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EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENT COLLOQUIUM SERIES

Model Comparison as a Way of Improving Cognitive Diagnosis Computerized Adaptive Testing

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December 6, 2018 (Thursday)
16:30 – 18:00
Room 108, Runme Shaw Building, HKU

Abstract

Decisions on how an item bank is calibrated can have major implications in the subsequent performance of the adaptive testing algorithms. One of these decisions pertains to model selection, which can become problematic in the context of cognitive diagnosis computerized adaptive testing given the wide range of models available. This talk aims to discuss whether model selection indices can be used to improve the performance of adaptive tests. Three factors were considered in a simulation study (i.e. calibration sample size, Q-matrix complexity, and item bank size). Results based on the true item parameters, and general and single reduced model parameter estimates were compared with those of the combination of appropriate reduced models within the *generalized deterministic inputs*, noisy, “and” *gate* model framework. The main implications of the current study for practical settings include an improvement in terms of classification accuracy and, consequently, testing time, and a more efficient use of the item pool. An empirical dataset based on a proportional reasoning assessment administered to middle school students will be used to illustrate the findings of this study.

About the Speaker

Dr. Miguel A. Sorrel is currently an Associate Professor in the Faculty of Psychology at the Universidad Autónoma de Madrid, Spain. He received his PhD (cum laude) from the same university in April, 2018. He was the recipient of 2016 Young Methodologist award from the European Association of Methodology. His research interests include item response theory, cognitive diagnosis modeling, computerized adaptive testing, and statistical computing in R.

Everyone is welcome to attend!

If interested, please confirm your attendance by sending an email to kpsantos@hku.hk.