

Maryland Modified High School Assessment 2008 Technical Report

**Algebra/Data Analysis
Biology
English
Government**

**Educational Testing Service
Revised, February 2009**

Forward

The technical information included in this report is intended for use by those who evaluate tests, interpret scores, or use test results in making educational decisions. It is assumed that the reader has some technical knowledge of test construction and measurement procedures, as stated in Standards of Educational and Psychological Testing (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, 1999).

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Introduction

The Maryland High School Assessments (HSAs) consist of end-of-course tests in Algebra/Data Analysis, Biology, English, and Government. The HSAs are referred to as “end-of-course” tests because students take each test when they complete the appropriate coursework.

Students who entered 9th grade in the 2005-2006 school year or subsequent school years are required to earn satisfactory scores on all four content areas measured by the HSAs or Modified High School Assessments (Mod-HSAs) in order to earn a Maryland High School Diploma¹. Results from the Algebra, Biology and English administrations are used in the MSDE Adequate Yearly Progress (AYP) reports, required under the No Child Left Behind Act (NCLB). Information on the interpretation of scores is provided to students, parents, schools and other stakeholders via the Maryland State Department of Education (MSDE) website

Starting in May 2008, MSDE test administrations include the Mod-HSAs. The Mod-HSAs are a modified version of the HSAs; they are designed for special education students with Individualized Education Programs (IEPs). The Mod-HSAs may be taken in place of one or more of the HSAs. Eligibility to take the Mod-HSAs will be determined by a student’s IEP and evidence of progress in learning course content.

The Mod-HSAs assess the same skills as the HSAs. Mod-HSA items were derived from banked HSA items, but the question format was simplified. For example, the Mod-HSA assessments contain selected response (SR) items only, the SR items have three answer options instead of four, and the items have reduced reading load and simplified graphics. All items are based on content outlined in Maryland’s Core Learning Goals (CLGs).

Mod-HSA forms are designed to provide a total test score and a subscore for each reporting category. They are administered both online and in paper format. The eventual goal is to have most students test online, with only special forms (Braille, KurzweilTM, and Large Print) administered on paper.

Development of Mod-HSA Test Forms

Two Mod-HSA field test forms per content area were developed for a May 2008 administration. Of the items administered, 50 subsequently were selected to comprise each of two pre-equated operational forms that would be used to score students participating in this administration and to comprise forms to be used in subsequent administrations.

¹ More information on state graduation requirements is available on the Maryland State Department of Education Web site at <http://www.marylandpublicschools.org/MSDE/testing/hsa/>.

The field test forms contained 94 to 99 items each. Each form included 70 to 75 modified-HSA field test items that differed across the forms and a set of 24 common HSA items designed to serve as an external anchor for linking purposes. The 24-item external anchor was used to link the Mod-HSA items to the HSA scale and did not count toward students' final scores.

In May; Form 108 was administered on paper and online, Form 208 was administered online only. There was also a Summer administration, and two forms were administered for each content area. Form 308 served as the primary form and was administered online and, as an accommodation, on paper; Form 408 served as a make-up form and was administered online.

Following item analyses, calibration, and linking, the 50-item operational forms were selected by MSDE to comprise each operational form. These forms were used to score the present and future administrations. The item parameters estimated during the May 2008 administration are used to generate scores on these forms, so no calibration or equating will be needed in future administrations.

In the future, the operational Mod-HSAs will be administered at the same time as the HSA, that is, in each October, January, April, May, and Summer (July/August).

Description of Target Groups and Linking Samples

To obtain data that could be used to link the Mod-HSA to the HSA scale, two groups of students took the Mod-HSA in May 2008. The first group was the *Target* population, which were students identified by MSDE as being eligible to take the Mod-HSAs. These students took the Mod-HSA instead of the regular HSA. The second group of students was the *Linking* sample, which consisted of regular HSA examinees identified by MSDE to take the Mod-HSA in the same content area as their May HSA. The data provided by this second group of examinees were used to calibrate the Mod-HSA field test forms and to equate these forms. As an incentive to participate in the Linking sample, these HSA students received the higher of their two scores on the Mod-HSA and regular HSA.

Students from the Target population, taking the paper version of the Mod-HSA, took Form 108, while Forms 108 and 208 were spiraled at the school level for the students taking the online version of the test. For the Target population, data resulting from the paper and online versions of the Mod-HSAs were combined for the analyses of Form 108 described in this report.

