Comparative Decision Making: From Playgrounds to CEOS

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Abstract

This study compares decision making strategies among children and adults via a computerized, deferred decision making task. The objective was to make a decision to buy or not to buy a product based on the recommendations consulted. The first goal is to investigate how source reliability affects the number of recommendations consulted and the accuracy of the decision. The second goal is to observe how the dynamics of stopping rule selection changes across age groups. The third goal was is to see whether or not participants operate as optimal decision makers. Results showed the striking differences in a number of reviews consulted and accuracy as result of both reliability of the source and subject age.

Introduction

- Previous studies have revealed obvious disparities between children and adults in terms of accurate decision making. The precise strategies between the two age groups, however, are not very clear and warranted investigation through these studies.
- Hypothesis 1: The quality of decision making changes with age based mental capacities (memory, attention span, mathematical ability) and with the development of complex decision making strategies
- Hypothesis 2: Neither children nor adults will operate as optimal decision makers.
- The Stopping Rule Selection (SRS) theory hypothesizes that decision makers select different strategies and stopping rules specific to the decision at hand.

Definitions

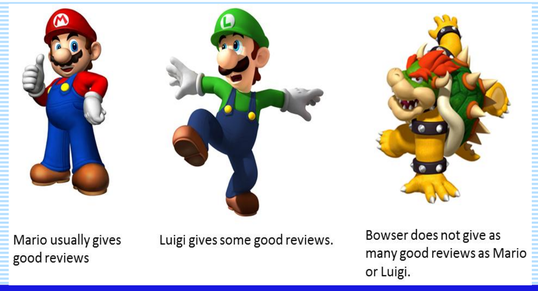
- **Deferred Decision Task**: a subject chooses to open an optional number of reviews before making a decision.
- **SRS Theory**: utilizes multiple simple decision rules in real time. In different environments, a decision maker acts adaptively, constantly looking for the best decision strategies, stopping rules, and critical values
- **Stopping Rule**: a decision rule used to decide when to stop with evidence collection and for making final decisions.
- **Critical Difference:** stop when a total sum of bipolar evidence reaches a critical value of (d)
- **Optimal Decision Rule**: use a difference between evidence as a stopping rule and possess a perfect knowledge of all aspects of the environment.
- **One Reason Decision Making**: a decision rule that uses only one evidence for making final decision.

Experimental Design

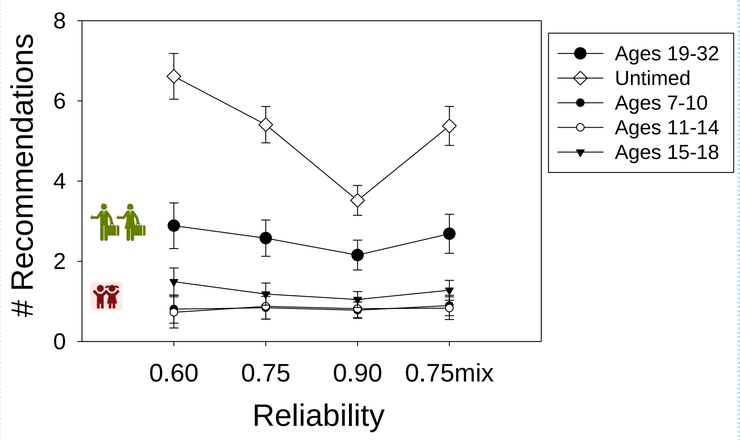
Time Condition (timed, untimed) X Source Reliability (high, medium, low, mixed) X Source knowledge (informed, uninformed) X Type of Response (buy, don't buy) X Real Value of the product (good, bad)

