants). Similar to the food task, if children asked the experimenter if they were assembling the toy correctly, E1 repeated the instructions for that step or said, “Whatever you think is right,” but did not provide any additional instructions or assistance.

----- Figure S1 -----

Supplemental Figure 1



Figure S1. Toy components (left) and an example of a completed toy (right).

----- Figure S1 -----

While the child assembled the toy, another experimenter (E2) used the same components to prepare a toy from the other side of a one-way mirror that was as similar as possible to the child's creation (e.g., putting the wings in the same orientation) so that the two toys varied only in color (i.e., if the child's toy was red, E2's toy was blue). After the child finished making the toy, E2 brought the toy into the testing room and said, "I have another airplane for [child's name]." E2 helped the child set the table with two white placemats and a bell while E1 surreptitiously photographed both toys. After E1 photographed the toys, E2 left the room. Children were presented with both toys simultaneously: E1 put each toy on a placemat and said, "Now you get to play with these airplanes! Here's the airplane you made and here's another airplane. You can play with your airplane, you can play with the other airplane, or you can play with both of them. I have some work to do over here, so just ring this bell when you are done playing." E1 faced away from the child so that the child would not feel pressured to play with a particular toy or to play at all.

Children could use the bell to signal to E1 that they were finished playing with the toys. If children did not ring the bell after 5 minutes, E1 asked if they were ready to move on to the

next part of the task. E1 then asked the child to evaluate each toy as “good, bad, or in the middle.” If the child answered “good” or “bad,” E1 asked if the toy was “really” or “a little bit” good or bad. This procedure generated a liking scale of: 0 = really bad, 1 = a little bit bad, 2 = in the middle, 3 = a little bit good, 4 = really good. Children were then asked to report which toy they prepared themselves as a manipulation check.

At the very end of the protocol, after both the food and the toy tasks were completed, a subset of participants ($n = 25$) was asked to directly compare the toys. Children were first asked to identify for which of the two toys they made themselves (versus the toy they were given). Children who completed the toy task second had just answered this question (the manipulation check); children who completed the toy task first were asked to identify which toy they made themselves for a second time to confirm their memory. At this point, 1 out of 25 participants inaccurately reported which toy they made. Children were then asked to identify which of the two toys was “better” (the toy they made themselves vs. the toy they were given).

Toy task coding and analyses

The amount of time children spent touching each toy (in seconds), as well as which toy they touched first, was coded from video by two independent coders who were blind to which toy children prepared. Coders coded an overlapping set of 13 participants (26 toys) and had excellent agreement, $ICC = .99$ ($CI = .99, 1.0$; model: two-way mixed, absolute agreement). Values from the reliability set were averaged across coders. The coders then independently coded the remaining videos.

To test the hypothesis that children would interact more with a toy they prepared than the toy they were given, a paired-samples t -test was used to compare the amount of time children spent touching each toy. All participants correctly remembered which toy they made. However,

a video of the toy task was not available for 4 participants, so those participants were excluded from toy behavioral coding.

To test the hypothesis that children would prefer the toy they prepared over the toy they were given, a Wilcoxin signed-rank test was used to compare children's ratings of each toy. Children's direct comparison of the two toys (obtained from a subset of participants at the very end of the protocol) was compared using a binomial test as an exploratory analysis.

Toy task results

Amount of time spent touching each toy. Children played longer with the toy they prepared themselves ($M = 87.76$ s, $SE = 9.33$) compared to the toy they were given ($M = 63.37$ s, $SE = 7.46$), $t(59) = 4.21$, $p < .001$, $d = 0.54$, and were more likely to touch the toy they prepared first, $p = .03$, binomial test. Excluding 5 children who first touched both planes simultaneously, 36 first touched the toy they prepared, whereas 19 first touched the toy they were given.

Toy liking ratings. We observed no difference in children's ratings of the toy they assembled themselves and the toy they were served, $Z = 1.19$, $p = .236$. Children frequently provided the same rating for both toys ($n = 22$). Among the subset of children who were asked to directly compare the toys at the very end of the protocol, 24 children accurately identified which toy they made themselves. Of those 24 children, 10 children reported that the toy they prepared was better, whereas 8 children reported that the toy they were given was better, $p = .81$, binomial test (an additional 6 children reported the toys were the same or they did not know which was better).

Toy task discussion

Consistent with the results of the food task, children interacted longer with the toy they made themselves, compared to a highly similar toy that someone else made. We also did not

observe a difference in children's evaluations of the two toys. We hypothesize that a similar set of issues are at play in children's ratings of these toys – we designed the toys to be highly similar (indeed, 22/64 children used the same rating for both toys), children rarely used the “bad” response option (6 out of 126 toy ratings), and evaluation could follow behavior (i.e., after more experiences playing more with toys they made themselves, children might demonstrate a preference for the toy they made). Future studies should consider how these factors might influence children's responses.

Supplemental References

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