

Introduction

The 2006 Maryland High School Assessments (MDHSAs) consisted of end-of-course tests in Algebra/Data Analysis, Biology, English, and Government. The MDHSA are referred to as “end-of-course” tests because students take each test as they complete the appropriate coursework. In addition, results from the English and Algebra administrations are used in the Maryland State Department of Education (MSDE) Adequate Yearly Progress reports, required under the No Child Left Behind Act (NCLB) for the 2006 school year.

The MDHSAs consist of selected-response (SR) items, which require students to choose between four short response options; brief constructed response (BCR) items, which require students to write a short response; and extended constructed response (ECR) items, which require students to write a longer response. The SR items are machine-scored; the BCR and ECR items are scored by raters. In addition, Algebra/Data Analysis tests include items that require a student-produced response (SPR); to respond students must grid in correct responses on the answer document. All items are based on content outlined in Maryland’s Core Learning Goals.

The MDHSAs for Algebra, Biology, English, and Government are administered in January, May and July. For January and May 2006 administrations, three operational test forms were constructed; one for the primary administration window, and one for each of two make-up administrations. For the July 2006 administration, two forms were constructed; one for the first week of testing and one for the second week of testing.

For all content areas except English, each test form consisted of operational and field test items. Operational items were common across each of the operational forms and were used to produce student scores. The field test items were scored along with the operational items, but the item scores from the field test items were not used in producing a test score. Instead, the performance on the field test items was analyzed and the calibrated items were placed into the item bank. For these content areas, with the exception of items selected for public release, all operational items are returned to the item bank where they must remain unused for at least two years to minimize item exposure.

The English forms consisted of a set of items that appeared on the 2005 English test forms and field test items. Items selected for score reporting were determined after the test administration. Detailed information about the English forms is provided in Section 6. All English items were analyzed and placed into the item bank for use in future test form construction.

The item response models used to calibrate the items in the MDHSA tests were the three-parameter logistic (3PL) model and the two-parameter partial credit (2PPC) model, also known as the generalized partial credit model (GPCM; see Section 5). These models were used to generate both total test scores and subscores. The total test scores were

generated using item-pattern scoring, and the subscores were generated using raw score (RS) to scale score (SS) tables. Total test results in the scale score metric were reported to students. Subscores were not reported to students but were aggregated at the classroom level to provide teachers and administrators with additional information about student performance in each of the subscore categories.

Beginning with the 2004 administration, a pre-equated design was implemented; prior to 2004, scores were based on parameters that were estimated following the administration using a post-equated¹ design. In the pre-equated design, item parameters are not updated following an administration; instead existing bank parameters are used to produce student scores. Using this design, scores can be calculated and assigned to students immediately after their answer documents have been processed.

All technical support and analyses were carried out in accordance with both the *ETS Standards for Quality and Fairness* (2002) and the *Standards for Educational and Psychological Testing*, issued jointly by the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999).

This report is divided into 6 sections: Section 1 describes test development, form construction and administration details; Section 2 discusses the validity of the MDHSAs; Section 3 describes the scoring procedures and score types; Section 4 provides statistical summary results for each of the test forms administered in 2006; Section 5 describes the analyses conducted using the field test data including classical item analyses, differential item functioning, and item response theory calibrations and scaling; and Section 6 provides information regarding the MDHSA English examinations.

There are two Appendices. Appendix A provides scree plots for the English examinations. Appendix B provides classical item statistics for each operational form and field-test item administered in 2006.

¹ In the post-equated design, anchor items representative of the content and difficulty of the test forms were used to equate the test forms using a Stocking and Lord procedure (CTB/McGraw-Hill, December, 2003).