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Semantic Integration of Knowledge in Young Adults

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Semantic Integration of Knowledge in Young Adults

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Participants: 18+ college students (n = 6)

**Method**

**MATERIALS**

SpAM Grid; Organisms (15; 6 novel)

**STIMULI**

- Example paragraph, Pangolin:
  The physical appearance of a pangolin is marked by large hardened overlapping plate-like scales, which are soft on newborn pangolins, but harden as the animal matures. Pangolin scales are made out of keratin, which is the same material that makes up hair, fingernails, and horns. Pangolins can curl up into a ball when threatened, with its overlapping scales acting as armor, while it protects its face by tucking it under its tail. The scales are sharp, providing extra defense from predators.

- Read the first set of expository paragraphs providing them with information about the animals.
- Woocock-Munoz measure of language proficiency

**PROCEDURE**

- SpAM grid with images of both the familiar and unfamiliar animals.
- Read the first set of expository paragraphs providing them with information about the animals.
- Woocock-Munoz measure of language proficiency

**Research Questions**

- Does the SpAM task show evidence of self-derivation (are they integrating and self-deriving without a prompt)?
- Do adults show evidence of integrating semantic knowledge with existing knowledge?
- Support for the SpAM task as a method, integration without a prompt, and integrating with existing knowledge would come in the form of a pre/post-test difference in the Euclidean Distance such that novel organisms are placed closer to their taxonomic category at post.

- Although participants moved the target animals closer to their taxonomically correct group after hearing the paragraphs, this difference did not reach statistical significance, pre-paragraph (M = 3.8, SD = 1.06) and post-paragraph (M = 3.1, SD = 0.61); t (5) = 1.61, p = 0.17.
- The pangolin and the Olim tended to move further from their correct classification, indicating participants were making incorrect integrations.

- The results with the limited data (due to COVID-19 disruption) suggest that adults did integrate and self-derive existing knowledge with the novel information provided through expository paragraphs, although this failed to reach significance in this small sample size. These results provide support for further research:
  - With the SpAM task as the measure of SDI such that there is no direct prompt
  - SDI of existing knowledge with new knowledge
- Due to finding that many participants exhibited private speech (the process of talking to themselves out loud. Though it is audible, it is directed at the researcher) future iterations of this study should have a protocol of recording audio of participant sessions to analyze for private speech.
- The private speech indicated by the participants indicated that they were in fact integrating the novel semantic knowledge into their existing schemas and were changing their placement of the animal on the grid.
- Private speech and a post interview may lend understanding to why the pangolin and olim were placed further from their taxonomic category at post-test.

**Recognition**

- The researchers would like to acknowledge and thank Doctors Alena Esposito, Anna Fisher, and Robert Coley for inspiring their work.

Please contact Jessica Murgo (jmurgo@clarku.edu) or Matthew Swanat (Mswanat@clarku.edu) with any questions!