Learning Multiple New Real-World Skills on Cognitive Abilities and Functional Independence in Older Adulthood

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Abstract: Although prior real-word skill learning interventions have demonstrated some improvements in specific cognitive abilities, such as episodic memory, they typically only investigate the effects of learning one real-world skill at a time. The natural learning experience from infancy to emerging adulthood, when considerable cognitive and functional growth is observed, mandates learning multiple real-world skills simultaneously. The present studies investigated whether such learning is possible in older adults and whether there would be improvements in both cognitive abilities (working memory and cognitive control) and functional independence. Over two studies, older adults learned at least three new skills (e.g., Spanish, painting, music composition) simultaneously for three months. A no-contact control group was included in Study 1. Participants completed cognitive and functional assessments before, during, and after the intervention. Results from both studies suggest that simultaneously learning multiple skills may increase working memory and cognitive control, and may benefit functional independence. From pre-test to post-test, participants increased their working memory and cognitive control to levels similar to those of middle-aged adults, 30 years younger, on average. Our findings extend those from prior cognitive interventions showing increased cognitive abilities from learning one new skill at a time. Compared to prior interventions, our intervention involving learning multiple new skills simultaneously may provide broader cognitive gains, more similar to the benefits experienced earlier in the lifespan.

Bio: Rachel Wu is an Assistant Professor of Psychology at University of California, Riverside. She completed her undergraduate at Carnegie Mellon University (2006, B.S. in Psychology, B.S. in History and Anthropology), M.S. at University College London (2007), Ph.D. in Psychology at the University of London (2011), and Diploma in Art at Middlesex University (2011). Prior to her position at UC Riverside, she completed a postdoctoral fellowship at the University of Rochester (NRSA F32). Dr. Wu recently was honored by a Rising Star Award from the Association for Psychological Science. Her developmental cognitive neuroscience research uses EEG, eye-tracking, and behavioral methods to investigate how we attend and learn from infancy to older adulthood, and how we can induce cognitive development in older adults via behavioral interventions. She was in a rock band as a violinist for 7 years (2003-2010) and also is a professional artist in painting and sculpting. Every few years, she learns to master new skills to gain a better understanding of the difficulties in being an adult learner. Her opinion piece on her experiences was published recently in *Scientific American*.