

## Vertical Scaling With the Rasch Model Utilizing Default and Tight Convergence Settings With WINSTEPS and BILOG-MG

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This study compared vertical scaling results for the Rasch model from BILOG-MG and WINSTEPS. The item and ability parameters for the simulated vocabulary tests were scaled across 11 grades; kindergarten through 10th. Data were based on real data and were simulated under normal and skewed distribution assumptions. WINSTEPS and BILOG-MG were each executed with default and tightened convergence settings. The results were compared in terms of differences and correlations between estimated item and ability parameters. Under default convergence settings, BILOG-MG appeared to capture the individual and mean estimates more accurately. However, once convergence settings were tightened, the programs generated similar results and reproduced the simulated parameter estimates more accurately than when default convergence settings were used.

This study compared vertical scaling results for the Rasch model from BILOG-MG (Zimowski, Muraki, Mislevy, & Bock, 1996) and WINSTEPS (Linacre & Wright, 1998). The item and ability parameters from BILOG-MG and WINSTEPS were compared across 11 grade levels for a simulated vocabulary test. Two differences between BILOG-MG and WINSTEPS are the estimation method: marginal maximum likelihood estimation (MMLE) versus joint maximum likelihood estimation (JMLE), respectively, and the availability of a group option in BILOG-MG during estimation. The primary issue under investigation was whether MMLE with a group option, as in BILOG-MG, or JMLE without a group op-

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