

Describing young children's decision-making in the context of a board game designed to promote delay of gratification skills



Jacob Bleasdale¹; Kaley Reardon¹; Anita Singh, BA¹; Derek Curry, MFA²; Leonard Epstein, PhD¹; Myles S. Faith, PhD³; Dave Pape, PhD²; Stephanie Anzman-Frasca, PhD¹



¹ Division of Behavioral Medicine, Department of Pediatrics, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo (UB);

² Department of Media Studies, College of Arts & Sciences, UB; ³ Department of Counseling, School, & Educational Psychology, Graduate School of Education, UB

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 in the context of a board game designed to promote delay of gratification.

Objective

- To describe preschool children's decisions across 4 game play sessions, overall and by sex.



Intervention

- The study game (Figure 1) 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 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 later for more gems. Choosing sidekicks instead of gems helps the child win, reinforcing delay of gratification skills.
- During Session 3 of game play, children are given a liner for the trays used to collect gems and are told that they should "build the power crystal" with their gems. Children now have another component to tempt them to choose gems. This component adds to the challenge of delaying gratification and is intended to further build these skills.



Figure 1. Study board game. Pictured left to right: Sidekicks, gems, study game and game components, trays with tray liners.

Participants

- 27 4-to-5-year-old children (Table 1) played the study game in the laboratory over 4 weeks

Table 1. Demographic characteristics of the sample

| Characteristic | % or mean |
|-------------------------------|---|
| Child sex | 37% girls, 63% boys |
| Child age | M=4.8 years (range=3.9-5.8) |
| Child race/ethnicity | 7% African-American, 74% White, 15% multiracial, 4% Hispanic/Latino |
| Child school meal eligibility | 15% eligible for free- or reduced-price school meals |
| Parent education | 67% obtained Bachelor's degree or higher |

Procedures

- While children played the study game (Figure 2), a researcher viewed a live video of game play and recorded the child's decision each time s/he was to choose a gem or sidekick. The percent of children choosing a sidekick (i.e. the delayed reward) during the initial decision of each round of game play was calculated overall and by sex.

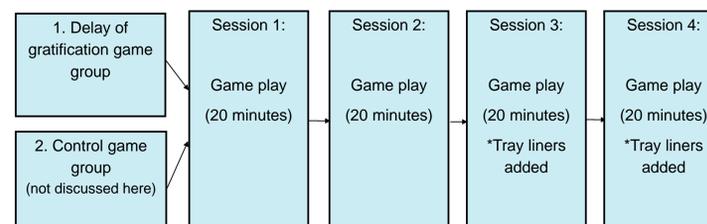


Figure 2. Study design

Results

- Overall, results suggest that children learned to choose the delayed reward over time (Figure 3):

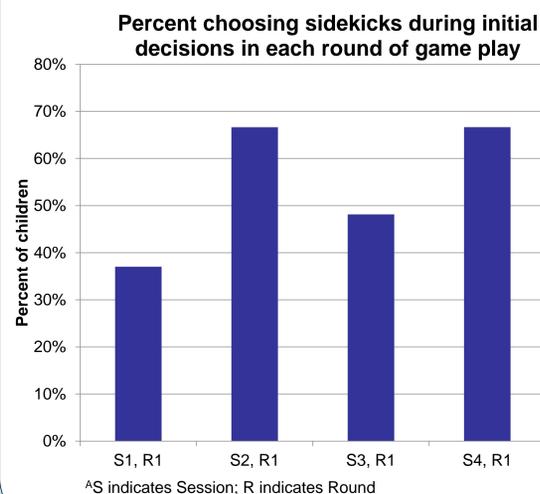


Figure 3. Selection of sidekicks increased from the first decision (Session 1, Round 1) to subsequent decisions, with some variability (with addition of tray liners) and a return to high selection of sidekicks by Session 4.

- 36% of children chose a sidekick as their first decision, while 68% did so in the first decision of Session 2, demonstrating initial learning.
- 48% of children chose sidekicks during the first decision of Session 3, suggesting effectiveness of the added tray liners in increasing the temptation of selecting the immediate reward (gems). After this, selection of sidekicks increased again.
- Decision patterns differed by sex (Figure 4):

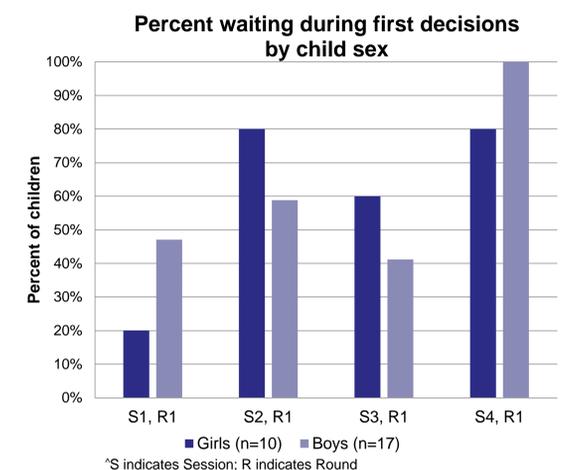


Figure 4. Girls were quicker to consistently increase their selection of sidekicks as game play progressed.

- Girls were quicker to increase selection of sidekicks, moving from 20% selecting sidekicks in their initial decision in their first round of game play to >60% in the next 3 rounds. >80% of both boys and girls selected sidekicks by Session 4.

Discussion

- Findings provide evidence that this board game can promote selection of delayed (versus immediate) rewards.
- Introduction of tray liners appeared to challenge and then benefit delay skills, consistent with research showing that incremental challenges can build these skills.
- Findings also suggest that patterns of decision-making may differ by sex, although both boys and girls increased selection of sidekicks from the beginning to end of the study.
- Future directions include testing effects of game play on delay of gratification using a separate lab task and a control group and exploring application of the game in real-world settings.

References

1. Mischel W, Shoda Y, Rodriguez MI. Delay of gratification in children. *Science*. 1989;244(4907):933-8.

Acknowledgments

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