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Utilizing SAS® for the Construction of Preassembled Parallel, Computerized Fixed-Test Forms under Item Response Theory Framework

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ABSTRACT

The preassembled, parallel computerized fixed-test (CFT) forms are among the most popular computer-based testing models. In item response theory, test information function plays a dominant role for designing and comparing measurement precision of CFT forms. The current paper develops an automated procedure by utilizing SAS® software and procedures (i.e. PROC IML, PROC SQL, SAS/GRAPH®, GTL, and ODS) for constructing the CFT forms. The purpose is to demonstrate an efficient way to obtain test and item information functions for the CFT forms and to plot the test and item characteristic curves along with informative summary statistics. Also, the paper investigates how measurement precision relates to conventional item statistics. For test developers and practitioners, the handy automated procedure through SAS and informative results are both provided.

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