

Recent experience in a fixed search mode reduces the influence of explicit search strategies

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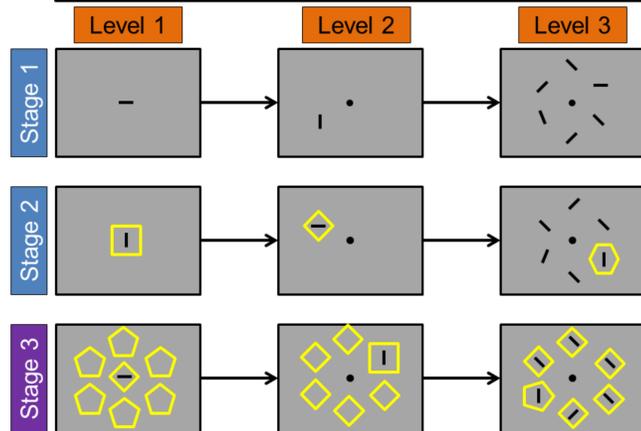
Introduction

- Contingent attentional capture (Folk, Remington, & Johnston, 1992)
- Attentional capture by irrelevant singletons (Theeuwes, 1992)
- Singleton and feature search modes (Bacon & Egeth, 1994)
- Persistence of search modes (Leber & Egeth, 2006)
- Default Search Mode (Kawahara, 2010)

Methods

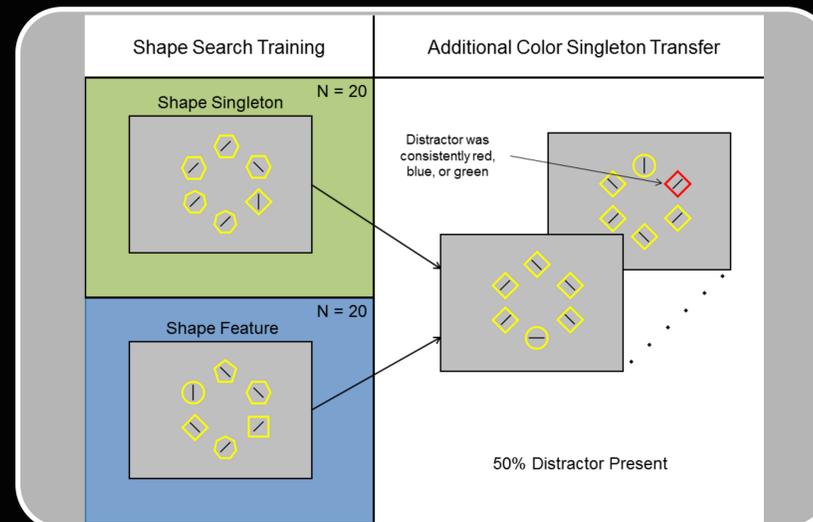
Operant Training

3-Stage x 3-Level Progression

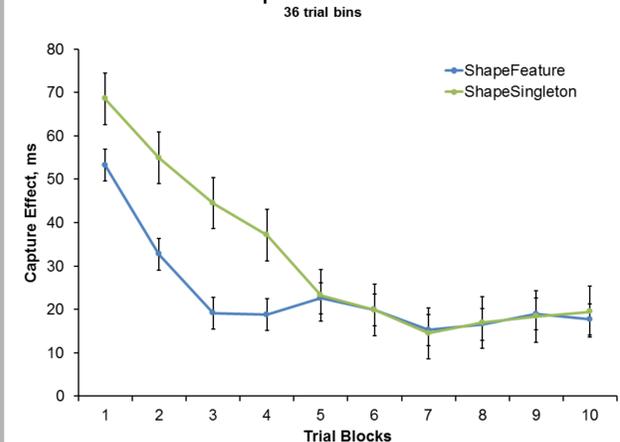


- 60 University of Iowa undergraduates were operantly trained to identify a horizontal or vertical bar.
- Observers were given only one instruction, "Respond by pressing the 'Z' and '?' keys."
- Training progressed in three stages with three levels per stage.
- Auditory tones provided feedback.
- At least 90% accuracy was required to advance levels.
- A post-experimental questionnaire was given to assess explicit search mode knowledge.

Experiment 1 Singleton & Feature Mode Training



Attentional Capture as a function of block



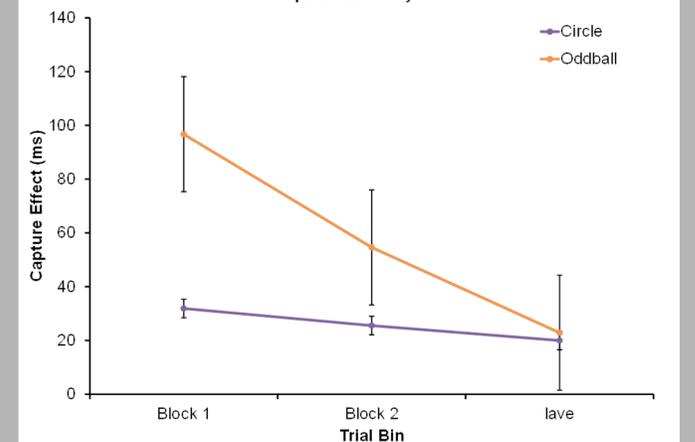
Error bars represent 95% within subject confidence intervals (Loftus & Masson, 1994; Cousineau, 2005)

Results & Discussion

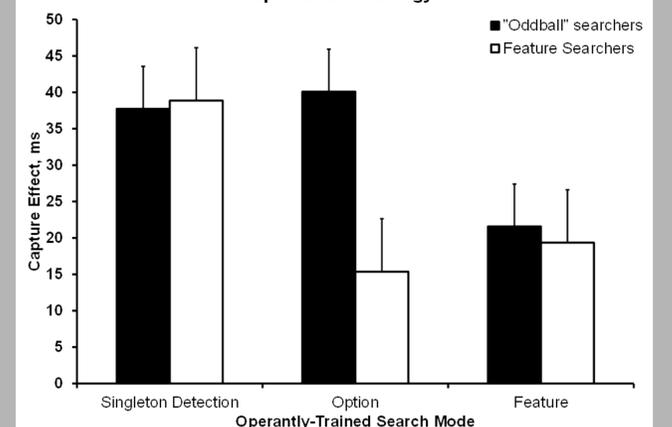
- Observers trained in feature search mode were initially captured less than observers trained in singleton search mode.
- Learned suppression occurred over a period of ~150 trials, but was never abolished.
- Evidence of search mode persistence.
- Experience in feature mode gives the visual system a head-start in the transfer task.

Experiment 2 Option Mode Training

Capture Effect as a function of Reported Strategy



Capture Effect as a function of Training Mode and Self-Report search strategy



Error bars represent 95% within subject confidence intervals (Loftus & Masson, 1994; Cousineau, 2005)

Results & General Discussion

- Observers trained in option mode were initially captured in the transfer task.
- When observers were forced into a fixed search mode (EXP 1), explicit report did not accord with behavior; however, when given the option to adopt feature mode or singleton mode, behavior did conform to explicit strategy.
- Thus experience predominates an observer's subsequent search mode when the environment is fixed. When the environment affords a degree of flexibility, observers appear to adopt one strategy or the other and can accurately report which strategy they used after the fact.