ATTENTIONAL STRATEGY AND EFFORT AVOIDANCE: THE ROLE OF DISPLAY ENUMERATION

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Background

- Often, more than one attentional control strategy available
- Some are more optimal than others

Adaptive Choice Visual Search

- Paradigm designed to study attentional strategy
- Goal: search for a red or blue square containing digits 2-5

Questions

- What kind of effort is being avoided?
- Experiment 2 (N=24)
  - Vast individual differences in attentional control
  - 5 ratios
  - Paradigm designed to study attentional
- Often, more than one optimal strategy available

Discussion

- Strong avoidance of enumeration effort
- Ceiling effect limited our ability to capture individual difference in effort avoidance.
- Drive to maximize monetary payoff overcame enumeration avoidance
- Future work may involve different methods for measuring effort to further investigate this topic.

Experiment 1 Design

Part I: Attentional Strategy

Standard ACVS task

Part II: Enumeration Ability

Enumeration task
  - Determine the color of the smallest subset.
  - 5 ratios: 1.08:1, 1.25:1, 1.45:1, 1.7:1, 2:1

Part III: Enumeration Effort

Word-cue Visual Search

- Only the target in the cued subset is correct
- Color cue: Red/Blue
- Subset cue: Large/Small
- Difference: enumeration process
- Subset’s Ratio = 1.5:1
- Practice both tasks 40 trials each

Demand Selection

- Estimate enumeration effort avoidance
- Select which of the two tasks to perform (50 trials)
- Location of tasks (left vs. right) switched halfway through the block

Experiment 1 (N=51)

Enumeration Ability

- Weibull function
- Enumeration ability: the point when subject reaches 75% accuracy
- Enumeration ability doesn’t drive visual search strategy

Demand Selection

- Majority of participants showed a strong preference for the Color-cue Search Task, indicating a strong avoidance of enumeration effort.

Relationships

- No significant relationship was observed between People’s search strategy and effort avoidance.

Experiment 2 (N=24)

Limitation of Exp 1

- People may have tried to minimize the time required to achieve task goals.

Add a 1s preview to both tasks

- Strong avoidance remained while the RT difference < 100ms. F(1,23) = 1.38, p = .16.

Experiment 3 (N=25)

Estimating Subjective Value of Enumeration Effort

- Payment difference = L/S task – R/B task
- Group level: People tended to choose the higher payment amount and only discounted the subset cue task by 0.5 cents.

Individual level: Most participants always choose the one with larger bonus

Reference