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Detecting DIF for Polytomously Scored Items: An Adaptation of the SIBTEST Procedure

Hua-Hua Chang
John Mazzeo
Louis Roussos

Abstract

Shealy and Stout (1993) proposed a DIF detection procedure called SIBTEST and demonstrated its utility with both simulated and real data sets. Current versions of SIBTEST can be used only for dichotomous items. In this article, an extension to handle polytomous items is developed. Two simulation studies are presented which compare the modified SIBTEST procedure with the Mantel and standardized mean difference (SMD) procedures. The first study compares the procedures under conditions in which the Mantel and SMD procedures have been shown to perform well (Zwick, Donoghue, & Grima, 1993). Results of Study I suggest that SIBTEST performed reasonably well, but that the Mantel and SMD procedures performed slightly better. The second study uses data simulated under conditions in which observed-score DIF methods for dichotomous items have not performed well. The results of Study 2 indicate that under these conditions the modified SIBTEST procedure provides better control of impact-induced Type I error inflation than the other procedures.Psychometrika,