New Research From Psychological Science

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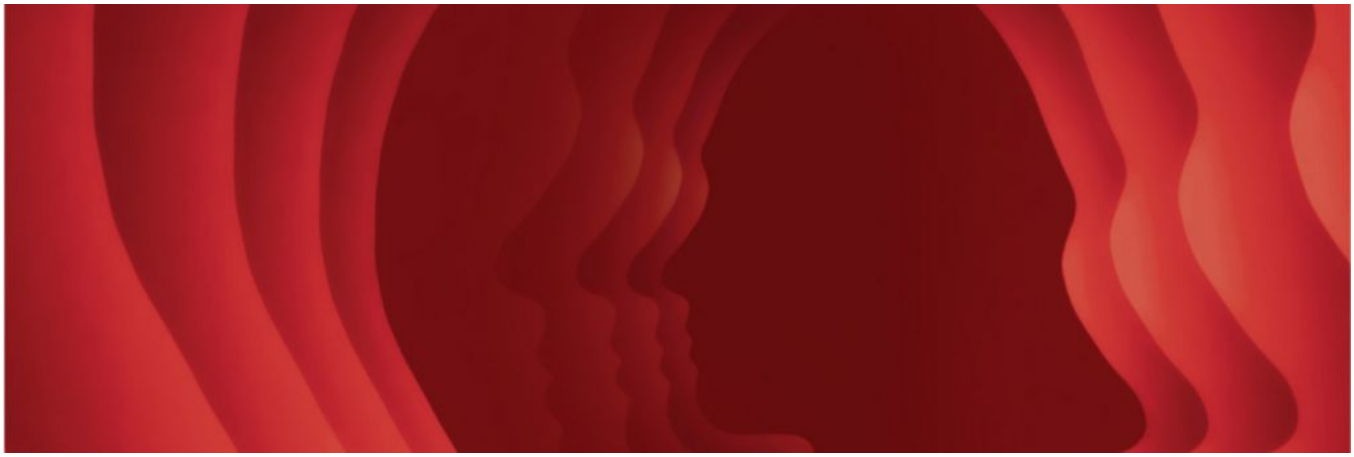

Read about the latest research published in *Psychological Science*:

Prosody and Function Words Cue the Acquisition of Word Meanings in 18-Month-Old Infants

Alex de Carvalho, Angela Xiaoxue He, Jeffrey Lidz, and Anne Christophe ?

Infants acquiring language must learn word meanings, which can be cued by the rules for combining words into sentences (syntax). But this poses a chicken-and-egg problem: Infants need words to learn syntax and syntax to learn words. In two experiments, de Carvalho and colleagues found that 18-month olds may learn syntax by relying on function words (e.g., *the*, *a*), which signal that the following word is a verb or a name, and phrasal prosody (i.e., the rhythm and melody of speech). They showed French infants videos of a penguin cartwheeling or spinning, accompanied by spoken sentences with two novel words (*bamoule* and *doripe*) used as either names (e.g., *bamoule* referred to the penguin) or verbs (e.g., *bamoule* referred to the act of spinning). In accordance with standard syntax, a function word (e.g., *the*) appeared before the novel word when it was used as a noun but not when it was used as a verb. Afterward, the researchers switched the videos associated with each sentence and measured how long infants looked at the videos. Infants looked longer when the new video/sentence combination suggested that the initially learned word was used incorrectly — indicating that they were surprised. The same pattern of results occurred when instead of a function cue before the novel words, only prosody changed. Infants thus seem to use function words and prosodic cues to infer the syntax of sentences and then use the syntax to acquire word meanings.

Psychological Constellations Assessed at Age 13 Predict Distinct Forms of Eminence 35 Years Later

Brian O. Bernstein, David Lubinski, and Camilla P. Benbow ?

Math/scientific and verbal/humanistic profiles assessed at age 13 predict forms and fields of eminence at age 50, this research suggests. Value orientations of 13-year-olds who scored among the top 1% on SAT-Mathematical Reasoning or SAT-Verbal were measured with six scales: Theoretical, Aesthetic, Social, Economic, Political, and Religious. The combination of their abilities and values resulted in scores on a math/scientific function (high mathematical ability and theoretical values with low social and religious values) and a verbal/humanistic function (high verbal ability and aesthetic values). The researchers assessed the same participants at age 50, focusing this time on whether they had achieved eminence, defined as attaining a consequential and creative career (e.g., full professor at a research-intensive university, a Fortune 500 executive, or an award-winning journalist), and if they had, placed them in a science, technology, engineering, and math (STEM) group, a humanities and social sciences group, or an "other" group, according to their field. Results indicated that eminent participants had scored higher on one or both of the functions than noneminent participants. STEM leaders scored higher on the math/scientific function than their peers, and humanities leaders scored higher on the verbal/humanistic function than their peers. Individuals who were leaders in other fields (e.g., medicine or law) had a balanced score between the two functions. The authors replicated these results in a study that assessed graduate students in STEM fields 25 years later. Thus, looking at children's preferences and abilities by the time they are 13 years old may to some degree predict their future eminence and field of work.

Object-Feature Binding Survives Dynamic Shifts of Spatial Attention

Emma Wu Dowd and Julie D. Golomb

Spatial attention is thought to bind visual object features (e.g., color, shape, orientation) that co-occur at the same location and integrate them into a coherent object representation. But what happens when attention is split across different locations or shifted from location to location? Participants reported the color and orientation of a visual target, which was presented with three distractors of different colors and orientations. Before the target appeared, participants either (a) held their attention to the future target location, cued by a black square outline; (b) shifted their attention from one cued location to a second cued location where the target would appear; or (c) split their attention between two locations cued at the same time. Participants made more errors when their attention was split or shifted. However, the nature of those errors differed: When attention was shifted, participants reported both the color and orientation of the nontarget presented in the first attended location; when attention was split, participants mixed up the features of target and nontarget objects. This indicates that splitting attention across multiple locations degrades object integrity and the ability to bind features, but shifting attention preserves bound objects. Moreover, participants also inadvertently had their attention lapse to noncued locations and reported the color and orientation of the nontarget at that location, preserving object identity but at the wrong location. These data emphasize the importance of attending one location at a time for feature binding and intact object perception.