Hybrid Foraging in Healthy Aging

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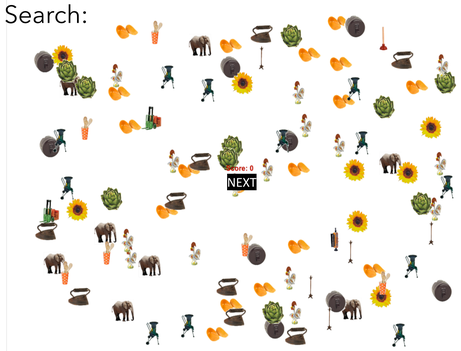
HYBRID FORAGING

Search for multiple instances of multiple targets

Memorize:

Search:



Move to next screen when ready

YOUNGER ADULTS (YA) (Wolfe, 2016)

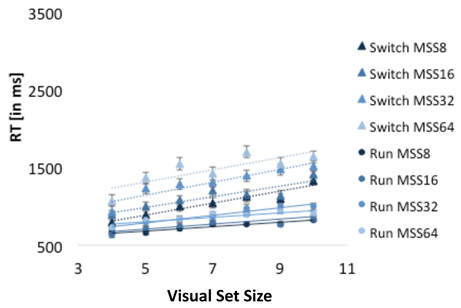
- Response time (RT) increases with increases in visual set size
- Follow Marginal Value Theorem: optimal rate strategy
- Pick items in runs (same target items) vs. switches

What about OLDER ADULTS (OA)

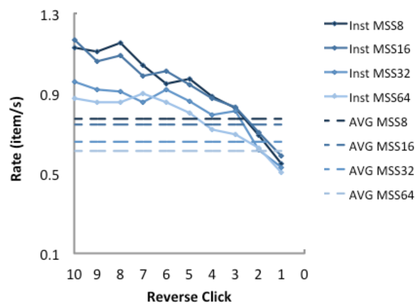
- Exploitative > Explorative behavior
- *Do they show age-related decline (in RT)?*
- *Do they follow MVT?*
- *Do they collect items in runs?*

Younger Adults (18-29)

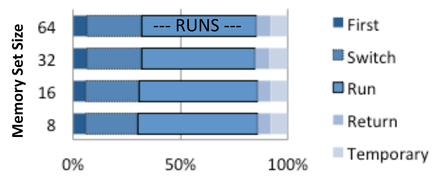
Response Time



MVT



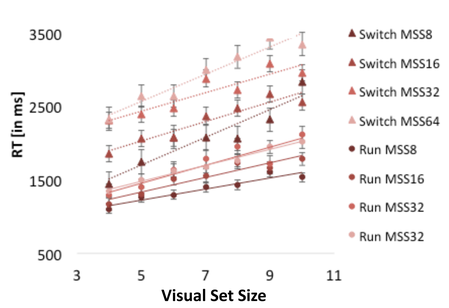
Runs



Older Adults (65-85)

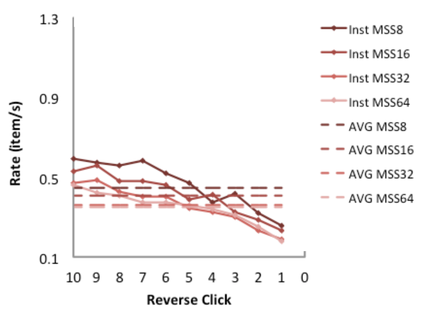
Response Time

OA are slower



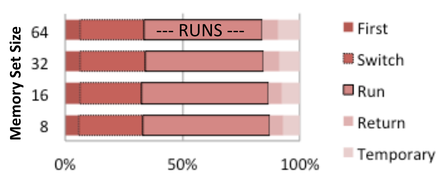
MVT

A bit more reluctant to leave a patch



Runs

Collect most items in runs



Response Time

- OA's are overall *slower* than YA throughout the experiment
- Visual search in runs is more efficient in both OA and YA

Marginal Value Theorem

- OA's adopted a more *conservative search strategy* compared to YA
- OA's left the patch after the instantaneous rate of return had fallen well below the average rate, making their foraging behavior *less efficient*
- Age-related reduction in efficiency due to strategic changes

Runs

- OA also collect items predominately in runs
- OA, similar to YA, make use of priming-related facilitation of search by foraging in runs of target types

NO SIGN OF AGE-RELATED DECLINE *IN ATTENTION AND MEMORY*

Controlling for general age-related slowing, OA performance on hybrid search tasks suggest that any age deficits in foraging are most likely due to *strategic changes*. It appears that the relevant basic memory and visual search processes remain largely intact in OA.

REFERENCES

Chin, J., Anderson, E., Chin, C. L., & Fu, W. T. (2015, September). Age differences in information search: An exploration-exploitation tradeoff model. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 59, No. 1, pp. 85-89). Sage CA: Los Angeles, CA: SAGE Publications.

Wolfe, J. M., Aizenman, A. M., Boettcher, S. E., & Cain, M. S. (2016). Hybrid foraging search: Searching for multiple instances of multiple types of target. *Vision research*, *119*, 50-59.