Title: Assessing equating transformations in Item Response Theory Observed-Score and Kernel Equating methods

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Abstract

The application of test equating methods to enable the comparison of test scores across different administrations implies the adoption of a set of statistical assumptions. The current literature acknowledges that selecting the best method can be challenging, since each alternative has its own set of assumptions, references and ideal outcomes. Once we view equating transformations as statistical estimators, though, such comparisons become feasible. This paper compares the statistical and computational properties of three equating methods, namely item response theory observed-score equating (IRTOSE), kernel equating and kernel IRTOSE, under two different data-generating scenarios. Numerical and real data applications for those six combinations yield promising results. Moreover, they provoke a reflection about which of the best-performing combinations is the most adequate overall. Some practical suggestions as well as propositions for further research are also included.