All students in the Linking sample took Form 108 or 208 of the Mod-HSAs online. The forms were spiraled at the school level to ensure that a comparable number of students took each form.

Equating Designs

Two equating designs were used to align scores from the Mod-HSAs to the same scale as the HSAs: 1) common items design, and 2) common persons design. The common items design made use of the external HSA anchor sets embedded in the Mod-HSAs. The common persons design used the HSA and Mod-HSA scores of the Linking sample for the equating. The two designs were planned so that if one design was not effective, there would be an alternative approach that might be used for the purposes of aligning the Mod-HSAs to the HSA scale. These designs are explained further in Section 4 of this report.

Organization of the Technical Report

This technical report contains seven Sections and four Appendices.

- Section 1 describes test development, form construction and administration details;
- Section 2 discusses the validity of the Mod-HSAs;
- Section 3 describes the item-level analyses conducted to provide information for selection of the 50-item operational forms for each content area;
- Section 4 presents item response theory calibration and scaling information;
- Section 5 describes the scoring procedures;
- Section 6 provides information related to the test characteristics;
- Section 7 presents information regarding student characteristics.

The appendices contain more detailed statistical results. Appendix A provides classical item statistics for the 50-item operational forms, for both the Target population and the Linking samples in the May administration, and for the Target population in the Summer administration. Appendix B provides classical item statistics of the field test items, for the Linking samples, by form. Appendix C presents a comparison of the results of the two equating methods used during the May administration, including summary statistics, test characteristic curves (TCCs) and conditional standard errors of measurement (CSEMs). Appendix D provides histograms of the scale score distributions by content area and by group for the May 2008 administration.

All technical support and analyses were carried out in accordance with both the *Educational Testing Service 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).

Section 1. Test Construction and Administration

Test Development

Planning

Planning for the test development process began with the creation of the Mod-HSA blueprints and item modification/development plans for each content area. MSDE content specialists collaborated with Maryland educators, both special education and content area experts, to develop a plan for modifying and developing content for the modified assessments. The HSA item bank was reviewed to determine how well the available item pool could be modified to meet the item requirements of the Mod-HSAs and blueprint requirements as identified across the CLGs. Items, passages, and stimuli identified as modifiable were revised according to item plans, using such modifications as reducing the number of response options from 4 to 3, the simplification of language and graphics, grouping of text within longer passages, and the repetition of critical passage text within an item. When deficits in the pool of modifiable items were identified, additional items were developed by MSDE and its collaborative partners.

Test Specifications and Design

The basic test design was defined by MSDE and provided to Educational Testing Service (ETS).

As noted in the Introduction, two Mod-HSA forms per content area were developed for the May 2008 administration. Each field test form contained 94 to 99 items each. The forms included two comparable 50-item sets of items designed to meet the content requirements for the future operational Mod-HSA forms. In addition, sets of 20 to 25 additional items were included to administer along with the 50-item forms. These sets were also balanced in terms of content, and were included to give MSDE flexibility when choosing the final operational items. Finally, each field test form contained a set of 24 common HSA items designed to serve as an external anchor for linking purposes.

The blueprints for the 50-item test design are presented below under the heading, Test Specifications. The basic test design provided information based on specified expectations and the distribution of the number of items for each reporting category. How the specific items were placed throughout the forms was left to the collaborative efforts of the ETS and MSDE content specialists. Construction of the operational forms was based on test blueprints approved by MSDE.

Item Type

The Mod-HSAs consist of SR items only. Each of the four content areas, Algebra, Biology, English, and Government, contained 50 operational items worth a total of 50 points.

Item Modification, Development, Review, and Revision

MSDE oversaw the initial item modification and development. MSDE content and special education specialists worked with Maryland educators to modify existing HSA items and to develop new items written specifically for the Mod-HSA program. These items underwent review and revision at MSDE prior to their submission to ETS for inclusion in the new Mod-HSA item bank.

Once received by ETS, all items were uploaded into the item bank and all graphics and stimulus materials were revised as requested. At this point, all items underwent a series of editorial reviews in accordance with the following procedures:

- Items were edited according to standard rules developed in conjunction with MSDE.
- Items were reviewed for accuracy, organization, comprehension, style, usage, consistency and fairness/sensitivity.
- Item content was reviewed to establish whether the item measured the intended Goal-Expectation-Indicator-Assessment Limit.
- Verification was made that copyright and/or trademark permissions had been obtained for any materials requiring permissions.
- Internal reviews were conducted and historical records established for all version changes.

