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Maximizing the impact of cognitive interventions via learning and socio-motivational factors

Carla M. Strickland-Hughes

University of the Pacific, cstricklandhughes@pacific.edu

Rachel Wu

University of California, Riverside

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Society for Applied Research in Memory and Cognition
Cape Cod, MA, USA; June 2019

Symposium Title

Maximizing the impact of cognitive interventions via learning and socio-motivational factors

Symposium Organizer

Carla M. Strickland-Hughes, University of the Pacific

Symposium Co-Organizer

Rachel Wu, University of California-Riverside

Symposium Program Abstract

Targeting learning and socio-motivational factors can enhance the practical impact of interventions. Katz will review studies that examine the role of motivational processes in cognitive interventions and discuss how this work might inform improvements to both cognitive training and experiments designed to investigate their efficacy. Strickland-Hughes will explore the interplay of self-regulatory factors, such as self-evaluative beliefs, and stereotypes in memory strategy training for middle-aged and older adults. Wu will discuss results from a 15-week intervention with older adults engaging in frequent, varied learning of new difficult skills and the potential to strengthen cognitive skills and promote functional independence.

Symposium Summary

The impact of traditional approaches to cognitive interventions is promising. However, controversy surrounds the practical impact of these interventions, particularly in terms of the **specificity** and **scope of benefits** from training. How can the impact of cognitive interventions be maximized? The three presentations in this symposium focus on learning and socio-motivational factors – related to **individual differences and intervention design** – key to the impact of cognitive interventions.

Dr. Benjamin D. Katz will review a series of studies that examine the role of motivational processes in cognitive training interventions. There is considerable variance in the outcome of computerized cognitive training interventions. While many studies find evidence **of near transfer, far transfer outcomes are demonstrated inconsistently**, and meta-analytic work has done little to settle the debate regarding whether cognitive training “works.” One possible explanation for divergent results even within studies using the same type of intervention is the presence of individual difference factors that may influence the outcomes of any single study. These include socioeconomic status, age, and motivation, among many others. In his presentation Dr. Katz will discuss a series of studies that systematically explore the relationship between motivational processes and cognitive training. By studying motivational elements related to the design of training, reward for participation, and participant engagement and thinking dispositions, he finds that motivation plays a nuanced, but sometimes decisive, role in

the outcome of cognitive training research. He will review the implications of this research for improving the design of cognitive training studies and cognitive interventions more generally.

Dr. Carla M. Strickland-Hughes' presentation will explore the interplay of **self-regulatory factors, such as self-evaluative beliefs**, and stereotypes in memory strategy training for middle-aged and older adults. Do self-regulatory factors benefit from these programs or mediate other training-related gains? She will present data from a single-week name recall strategy training program based on the award-winning Everyday Memory Clinic that was designed to enhance self-regulation. Compared to waitlist control participants, trainees not only enhanced targeted name recall performance, but also demonstrated near transfer and improved self-regulation. Further, the impact of the training program on name recall was fully mediated by changes in self-regulation (memory self-efficacy and effective strategy use). Dr. Strickland-Hughes will further discuss the **potential** for training and enhanced self-regulation to “counteract” against age-based stereotype threat effects that may impair memory performance in late adulthood.

Dr. Rachel Wu will discuss a new approach to interventions, inspired by infancy and child development research that suggests that frequently learning a variety of new difficult real-world skills increases cognitive abilities (e.g., working memory and cognitive control) and functional independence. Prior real-world skill learning interventions with older adults typically include only one skill, despite correlational studies demonstrating the benefits of frequent, varied activity engagement. She will discuss results from a 15-week intervention with older adults engaging in frequent, varied learning of new difficult skills (simultaneously learning Spanish, painting, and how to use tech devices; "intervention group"). A no-contact control group completed only the assessments. The difference in cognitive scores (composite score for working memory and cognitive control) between the intervention and control groups became significant at post-test. From pre-test to post-test, the intervention group increased more than one standard deviation in the cognitive scores on average, whereas the no-contact control group did not exhibit such changes. The intervention group, but not the control group, increased in their functional independence (Everyday Problems Test) by one standard deviation on average. Overall, Dr. Wu's study demonstrates the potential of an intervention including frequent, varied real-world skill learning in older adults.

Our discussant, Dr. George W. Rebok, a leading expert on cognitive training and prevention of cognitive decline and functional losses in later life, will integrate the talks with recommendations for designing future interventions. Collectively, the presentations will highlight the need for more interventions grounded in lifespan developmental theories and applying approaches that increase socio-motivational factors.