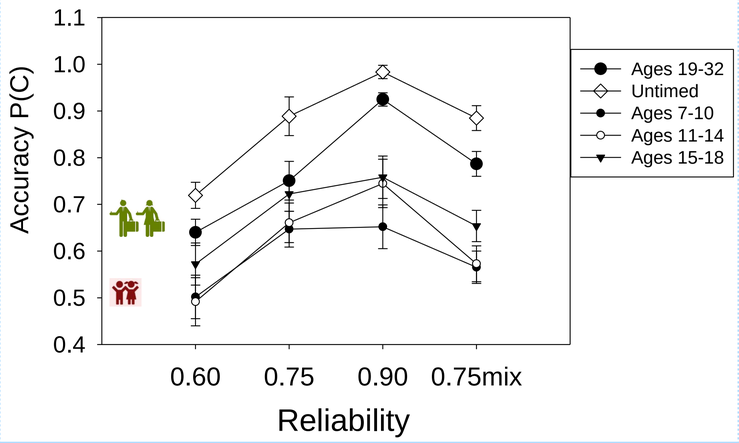
Procedures

- In a differed decision making task a subject has to decide either to buy or not to buy a product of unknown quality. They were to base their decision on reviews selected.
- The reliability of the reviews varied block to block and were indicated by different video game characters.
- On a correct decision the subjects received 1 token, on an incorrect decision the subjects lost 1 token. The display of amount earned was intended to create a real life buying scenario.



Results

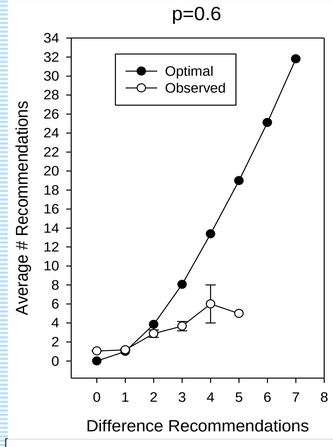




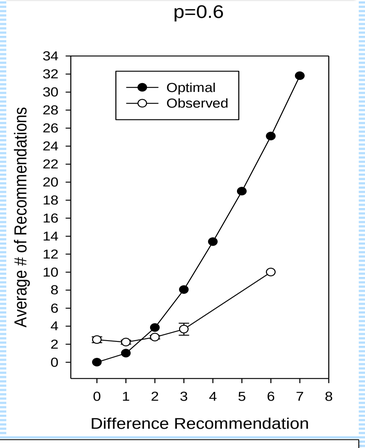
Comparison to Optimal Decision Maker

Low Reliability Recommendations

Children

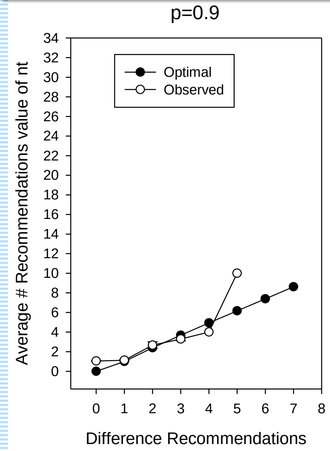


Adults

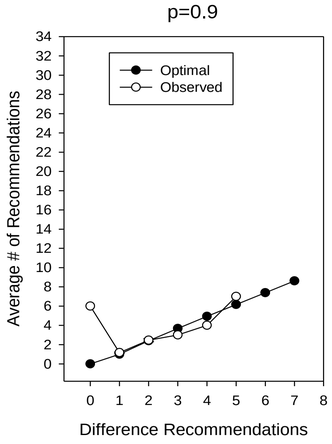


High Reliability Recommendations

Children



Adults



Conclusions

- The number of recommendations consulted and the overall accuracy of decisions increase with age
- Neither adults nor children perform as optimal decision makers under time pressure
- Strikingly similar patterns observed among children and adults for the difference stopping rule
- Factors such as memory, attention, and mathematical ability may account for differences in accuracy (Baron, Granato, Spranca, & Teubal, 1993)
- SRS Theory needed to explain these discrepancies in terms of multiple stopping rules

Recommended Readings

- Baron, J., Granato, L., Spranca, M., & Teubal, E. (1993). Decision- making biases in children and early adolescents: exploratory studies.
- Busemeyer, J. R., & Rapoport, A. (1988). Psychological models of deferred decision making.
- Fific M., & Buckmann M. (2013). Stopping Rule Selection (SRS) Theory Applied to Deferred Decision Making.
- Garon, N. & Moore, C. (2004). Complex decision-making in early childhood.
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