After ETS performed the required internal reviews, item revision recommendations were submitted to MSDE for their review. Any associated stimulus material, graphic, and/or art was provided as well as information regarding the Goal-Expectation-Indicator-Assessment Limit that each question addressed.

MSDE performed a final review of the items and provided feedback to ETS content specialists. The edits were incorporated into the items. The items were then prepared for review by the Content and Bias/Sensitivity Review Committees.

The Content Review and Bias/Fairness Review Committees, selected by MSDE, conducted the final round of reviews. These committees were composed of diverse groups of Maryland educators. The demographics of the Content Review Committees are summarized in Table 1.1.

Table 1.1 Demographics of Content Review Committees by Content Area

Content Area	Gender		Ethnicity		
	Male	Female	African American	Caucasian	Other
Algebra	5	6	2	8	1
Biology	2	4	0	6	0
English	0	6	2	4	0
Government	3	6	2	7	0

The Bias/Fairness Review Committee consisted of one male and nine females; the ethnic composition included two African Americans, six Caucasians, one Hispanic and one Asian.

These committees reviewed each item to ensure that the content: a) accurately reflected what was taught in Maryland schools; b) correctly matched the intended CLG indicator; and c) did not unfairly favor or disadvantage an individual or group. A total of 699 items were reviewed across all four content areas. Of these items, eight (0.01%) were rejected by the Bias/Fairness Review Committee. One hundred and fifty-nine items were accepted with edits (22.7%). In total, the two committees accepted a total of 532 (76.1%) of the 699 Mod-HSA test items

Upon completion of this final round of reviews, MSDE and ETS content specialists conducted another side-by-side meeting to evaluate reviews by the Content Review Committees and the Bias/Fairness Review Committee. The ETS content specialists then made any necessary final edits to the items and/or revisions to the accompanying graphics. The items that survived this process were then eligible for placement on the Mod-HSA forms.

Test Specifications

Tables 1.2 to 1.5 indicate the distribution of items within each reporting category associated with each item type: Mod-HSA items from the 50-item sets, additional Mod-HSA items, and the HSA linking sets. The forms for Algebra, Biology, English, and Government consisted of three sessions administered within a single sitting. Sessions were separated by a short break.

Table 1.2 Algebra Blueprint

ALGEBRA			
Reporting Category	Number of Mod-HSA Items in 50-Item Set	Number of Mod-HSA Field Test Items	Number of HSA Linking Items
Expectation 1.1 The student will analyze a wide variety of patterns and functional relationships using the language of mathematics and appropriate technology	13	5 - 6	6
Expectation 1.2 The student will model and interpret real-world situations, using the language of mathematics and appropriate technology.	16	9 -10	8
Expectation 3.1 The student will collect, organize, analyze, and present data.	11	4 - 5	5
Expectation 3.2 The student will apply the basic concepts of statistics and probability to predict possible outcomes of real-world situations.	10	5 - 6	5
TOTAL	50	25	24

Table 1.3 Biology Blueprint

BIOLOGY			
Reporting Category	Number of Mod-HSA Items in 50-Item Set	Number of Mod-HSA Field Test Items	Number of HSA Linking Items
Goal 1 Skills and Processes of Biology	10	3	5
Expectation 3.1 Structure and Function of Biological Molecules	8	2 - 3	4
Expectation 3.2 Structure and Function of Cells and Organisms	8	2	4
Expectation 3.3 Inheritance of Traits	9	6 - 8	4
Expectation 3.4 Mechanism of Evolutionary Change	6	2 - 4	3
Expectation 3.5 Interdependence of Organisms in the Biosphere	9	3 - 4	4
TOTAL	50	21	24

Table 1.4 English Blueprint

ENGLISH			
Reporting Category	Number of Mod-HSA Items in 50-Item set	Number of Mod-HSA Field Test Items	Number of HSA Linking Items
1: Reading and Literature: Comprehension and Interpretation (RC) Includes the following indicators: 1.1.1; 1.1.2; 1.1.3; 1.2.1; 1.3.3; 3.2.2	13	5 - 6	8
2: Reading and Literature: Making Connections and Evaluation (RE) Includes the following indicators: 1.1.4; 1.2.2; 1.2.3; 1.2.4; 1.2.5; 1.3.5; 4.1.1; 4.2.1	13	4	6
3: Writing - Composing (WC) Includes the following indicators: 2.1.1; 2.1.4; 2.2.1; 2.2.2; 2.2.3; 2.2.5; 2.3.1; 2.3.3; 4.3.1	13	4 - 7	6
4: Language Usage and Conventions (WL) Includes the following indicators: 3.1.3; 3.1.4; 3.1.6; 3.1.8; 3.3.1; 3.3.2	11	4 - 6	4
TOTAL	50	20	24

