

# Cognitive Activities during Software Engineering Process

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## Abstract

Software engineering activities are to process a large amount of knowledge and therefore, the cognitive process is mainly involved. Studying the cognitive process involved in software engineering can greatly help us to understand the whole process and to improve software engineering research. In order to study the cognitive process, an empirical method and case studies are needed.

In this talk, Dr. Xu will first introduce the empirical research method which includes dialog-based protocol and self-directed learning theory. The dialog-based protocol is based on the analysis of the dialog that occurs between programmers. The self-directed learning theory is based on the constructivist learning theory and the Bloom taxonomy. Then case studies on incremental software development and program debugging will be presented. The results of case studies will be provided, and the implications will be analyzed.

## Biography

Dr. Simon Xu is a Full Professor in the School of Computer Science and Technology at Algoma University where he is faculty since 2002. He has been the Department Chair/School Director since 2009. Prior to that, he was working in the School of Computer Science of University of Windsor, Canada. He is also a guest professor at Wuhan University and the adjunct professor at China University of Mining and Technology, China. Dr. Xu received his Ph.D. degrees from Wayne State University, USA and University of Liege, Belgium. His research interests include software evolution, program comprehension, big data, and cognitive process during software development. Dr. Xu has published more than 90 articles in referred journals and conference proceedings and a few authored/co-authored books. He has also chaired seven IEEE international conferences and has been invited to give talks by IEEE international conferences. He is a senior member of IEEE and a member of ACM.