

Got to remember them all, Pokemon

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A new study by UC Riverside's Weiwei Zhang, found a strong link between prior familiarity in long-term memory and visual short-term memory storage capacity.
Credit: UC Riverside

"Gotta catch them all, Pokémon!" Or in this case—got to remember them all, Pokémon.

Weiwei Zhang, assistant professor of psychology at the University of California, Riverside, found that people could learn and remember more of a subject when they were already familiar with it. And the more familiar they were with the subject, the better they remembered new information related to it. In the case of new research by Zhang, we're talking Pokémon [characters](#).

The new study, titled, "Familiarity Increases the Number of Remembered Pokémon in Visual Short-term Memory," published in the journal, *Memory and Cognition*, found a strong link between prior familiarity in long-term memory and visual short-term memory storage capacity.

"The human mind can store almost an infinite amount of information offline and more importantly process a vast amount of information online in everyday life," said Zhang, pointing to "online" examples such as driving routes, conversations, and to-do lists. "These amazing capabilities are supported by a core cognitive function, [working memory](#), that holds information online for a short period of time, so that we could engage in various mental operations."

According to Zhang, for example, in active conversation, we need to remember the whole sentence in working memory to understand the other person. Working memory has a small capacity that can be maintained in the active mind. As a result, this limited-capacity working memory becomes a bottleneck, limiting cognitive abilities such as creativity and fluid intelligence (ability to solve new problems, use logic in new situations, etc.). So, the researchers asked if would it be possible to overcome the working memory bottleneck.

Zhang and Weizhen Xie, a UCR psychology graduate student, set to discover if the limited capacity of working memory could be increased by supplementing it with long-term memory. Most of the participants in

the study were college students at UC Riverside, therefore they were familiar with the first-generation characters - released about 15 years ago - than with the more recent fifth-generation characters.

"We wanted to take advantage of the participants' previous—almost lifetime—experience with Pokémon characters. Specifically, to compare their working memory of Pokémon characters that they are more familiar with—first-generation Pokémon—with Pokémon characters that they are less familiar with, like fifth-generation Pokémon characters," Zhang said.

In the study, researchers assessed participants' familiarity with Pokémon by having them name a small set of Pokémon characters, then report how much they liked each character. In a separate working memory task - they were flashed five random Pokémon characters for half a second, and asked to remember them in working memory and hold the memory for one second. In the subsequent test, the participants were shown a single Pokémon character, which would be one of the previously presented Pokémon characters (or "old") that they needed to remember, or a new Pokémon character - both possibilities were equally likely. Participants had to report whether they saw a new or old Pokémon. The researchers estimated the number of Pokémon characters that participants were able to remember and related this number to participants' Pokémon familiarity.

The results showed that people remembered more Pokémon characters that they were familiar with than Pokémon characters with which they were less familiar. The more familiar they were with Pokémon, the more Pokémon characters they could remember.

"These results suggest that [long-term memory](#), specifically familiarity, could boost working memory capacity, another example of 'practice makes perfect,'" Zhang said. "These findings could have further

implications in applied settings such as classroom learning. For example, those preparation courses for MCAT or SAT may have familiarized their students with the testing procedure and the scope of assessments such that the students could perform better simply because they had better working [memory](#) for the testing materials."

More information: Weizhen Xie et al. Familiarity increases the number of remembered Pokémon in visual short-term memory, *Memory & Cognition* (2016). [DOI: 10.3758/s13421-016-0679-7](https://doi.org/10.3758/s13421-016-0679-7)

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