



Delay of Gratification In 26 Month Old Children

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Introduction

What is Delay of Gratification?

- Delay of Gratification is the ability to control oneself and decide to suspend one's pleasure in pursuit of goals. The development and use of this skill early in life is associated with achievement later in life (Carlson et al., 2018).

How is The Marshmallow Test Done?

- This skill is tested using the marshmallow test. Generally a child is presented with an object of value or interest. The child is then asked by the researcher to wait and not interact with the object while the researcher leaves the room for a protracted period. They are also told that if they manage to wait the entire period of time they will be rewarded in some way (Mischel & Ebbersen, 1970)

What Do We Want to Study?

- We want to see what specific behaviors very young children use to control themselves and to see how effective their methods are in this task.

What Are Our Research Hypotheses?

- Delay of gratification is a skill related to the other cognitive abilities that we tested.
- Behaviors expressed during the first few seconds of the task can predict achievement on the task; (Children's initial coping strategies are associated with success on the task.)
- How the child allocates their attention is associated with task success.

Research Subjects

- 26 month old children (N= 90 children)

Procedure

- Besides the marshmallow test the child is asked to participate in a variety of other executive functioning tasks.
- **Flexibility/ Rule Switching:** Stroop Tasks
- **Working Memory:** Spin The Pots, Categorization
- **Response Inhibition:** Tower Task
- The child is shown the toy and allowed to play with it for a short time.
- The researcher asks for the toy back and then says to the child "Mr. Fish is sleepy now. Please let him sleep under in his house (a clear plastic bowl) until I come back. Remember, don't touch or play with him until I return." The researcher pushes the toy towards the child and then goes behind a curtain and waits for one minute.
- During the period the child is recorded and their behavior is coded to produce useful statistical data.



Coding

Coding Method

- We coded the children's behavior as a proportion of the total time that the child spent doing the task.
- The child's behavior was coded along four categories in which different categories of behavior could be done simultaneously, but inter-categorical behaviors couldn't be done simultaneously.

Types of Behaviors

- Gaze: Looking at environment, look at self, look at toy, look at mother
- Speech: Child speaking/ not speaking, Mother Speaking/ not speaking
- Touch: No touching, touching "house", touching toy, oral soothing

Child Activity Level

- Alongside our video coding we grouped the children along the lines of "activity level". Activity level is a measure of how well they did at the task in relation to the toy.: 1). Touched the toy 2). Lifted the bowl 3). Only touched bowl 4). Doesn't touch bowl/ toy

Results

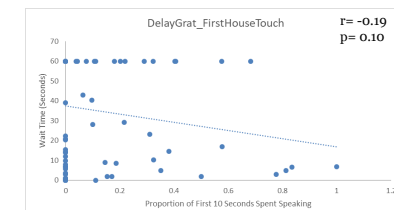
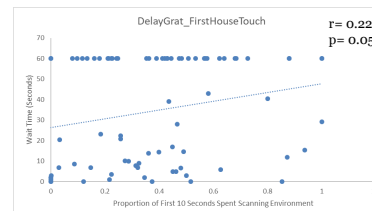
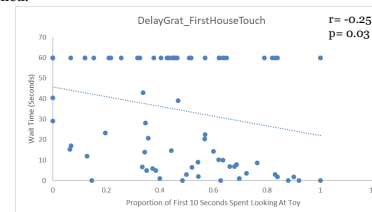
Hypothesis 1: Ability on other executive function tasks may predict for ability in the marshmallow task

- We tested the children on a variety of other tasks related to executive functioning and then tested the correlation between scores on each task and score on the marshmallow task.

	BigLittleStroop	Categorization	BabyStroop	SpinthePots	TowerTask	
DelayGrat_ActivityLevel	Pearson Correlation	-.007	.044	.076	-.172	-.086

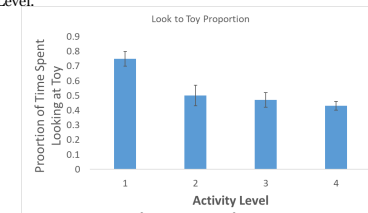
Hypothesis 2: Behaviors expressed during the first 10 seconds of the test can predict for achievement the task.

- We tested the correlation between the proportion of the first 10 seconds of the task spent doing a certain activity (speaking, looking at the toy, and looking at the environment) and time waited on the task (up to 60 seconds) before the toy was touched.



Hypothesis 3: Where children look may have a correlation to achievement on the task.

- We tested the relationship between spending time looking at the toy and Activity Level.



Discussion

- In this study we found that the sort of cognitive ability used in the marshmallow task was distinct from the executive functions tested in our other tasks. This went against our original hypothesis.
- The behaviors expressed by children in the first ten seconds of the task had a slight correlation with how well the child did on the task. Children who spent a larger proportion of the first 10 seconds of the task looking at the toy or by talking to a parent controlled themselves for a shorter period. Children who spent most of the period looking at the environment managed to control themselves for a longer period. This verified our hypothesis, but the correlation was rather low.
- We found that children who spent a greater proportion of their time looking at the toy did worse on the task. This verified our hypothesis.
- There were a few limitations when it came to this study that we could improve on future analyses. Child speech was found to have some correlation to achievement on the task, but child speech included vocalizations, self talk, and speaking to parent. These are different sorts of speech and should be treated separately to see which ones affect achievement positively or negatively. I would also like to what proportion of the children who completed the task were actually were controlling themselves. I feel that some of them may have not actually been interested in the toy.

References

- Carlson, S. M., Shoda, Y., Ayduk, O., Aber, L., Schaefer, C., Sethi, A., ... Mischel, W. (2018). Cohort effects in children's delay of gratification. *Developmental Psychology*, 54(8), 1395-1407. <https://doi.org/proxy.uilb.uits.iu.edu/10.1037/dev0000533.supp>
- Mischel, W., & Ebbersen, E. B. (1970). Attention in delay of gratification. *Journal of Personality and Social Psychology*, 16(2), 329-337. <https://doi.org/proxy.uilb.uits.iu.edu/10.1037/h0029815>