2008 Item Bank Expansion of GISA-G

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Abstract

This report presents the item bank expansion results of the Gifted Student Screening Assessment on General ability (GISA-G) for K to 7 grade. There are 37 to 143 items for each subtest of every grade. The item bank is applied to evaluate students’ understanding of mathematics concepts and their ability to apply mathematics to everyday situations. Students demonstrated their academic learning ability by responding to questions about verbal, spatial and numerical reasoning. The additional purpose of item banking is to help establish a language for discussing the benchmark of gifted student screening decision. A representative sample of more than 10,000 students from K to 7 grade participated in norm scale establishment. Applying a 3-parameter item response theory model, items from multiple tests for each grade are scaled on a common metric. The correlation coefficients between subtests (Verbal reasoning, Spatial reasoning, and Numerical reasoning) range from 0.50 to 0.75. Additional appendix tables provide information on GISA-G samples and detailed validity data. Two recalibrated new screening tests for each grade, with predictable characteristics, are edited by drawing items from the bank for 2008 gifted student screening decision. The corresponding average test difficulty is around 1.0 and test reliability is above to 0.90. The items of GISA-G are classified into three difficulty categories by two difficulty cut points, -0.5 and 1. Items are labeled as easy when their difficulty is less than -0.5; labeled as medium when less than 1 but no less than -0.5; labeled as hard when greater than or equal to 1. Three difficulty levels of GISA-G items are used to differentiate examinees into four performance levels. The students in the advanced performance level have T scores greater than 65 or PR higher than 93. The map for the item bank of each grade is constructed to provide concrete description of student performance for the benchmark of the gifted students. The item map across three grades is also constructed to explore the developmental issues for gifted student general learning ability.

Key words: item bank, general ability, screening test, gifted student, IRT