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# ‘Use it, or lose it’ Not a Loss After All

## New research shows that adults don’t lose what they don’t use; it only becomes more difficult to access

By Mojgan Sherkat On OCTOBER 2, 2015

*A painting by Rachel Wu related to her study entitled "The Other Species."*

RIVERSIDE, Calif. (www.ucr.edu) – “Use it, or lose it.” It’s a phrase that has been tossed around for years, implying that humans forget information they’ve learned over the course of their lives if they don’t put it to use, or that adults cannot learn things as well as infants and children. But, according to new research by Rachel Wu, assistant professor of psychology at the University of California, Riverside, that is not exactly true.

In the field of psychology, there is a well-studied theory that indicates humans lose the ability to learn new languages and distinguish faces of other races and species from the time they are an infant to the time they are an adult, Wu explained. This theory is called “perceptual narrowing.”

“There are many notable studies from the past few decades showing that from 6 to 9 months of age, we learn about the people and the relevant language(s) in our environment at the cost of losing the ability to distinguish sounds in foreign languages and faces in unfamiliar races or species,” she said.

*Rachel Wu’s work focuses on how we learn from infants to aging adulthood, and the costs and benefits of knowledge in particular.*

In order to test this, the team of researchers conducted a series of experiments in which young adults, around 26 years old, searched for specific human faces or ape faces displayed among other human or ape faces on a computer screen and pressed a keyboard button when the target was located. Aligned with previous studies, participants were better at locating specific human faces compared to specific ape faces – as indicated by faster and more accurate keyboard button responses (occurring at around 700 milliseconds after seeing the faces).

However, Wu also measured their brain activity using electroencephalogram, or EEG, and found that before pressing the button (at around 200 milliseconds after seeing the faces), participants were able to locate the human and ape faces equally well. These results are important because they suggest that earlier responses in the brain may be immune to the effects that prior experiences have on later behavior.

“Our research has found that we may not actually lose what we don’t use – it may just be temporarily overridden by previous experiences,” said Wu.

This finding is similar to other studies showing that the brains of people with prosopagnosia (difficulty distinguishing faces) and congenital amusia (difficulty distinguishing tones) may be able to distinguish images and sounds prior to producing poor behavioral responses. Wu said that her research in general investigates how knowledge helps and hurts humans in different situations from infancy to adulthood. Understanding these issues may be the key to understanding healthy cognitive development and why we decline with age, she said.

MEDIA: If you would like to speak to Rachel Wu about her research and findings, please email or call Mojgan Sherkat, Senior Public Information Officer at the University of California, Riverside at Mojgan.sherkat@ucr.edu or (951) 827-5893.


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