# Familiarity preference something something???

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**Abstract**

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## Introduction

## Experiment 1

### Methods

### Participants

66 children completed a task modified from the adult self-paced looking time studies reported in CITE. Following our pre-registration (LINK), 2 children were excluded from the analysis because their performance in the attention-check task failed to meet the inclusion criteria. We also excluded trials with looking time that were three absolute deviations away from the median in the log-transformed space across participants. The final datasets includes 64 children in total (3YO: N = 18; 4YO: N = 26; 5YO: N = 20 ). All participants were recruited in a university-affiliated research preschool.

### Stimuli

We used a subset of stimuli created for the adult self-paced looking time studies. In the previous study, we created a set of animated creatures using Spore (a game developed by Maxis in 2008). Half of the creatures had high perceptual complexity, and half had low perceptual complexity. We used the high perceptual complexity stimuli for the current study.

### Procedures

Children were tested individually in a test room by an experimenter. The experimenter invited the child to "meet some monster friends" and then familiarized the child with the laptop computer used to present the experiment. Before the test, each child went through a practice phase where they practiced pressing the space bar to move on to the next trial. The child was instructed that they can press the key and move on to meet more monster friends whenever they want.

On each trial, the child would see an animated creature appear on the screen. The child can move on to the next trial by pressing the space bar. Each block consisted of six trials. Usually, the same creature will be shown repeatedly (the background stimulus), but each block could contain either zero or one deviant trial. Deviant trials were trials that present a different creature from the background stimulus. Deviant trials appeared on the second, the fourth, or the sixth trial of the block. Each child saw eight blocks in total.

At the offset of each block, a memory task was presented to ensure children are appropriately attending to the task. The memory task was a 2-Alternative Forced Choice (2AFC) question, asking the children to identify which of the two stimuli they have seen before. The pair of stimuli contained one stimulus used as a background stimulus in the preceding block and a novel stimulus that did not appear anywhere else in the experiment.

### Results and discussion

We anticipated that the preschooler children would show patterns of habituation and dishabituation similar to adults. We also expected to see developmental changes in the shape of habituation trajectories. Our pre-registered mixed-effect mod includes a three-way interaction term between age (in months), trial number, and trial type (background or deviant) to predict log-transformed looking time. We only found a main effect of trial number, suggesting that participants look shorter at latter trials ($\beta$ = -0.1, $SE$ = 0.05, $t$ = -2.05, $p$ = 0.04). Since there was no reliable age effect, we deviated from the analysis plan and ran a mixed-effect model only including two-way interaction between trial number and trial type. In this model, all predictors were significant (all $p< 0.01$), suggesting our paradigms successfully captured habituation and dishabituation in preschoolers.

We also explored the potential familiarity preference by comparing the looking time at the second background trial and the second deviant trial. Under the Hunter & Ames (1988), the second trial in each block is most likely to yield a familiarity preference, since participants receive the least amount of familiarization with the background stimulus in a block. If there is a familiarity preference, participants should look longer at a background trial than a deviant trial. However, we did not find evidence supporting this prediction. We ran a mixed effect model predicting looking time at the second trial with trial type as the predictor. There was a significant trial type effect in the opposite direction, suggesting participants looked longer at the deviant trial than the background trial even with as little as one trial of familiarization time ($\beta$ = 0.41, $SE$ = 0.03, $t$ = 12.24, $p < 0.01$).

In summary, This current experiment replicated the finding in We captured habituation and dishabituation with a developmental sample. More importantly, under the current paradigm, we did not find any evidence of familiarity preference for this younger age group. We moved to the infant samples in the next experiment.

# Experiment 2

## Methods

We anticipated that preschoolers would show patterns of habituation and dishabituation similar to adults. We also expected to see developmental changes in the shape of habituation trajectories. Our pre-registered mixed-effect mod includes a three-way interaction term between age (in months), trial number, and trial type (background or deviant) to predict looking time. We found an interaction between [XXXX], suggesting that we successfully captured the habituation and dishabituation. However, we did not find evidence suggesting that age is associated with looking time (STATS). We also explored the potential familiarity preference by comparing the looking time at the second background trial and the second deviant trial. We ran a mixed effect model predicting looking time at the second trial, with the interaction term between age and trial type as the predictor. We found no evidence for familiarity preference across age groups (CITE).

This current experiment replicated the finding in CITE. We captured habituation and dishabituation with a developmental sample. More importantly, under the current paradigm, we did not find any evidence of familiarity preference for this younger age group. We moved to the infant samples in the next experiment.

## Results and discussion

# General discussion

# References