Note: Information about the referenced indicators can be found in the Maryland Core Learning Goals for English. The HSA Core Learning Goals documents can be found on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

Table 1.5 Government Blueprint

GOVERNMENT			
Reporting Category	Number of Mod-HSA Items in 50-Item set	Number of Mod-HSA Field Test Items	Number of HSA Linking Items
Expectation 1.1 The student will demonstrate understanding of the structure and functions of government and politics in the United States	14	5	7
Expectation 1.2 The student will evaluate how the United States government has maintained a balance between protecting rights and maintaining order.	12	7	6
Goal 2 The student will demonstrate an understanding of the history, diversity, and commonality of the peoples of the nation and world, the reality of human interdependence, and the need for global cooperation, through a perspective that is both historical and multicultural.	8	4	4
Goal 3 The student will demonstrate an understanding of geographic concepts and processes to examine the role of culture, technology, and the environment in the location and distribution of human activities throughout history.	7	3	3
Goal 4 The student will demonstrate an understanding of the historical development and current status of economic principles, institutions, and processes needed to be effective citizens, consumers, and workers.	9	6	4
TOTAL	50	25	24

Item Selection and Form Design

For the May 2008 administration, the MSDE and ETS content specialists worked together to create the field test forms. The Mod-HSA items included in these forms were balanced in terms of content, and were included to give MSDE flexibility in determining the final operational set of items.

The 24 items in the external anchor sets were embedded within the field test forms for each content area in groups of 6 to 8 items within each section of the test. Care was taken to place the HSA items in approximately the same position within the Mod-HSAs as

when these items were originally field tested and parameters were established. More details about the equating design are provided in Section 4.

The general steps completed during the test construction process were:

1. For each content area, both forms were constructed simultaneously to provide the best opportunity to construct parallel forms.
2. Test developers were careful to ensure that the item selections met all content specifications, including matching items to the test blueprint, distribution of keys, and avoidance of clueing² or clanging³.
3. After the 50-item base forms were selected, additional item sets of 20 to 25 items were selected, resulting in 70 to 75 item forms. While the base form and additional item sets were not originally constructed to meet psychometric criteria, they were constructed to meet content criteria. The additional item sets were embedded throughout the base form.
4. External anchor sets of 24 items, representing the Mod-HSA blueprint, were then selected from the HSA item bank. These items, referred to as linking items, were selected to meet content and psychometric criteria. The linking items were embedded in groups of 6 or 8 across the Mod-HSA items, resulting in test forms of 94 to 99 total items.

The test construction process resulted in two field test forms per content area, each containing 94 to 99 items, depending on the subject. Following the administration and review of item analyses, MSDE made a final decision on the set of 50 items to comprise the operational forms for the present and future administrations. These 50 items were selected based on the blueprint and psychometric criteria defined for the Mod-HSA program. The remaining Mod-HSA items and corresponding statistics were sent to the item bank.

² Clueing refers to information within a passage, stimulus, item, graphic, or other test component that allows respondents to select/construct the correct answer to one or more items in an assessment without the knowledge and/or skill targeted by the item.

³ Clanging occurs when an identical or resembling word(s) appears in both the item stem and one or more item distractors.

Section 2. Validity

Validity is one of the most important attributes of assessment quality. Validity refers to the degree to which logical, empirical, and judgmental evidence supports a proposed interpretation or use of a set of scores, and it is one of the most fundamental considerations in developing and evaluating tests (AERA, APA, & NCME, 1999; Messick, 1989). Validity is not based on a single study or type of study; but involves an ongoing process of gathering evidence supporting the interpretation or use of the resulting test scores. The process begins with the test design and continues throughout the entire assessment process, including design, content specifications, item development, psychometric quality, and inferences made from the results.

Mod-HSA items were adapted from banked HSA (SR) items. The development of test content was overseen by a content expert who has a depth of knowledge and teaching experience related to the course in which the Mod-HSA was to be administered. Appropriate content leads who had similar qualifications reviewed the test development work of these individuals.

