Multimodal language learning and knowledge representation: Cognitive and neural mechanisms (多模态语言学习及知识表征的认知神经机制)

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Abstract

In an era of rapid developments in digital technology and AI, we need to examine the mechanisms of language learning and processing from an integrative neurocognitive perspective. In this talk, I outline an approach that combines emerging technologies and data-driven methodologies with current neurocognitive theories, with particular reference to embodied learning. I highlight the interactive mechanisms and integrative processes that enable us to understand the differences between child and adult language learning, as well as individual differences in diverse language learning contexts. The key to this approach is the understanding of how human learners effectively integrate multimodal information in a social interactive context. Theoretically, this approach allows us to gain a deeper insight into embodied language learning and its underlying neural mechanism through collecting and analyzing real-time multimodal data. Practically, it emphasizes context-based communicative abilities, which allows us to develop personalized pedagogical designs that tailor to individual learners' needs and learning profiles.

About the speaker

Ping Li is Sin Wai Kin Professor in Humanities and Technology, Chair Professor of Neurolinguistics and Bilingual Studies, and Dean of the Faculty of Humanities at the Hong Kong Polytechnic University. He previously served as President of the Society for Computation in Psychology and Program Director at the U.S. National Science Foundation while being a Professor of Psychology, Linguistics, and Information Sciences at the Pennsylvania State University. Li's research is focused on investigating the neurocognitive and computational bases of language acquisition, bilingualism, and reading comprehension in both children and adults. He uses digital technologies and cognitive neuroscience methods to study neuroplasticity and individual differences in learning in an effort to understand the relationships among language, culture, technology, and the brain. Li is currently Editor-in-Chief of *Brain and Language* and Senior Editor of *Cognitive Science*. He is a Fellow of the American Association for the Advancement of Science (AAAS).

李平，香港理工大學中文及雙語學系神經語言學及雙語學講座教授，冼爲堅基金人文與技術講席教授，併兼任人文學院院長及神經科學中心實驗室副主任。曾任職美國賓夕法尼亞州立大學心理學、語言學、信息科學與技術專業終身教授，心理與計算科學協會主席(2012)及美國國家科學基金會的認知神經科學計劃主任 (2007-2009)。目前是 Brain and Language 的主編，Cognitive Science 資深主編。他也於 2021 年被選爲美國科學促進會會士。李平在心理語言學，語言習得，計算機模型及雙語的認知神經機制等領域出版了大量的研究專著及 200 餘篇學術論文。有關李平教授研究的更多信息，請訪問 http://blclab.org/