**Supplementary Material for**

Individual and Age Differences in Block-by-Block Dynamics of Category Learning Strategies Reshma Gouravajhala, Christopher N. Wahlheim, and Mark A. McDaniel

**Supplementary Material A**

Global Strategy Report Questions

Training Strategy

Think back to when you were learning the category membership of objects (Blickets and Daxes) in the first phase. Were you more focused on trying to MEMORIZE the individual objects or on trying to establish a RULE that defined the category to which the objects belonged? On a scale from 1 to 7 where “1” means that you exclusively tried to MEMORIZE objects and “7” means that you exclusively tried to establish a RULE, please give an OVERALL rating about the strategy that you used to learn the category membership of objects in the first phase. You should give an extreme rating (1 or 7) if you only used one strategy throughout the entire first phase, whereas you should give an intermediate rating to indicate the extent to which you used one strategy more than the other. You should give a rating of “4” only if you used both strategies equally throughout the first phase, or if you are uncertain about the strategy you used. Please respond as precisely as possible by pressing the number that corresponds to your rating on the scale below.

MEMORIZE 1 2 3 4 5 6 7 RULE

Transfer Strategy

Now think back to the most recent phase. What strategy did you use to categorize new objects that did not appear in the first phase? Did you think about the SIMILARITY between new objects and objects you learned earlier or did you employ a RULE that you learned in the first phase? On a scale from 1 to 7 where “1” means that you exclusively tried to assess the SIMILARITY between old and new objects (e.g., the outer shape) and “7” means that you exclusively employed a RULE, please give an OVERALL rating about the strategy that you used to categorize new objects. You should give an extreme rating (1 or 7) if you only used one strategy to categorize objects, whereas you should give an intermediate rating to indicate the extent to which you used one strategy more often. You should give a rating of “4” only if you used both strategies equally or if you are completely uncertain. Please respond precisely by pressing the number that corresponds to your rating on the scale below.

SIMILARITY 1 2 3 4 5 6 7 RULE

If you developed a rule for classifying blickets and daxes, please explain it below. If you were not able to find a perfect rule for classification, but you tried to do so, what was the best rule that you came up with? Type your response in the box below. Press "ENTER" ONLY after you have completed your response.

If you just stated a rule, please indicate whether you established it (1) while you were learning objects during the first phase, or (2) after you completed the first phase. If you did not state a rule, then (3) indicate that you did not establish it. Enter your response by pressing: 1 -- during the first phase 2 -- after the first phase 3 -- no rule

**Supplementary Material B**

Transfer Performance Conditionalized on Global Strategy Preferences

To determine whether participants’ self-reported global strategies corresponded to their categorization of ambiguous, rule, and memory objects (with accuracy coded using 0s and 1s), we conducted a no-intercept mixed-effects logistic regression model containing 18 fixed effects (see Figure 5). Each of the 18 fixed effects represented a group (e.g. older adults with a rule abstraction strategy categorizing ambiguous objects) that was dummy coded (using 0s and 1s) for group membership. Overall, the model accounted for 48.64% of the total variance (conditional *R*2 = .4864; see Table 9).

 We conducted a series of linear combination tests to determine significance of any effects. Younger adults outperformed older adults in categorization of rule (*z* = -4.63, *p* < .001) and memory (*z* = -6.06, *p* < .001) objects, collapsed across all global strategy preferences. There was no significant effects of age, however, on the categorization of ambiguous objects, *p* > .05.

Relative to memorizers, participants with a rule abstraction global strategy preference categorized ambiguous objects significantly more according to the rule (*z* = 5.69, *p* < .001), and exhibited higher accuracy on rule (*z* = 4.81, *p* < .001) but not memory objects (*p* > .05). There were no significant differences between how rule abstractors and intermediate learners categorized ambiguous, rule, or memory objects (all *p*s > .05). There were also no significant differences between how memorizers and intermediate learners categorized ambiguous, rule, or memory objects (all *p*s > .05). Finally, neither the age x rule abstractor vs. intermediate strategy interaction nor the age x memorizer vs. intermediate strategy interaction were significant, both *p*s > .05.

**Table 5**

*Categorization Performance on Transfer Tasks as a Function of Global Training Strategy*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  | Training Strategy |
|  |  |  |  |  |
|  |  |  |  |  |
| Transfer Objects | Age | Rule-abstractor | Memorizer | Intermediate |
|  |  |  |  |  |
|  |  |  |  |  |
| Ambiguous | Younger | .67 (.16) | .37 (.16) | .43 (.65) |
|  |  |  |  |  |
|  | Older | .55 (.14) | .24 (.09) | .35 (.11) |
|  |  |  |  |  |
|  |  |  |  |  |
| Rule-favored | Younger | .87 (.07) | .67 (.09) | .83 (.30) |
|  |  |  |  |  |
|  | Older | .75 (.08) | .51 (.08) | .48 (.08) |
|  |  |  |  |  |
|  |  |  |  |  |
| Memory-favored | Younger | .93 (.04) | .95 (.04) | .95 (.14) |
|  |  |  |  |  |
|  | Older | .79 (.08) | .72 (.07) | .66 (.13) |
|  |  |  |  |  |

Note: Performance on Ambiguous and Rule-favored objects reflect probabilities of categorization according to the correct rule. For ambiguous objects, performance of 1.00 would indicate perfect categorization according to the correct rule, and performance of 0.00 would indicate perfect categorization according to memory for perceptually similar features of training objects. Performance on Memory-favored objects reflects probabilities of correct categorization based on memory for training objects with perceptually similar features. Margins of error for 95% confidence intervals are displayed in parentheses.