**Supplementary Analysis**

We provide supplementary analysis of the guess rate and swap rate parameters derived from the model of Bays et al. (2009). The results of these analyses are consistent with the conclusions from the analysis of standard deviation reported in the main text. Most importantly, we found both guess rates and swap rates to be higher for the distractor than for the target in Experiment 2.

**Experiment 2**

We conducted a 4 (group: “equal priority”, “with/without search”, “specific feedback”, “priority distractor”) x 2 (recalled stimulus: target, distractor) x 2 (cue color: target matching, distractor matching) mixed ANOVA on individual guess rates. For the “with/without search” group, only color settings from trials with search task were included in the ANOVA. The guess rate was lower for the target than for the distractor color (.033 vs .078), *F*(1, 46) = 18.31, *p* < .001, ηp2 = .29, indicating that observers memorized targets better than distractors. The effect of cue color approached significance, *F*(1, 46) = 3.10, *p* = .085, ηp2 = .06, showing that the guess rated tended to be higher with same than with different cues (0.063 vs. 0.047). None of the other effects reached significance, *p*s > .571.

We repeated the same ANOVA on individual swap rates. The probability of swapping was smaller for targets than for distractors (.018 vs. .068), *F*(1, 46) = 26.92, *p* < .001, ηp2 = .369. The interaction of cue color and experiment, *F*(3, 46) = 3.71, *p* = .018, ηp2 = .195, showed that swap rate decreased when the cue color was the same as the target color in the "with/without search" and "priority distractor" groups (decrease of .022 and .005, respectively), but increased in the "equal priority" and "specific feedback" groups (increase of .012 and .006, respectively). The interaction of recalled stimulus and cue color approached significance, *F*(3, 46) = 3.02, *p* = .089, ηp2 = .06, showing that matching cue colors decreased the swap rates for the target (.016 for matching and .021 for non-matching cue colors), whereas the opposite was the case for the distractor (.072 for matching and .64 for non-matching cue colors).

Further, we evaluated the effect of completing the search task in the group “with/without search”. We conducted a 2 (recalled stimulus: target, distractor) × 2 (search task: present, absent) on the guess rate, but no significant main effect or interaction was observed, *p*s > .248. We repeated this analysis on swap rates. Swap rates were lower for the target than for the distractor (.017 vs .076), *F*(1, 12) = 8.23, *p* = .014, ηp2 = .41. The interaction of recalled stimulus and search task, *F*(1, 12) = 5.44, *p* = .038, ηp2 = .31, showed that swap rates increased for the target when the search task was absent (.014 vs .020), whereas it decreased for the distractor (.091 vs .061).

**Experiment 3**

We compared the guess and the swap rate in the color adjustment task for memory-matching and non-matching cue colors. The guess rate was smaller when the cues matched the memorized color than when they were non-matching (.040 vs .068), *t*(16) = 2.33, *p* = .033, Cohen’s *d* = 0.56, whereas the swap rate did not differ (.002 in both conditions), *p* = .676.

**Supplementary Table 1.** Mean reaction times (RT, in ms) and percentage of errors (PE) in Experiment 1 as a function of number of memorized search targets, match between cue and memorized target color, and cue validity. The difference between invalid and valid conditions is indicated as cueing effect (CE).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # colors | cue match | valid | RT | CE(RT) | PE | CE(PE) |
| 1 | yes | yes | 444 | 73 | 4.7 | 3.0 |
|  |  | no | 516 |  | 7.7 |  |
|  | no | yes | 501 | -17 | 7.9 | -1.0 |
|  |  | no | 484 |  | 6.9 |  |
| 2 | yes | yes | 498 | 37 | 8.4 | 9.5 |
|  |  | no | 536 |  | 17.9 |  |
|  | no | yes | 532 | -9 | 17.7 | -0.2 |
|  |  | no | 524 |  | 17.5 |  |

**Supplementary Table 2.** Mean reaction times (RT, in ms) and percentage of errors (PE) in Experiment 2 as a function of feedback group, cue color (target-matching, distractor-matching), and cue validity. The difference between invalid and valid conditions is indicated as cueing effect (CE).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| feedback | cue match | valid | RT | CE(RT) | PE | CE(PE) |
| pooled | target | yes | 527 | 45 | 7.6 | 4.1 |
|  |  | no | 572 |  | 11.7 |  |
|  | distractor | yes | 552 | -14 | 8.3 | -0.7 |
|  |  | no | 538 |  | 7.6 |  |
| specific | target | yes | 480 | 68 | 5.2 | 1.1 |
|  |  | no | 548 |  | 6.3 |  |
|  | distractor | yes | 533 | -13 | 5.6 | 0.3 |
|  |  | no | 520 |  | 5.9 |  |

**Supplementary Table 3.** Mean reaction times (RT, in ms) and percentage of errors (PE) in Experiment 3 as a function of match between cue and memorized color, and cue validity. The difference between invalid and valid conditions is indicated as cueing effect (CE).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| cue match | valid | RT | CE(RT) | PE | CE(PE) |
| yes | yes | 479 | 62 | 2.0 | 5.7 |
|  | no | 541 |  | 7.7 |  |
| no | yes | 475 | 53 | 3.1 | 2.0 |
|  | no | 529 |  | 5.1 |  |