

## **Making Computerized Adaptive Testing a Diagnostic Tool in a K-12 Setting**

Cognitive Diagnostic (CD) models are important psychometric tools in large scale assessment that have recently received a great deal of attention. In a typical setting of cognitive diagnosis on a  $d$ -attribute latent class, KL information and Shannon entropy can be used to design effective sequential item selection algorithms to administer the next item based on the performance on the current item. In this paper a large scale implementation of cognitive diagnostic computerized adaptive testing (CD-CAT) in K-12 education is introduced. Various issues are being discussed: for example, how to select a cost effective design of hardware and network that schools can afford; how to incorporate the function of cognitive diagnoses into an item selection algorithm; how to get more efficient control over non-psychometric constraints such as content balance, item exposure control, and so on.