Department of Psychology
The University of Hong Kong
香港大學心理學系

Brown Bag Lunchtime Seminar (Via Zoom)
(Theme: Cognition and Neuroscience)

Exploring the Cognitive Correlates of Science Achievement

12:30 p.m. – 1:30 p.m. │ Jun 11, 2021 (Friday)

Christine Kong-Yan TONG
Ph.D. Student
Department of Psychology
The University of Hong Kong

Abstract

STEM (Science, Technology, Engineering, and Mathematics) is valued as one of the most important and fast-growing areas in education. Thus, educators are obliged to know more about the predictors of science achievement and its learning mechanisms. In Hong Kong, such research is still scarce apart from understanding the effect of medium of instruction on secondary school students' achievement (Yip, Tsang, Cheung, 2003).

This seminar will present a theoretical framework and pilot data from my Ph.D. proposal. In this proposal, science achievement is operationally defined as performance in a globally recognized achievement test, TIMSS 2019. The literature of science reasoning and learning offered four candidates as cognitive predictors of science achievement, namely spatial cognitive skills (Hodgkiss et al., 2018), metacognitive beliefs and skills (Conley et al., 2004; She, Lin, & Huang, 2019), relational reasoning (Murphy, Firetto, & Greene, 2016), and reading comprehension (O'Reilly & McNamara, 2007).

Previous research has preliminarily established links between these four cognitive predictors and science achievement, yet standardized assessments were not consistently used and usually only one of these skills are investigated in those studies. Therefore, it is unclear whether these skills exert unique contribution on achievement after controlling covariates (e.g., non-verbal IQ, working memory, age, SES) and the effect of other predictors. By putting these candidate predictors in a single project, our study aims to conduct a systematic investigation on these predictors and their respective unique contribution to science achievement, to compare their relative importance, and also to explore the underlying mechanisms of science learning.

About the speaker

Christine is currently in her first year of the Ph.D. with a specialisation in Educational Psychology programme under the supervision of Dr. Terry Wong and Dr. Winnie Chan. Her research interests lie in cognitive development and the main areas of academic achievement (Science, Mathematics, Literacy). Specifically, she is interested in how metacognition and reasoning impact learning and development.

Zoom Meeting

https://hku.zoom.us/j/3951550048?pwd=SncvL3RYakEycUtpL29vdDJEdlEwdz09
Meeting ID: 395 155 0048 │ Password: psyc
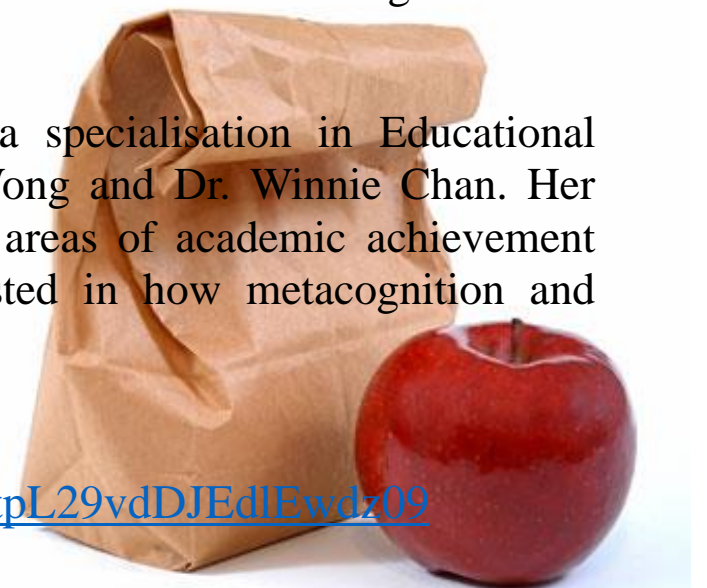
~All are Welcome~

Enquiry: rpsyc@hku.hk