

# **A Model-Based Standardization Approach that Separates True Bias/DIF from Group Ability Differences and Detects Test Bias/DTF as well as Item Bias/DIF**

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## **Abstract**

A model-based modification (SIBTEST) of the standardization index based upon a multidimensional IRT bias modeling approach is presented that detects and estimates DIF or item bias simultaneously for several items. A distinction between DIF and bias is proposed. SIBTEST detects bias/DIF without the usual Type 1 error inflation due to group target ability differences. In simulations, SIBTEST performs comparably to Mantel-Haenszel for the one item case. SIBTEST investigates bias/DIF for several items at the test score level (multiple item DIF called differential test functioning: DTF), thereby allowing the study of test bias/DIF, in particular bias/DIF amplification or cancellation and the cognitive bases for bias/DIF.