Examining young children's delay of gratification behavior via a board game played in a naturalistic setting

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Background

- Young children's delay of gratification, or the extent to which they can resist the temptation of an immediate reward and wait for a later reward, predicts many positive outcomes from academic achievement to maintaining a healthy weight.[1]
- The goal of this analysis is to describe children's decision-making when playing a new board game designed to promote preschoolers' delay of gratification in a naturalistic setting.

Objective

- To describe children's decisions across two game play sessions, overall and by child age in a naturalistic setting.
- Then, to compare the findings from the naturalistic setting with the separate data collected from playing the same game in a lab setting.

Procedures

- The study game was developed in an iterative manner, incorporating insights from the self-regulation literature and play-testing sessions with a separate sample of 10 children.
- The game has a Superhero theme with the goal to collect the most "sparkly gems." On select spaces, children must decide whether to take "a sparkly gem now, or a sidekick who can help you later." Gems are meant to tempt the children, but sidekicks can be traded in at the end for five gems. Choosing sidekicks instead of gems will help the child win therefore reinforcing delay of gratification skills.

Figure 1. Board Game Pictured left to right: Sidekicks, gems, study game and game components.

- The game was played in a Head Start classroom in Buffalo, NY.
- Head Start is a program of the United States Department of Health and Human Services that provides early childhood education, health, nutrition and parent involvement services to low income children and their families.[2]
- One researcher played the game with 2-3 children while another recorded data.

Participants

- 10 3-to-5-year-old children played two sessions of the study game.
- All children were from low income families residing in Buffalo, NY.
- Data were collected over a two-week period, with children playing their repeat sessions within 1 to 2 days.

Table 1. Demographic characteristics of the sample.

Characteristic	% or mean
Child sex	80% girls, 20% boys
Child age	M=4.2 years (range=3.0-5.0)

Results

- Overall, selection of the delayed reward increased over time (Figure 2):

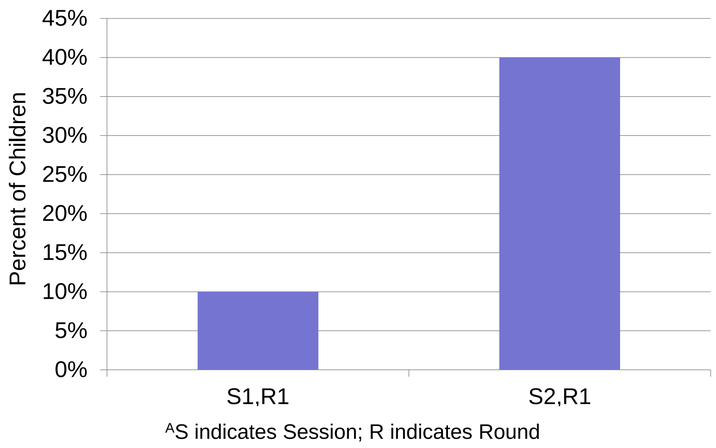

Figure 2. Percent of children selecting the delayed reward for their first decision during their first and second sessions of game play.

- 10% of children chose a sidekick (delayed reward) as their first decision in session 1, while 40% did so in their first decision of session 2, suggesting initial learning.
- Decision patterns differed by age (Table 2):

Table 2. Selection of delayed rewards by age.

Age	First Session	Second Session
4 y/o	17%	33%
5 y/o	0%	67%

^Data for 3-year-olds were omitted due to there being just one 3-year-old subject.

- Five-year-olds made the biggest improvement with 0% selecting sidekicks during the first decision of the first session compared to 67% during the second session.
- Four-year-olds improved but to a lesser extent, with 17% selecting sidekicks during the first decision of the first session and 33% during the second session.

Discussion

- Findings provide initial evidence that this board game can promote selection of delayed (vs. immediate) rewards in a naturalistic setting.
- Findings also suggest that patterns of decision-making differ by age, with five-year-olds making the most improvement followed by four-year-olds.
- The direction of the observed changes was consistent with a prior study in a lab setting, with 37% of children choosing sidekicks (delayed reward) in Session 1, Round 1 and 67% in Session 2, Round 1, in the lab.
- This suggests that there is a general trend of increased selection of delayed rewards with game experience in both a lab and in a naturalistic setting.
- In the future it would be interesting to observe Head Start children's decision-making during additional game play sessions, as well as potential effects of game play on their delay of gratification skills more broadly.

References

1. Mischel W, Shoda Y, Rodriguez MI. Delay of gratification in children. *Science.* 1989;244(4907):933-8.
2. *Office of Head Start*, www.acf.hhs.gov/ohs/about/head-start.

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