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A Speededness Item Response Model for Associating Ability And Speededness Parameters.

Test speededness is defined as the failure to attempt all items on an assessment within a specified time frame which is an issue known to undermine assessments (Bejar, 1985). However, an assumption about speededness that is often over-looked in the literature is the relationship between speededness and ability of the examinee in the context of IRT modeling. Previous studies have used modified IRT models to reduce test speededness, but none have evaluated the effect of neglecting the association between speededness and ability. The primary purpose is to examine the impact of ignoring the association between ability and speededness on parameter estimation and to investigate the robustness of the proposed model under conditions when speededness and ability are independent. The Markov Chain Monte Carlo (MCMC) Metropolis Hastings algorithm was implemented to estimate model parameters using C++ and R. The results showed that ignoring the association between ability and speededness does not impact the recovery of the IRT model parameters. In summary, this work allows researchers to further understand the impact of speededness and its association with ability in a variety of conditions. (Received September 25, 2017)