

# Improve memory with culture-sensitive cognitive training

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In a joint study with three researchers from the Institute of Psychology at the Chinese Academy of Sciences, psychology professor Lixia Yang is investigating culturally sensitive cognitive training to improve the mental health of older adults.

It's a universal problem: you spot a familiar face in the crowd, but can't recall the person's name. This ability to match unrelated items (such as faces and names) is called memory binding, and the skill declines with age. But two Ryerson researchers are curious: does memory-binding deterioration happen in the same way to older adults around the world, or does culture moderate the effects?

Lixia Yang, a professor in the Department of Psychology, is the

principal investigator of the project, Aging, Culture, and [Memory Binding: A Cross-Cultural Comparison between China and Canada](#). The initiative also involves Julia Spaniol, a psychology professor at Ryerson, and Lynn Hasher of the University of Toronto, as well as three researchers from the Institute of Psychology at the Chinese Academy of Sciences.

The team is putting a hypothesis to the test: do culturally specific ways of processing information lead to culturally specific memory-binding deficits in older adults? Previous studies have demonstrated that East Asians are more likely to pay attention to contextual and relational information in their environment, whereas Westerners are inclined to process context-independent features and categorical information.

"For example, if you showed a picture of an underwater scene to a group of older adults," Yang explains, "North Americans and Europeans would focus on the big fish in the picture. East Asians, on the other hand, would focus on contextual elements in the background, such as seaweed."

The joint study will involve about 100 Chinese adults in Beijing and around 100 Canadian adults of European descent in Toronto. For comparative purposes, each group will include half older adults (65 years or more) and half [young adults](#) (between 18 and 29). Researchers will then use behavioural and electrophysiological measures to determine how culture affects age-related memory-binding deficits, and examine whether or not memory binding can be improved through culturally specific training.

In the first experiment, participants will undergo an experiment that tests their ability to remember contextual information. Participants need to recognize whether a series of images were processed in either an "independent" context (i.e. rating how meaningful it is to lead an

independent life in a new city) or a "relational" context (i.e., rating how meaningful it is to get along with, and being liked by, others in a new city). The "independent" context presumably favours Western culture whereas the "relational" context is supposed to favour East Asians.

In the second experiment, participants will be shown either relationally associated word-pairs (e.g. COW-GRASS) that favour East Asians or categorically associated word pairs (i.e. COW-CHICKEN) that are differentially preferred by Westerners. Participants then need to recognize originally learned intact word-pairs from some rearranged or new word-pairs.

In the study's second phase, older adults from each culture will be taught to use a verbal-associative strategy to remember unrelated word-pairs. Participants will be instructed to generate either a relational association (e.g. "a DOG smells a FLOWER," preferred by Chinese) or a categorical association (e.g. "DOG and FLOWER are living creatures", preferred by European Canadians). Later, participants' ability to recall the word-pairs will be assessed. In the end, the researchers predict the training of culturally specific memory-binding strategies will lead to disproportionately larger benefits in each culture.

"The global population is rapidly aging," Yang says. "If we can come up with a culturally sensitive cognitive training approach, we may be able to improve the mental health and the quality of life among [older adults](#) in both Canada and China. This, in turn, could reduce the burden of care-giving for families and society."

Provided by Ryerson University

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