Understanding the influences of different contextual factors on student achievement through statistical modeling:
Experiences based on PISA and TIMSS data analyses

Dr Danhui Zhang

Collaborative Innovation Center of Assessment toward Basic Education Quality
Beijing Normal University

June 10, 2016 (Friday)
12:30 – 14:00
Room 203, Runme Shaw Building, HKU
Chair: Professor Frederick Leung

Abstract:
Large-scale assessments, like PISA and TIMSS, not only provided us with interesting comparisons among countries in terms of student academic and non-academic performance, but also offered researchers valuable data for the investigation of the similarities and differences of educational phenomena in different countries, and the exploration of the rationales and logics behind these phenomena.

Based on our experience in examining the large-scale assessment data through diverse statistical modeling, three main questions will be addressed: 1) how to use Hierarchical Linear Modeling to understand the influences of different contextual factors on student achievement, 2) how to use Structural Equation Modeling to explain the psychological mechanism behind those influences, and 3) how to explore the propensity score to find out the tentative causal relationships.

All the above methodologies will be illustrated through two research studies. The main purpose of the first research was to investigate how national ICT development level and individual ICT usage will influence achievements in reading, mathematics, and science for 4th and 8th grade school students through employing the data from TIMSS 2011, PIRLS 2011, and PISA 2012. The second research employed the relationship between science-related informal learning and student science achievement through using PISA 2006.

About the speaker:
Danhui Zhang is an Associate Professor of Collaborative Innovation Center of Assessment toward Basic Education Quality at Beijing Normal University, where she teaches courses on Quantitative Research Methodology, Educational Statistics, Multivariate Statistics, and Advances Statistics in Education Research for graduate students. She obtained her Master’s and PhD degree in Psychology with specialty in Research and Evaluation Methodology from Utah State University. Her main research interests are in education measurement and evaluation, particular in science teaching and learning, learning motivation, and teachers’ professional development. She has very strong expertise in analyzing large scale international assessment data, such as PISA and TIMSS. Danhui Zhang has been engaged in the large-scale assessment of education quality in China since 2009. Currently, she is in charge of the department of data analysis.

~ ALL ARE WELCOME ~