The constructs measured by each Mod-HSA are described in detail in the Maryland high school curriculum standards (Core Learning Goals, CLGs). All ETS content staff working on test development have been trained in the CLGs. The test blueprint documents presented in Section 1 (see Tables 1.2 to 1.5) were created in collaboration with committees of Maryland educators and were derived from the Maryland goals, expectations, and indicators. The CLGs can be found on the MSDE website at <http://www.mdk12.org>.

Banked items were referenced to a particular instructional standard (i.e., goal, expectation, or indicator). During the internal ETS development process the specific reference was confirmed or changed to reflect changes to the item. When the item went to a committee of Maryland educators for content review, the members of the committee made independent judgments about the match of the item content to the standard it was intended to measure, and evaluated the appropriateness for the age and cognitive ability of students being tested.

As described in Section 1, the process of adapting banked HSA items for use as Mod-HSA items involved simplifying the question format to make items more accessible for special education students. For example, items were modified to reduce reading load and simplify graphics. One answer option was removed from each of the SR items so that students chose from three options instead of four options. The process of selecting and modifying items provided numerous opportunities for the client to review test content and make changes to ensure that the items were aligned with the Maryland content standards.

In addition to the validation documentation gathered and maintained by MSDE, other information in support of the Mod-HSA can be found in the following sections of this technical report:

- Section 3 provides information regarding the item-level analyses used to inform selection of the 50-item operational forms. Descriptions of classical item analyses and differential item functioning, as well as summary tables of item p-values and item-total correlation distributions are presented;
- Section 4 presents information concerning item response theory calibration methods and scaling to align the Mod-HSAs to the HSA scale;
- Section 5 describes the scoring procedures and provides cut score information;
- Section 6 presents information concerning the test characteristics based on classical test theory for the May and Summer administrations;
- Section 7 provides information regarding student characteristics for the May and Summer administrations.

Section 3. Item-Level Analyses: May Administration

Analyses of the field test items were conducted following receipt of the final scored student data files. Item analyses results were examined prior to the selection of operational items. Item-level analyses consisted of classical item analyses and differential item functioning (DIF). Analyses were completed using GENASYSS.

As mentioned in the introduction, two groups of students were administered the Mod-HSAs during the May administration. Item analyses and DIF were conducted separately for the *Target* population, students identified as being eligible to take the Mod-HSAs, and for the *Linking* samples that took both the Mod-HSA and the HSA.

Data Files

The data used for the analyses included all valid records available, including students learning English as a second language, students with IEP or 504 plans, and students receiving accommodations. Only records invalidated by the test administrator, and records with five or fewer item responses were excluded from the analysis sample.

For the Target population who could take the Mod-HSAs online or in paper format, data were combined across mode of administration for each form, for all analyses.

Results of the item analyses and DIF analyses were provided to MSDE in Excel files containing item-level statistics, by form, for each content area. The files included blueprint information, classical item statistics, DIF statistics and flags for item statistics outside of the range of criteria approved by MSDE's technical advisors, National Psychometrics Council (NPC). These criteria are described later in this section. Also included in the files was a flag which indicated whether an item had been originally selected as part of the 50-item base form described in Section 1 of this report.

While data provided by the Linking samples were used to select operational items, statistics based on the Target population were also included in the files so that results from the two groups of students could be compared. To assist MSDE in their selection of operational forms, items flagged with statistics outside the range of the criteria for the Linking sample students were highlighted in red. Items with acceptable statistics for the Linking samples but less than desirable statistics for the Target population were highlighted in green and flagged as "Use with Caution." A variable indicating the number of items required for each subscore was also included in the Excel files.

Classical Item Analyses

Classical item analyses involve computing a set of statistics for every item in each form. The statistics provide key information about the quality of the items from an empirical perspective. The statistics estimated for the Mod-HSA items, and associated criteria used to flag items for content specialists' review, are described below.

Classical item difficulty (“p-value”):

This statistic indicates the mean item score expressed as a proportion of the maximum obtainable item score. For SR items, it is equivalent to the proportion of examinees in the sample that answered the item correctly. Desired p-values generally fall within the range of 0.10 to 0.90. Occasionally, items that fall outside this range can be justified for inclusion as an operational item based upon the quality and educational importance of the item content or the ability to measure students with very high or low achievement, especially if the students have not yet received instruction in the content.

The item-total correlation of the correct response option:

This statistic describes the relationship between performance on the specific item and performance on the total test including the item under study. It is sometimes referred to as a discrimination index. For SR items, the item-total correlation is the point-biserial correlation. Values less than 0.10 were flagged for a weaker than desired relationship and requiring careful consideration by MSDE before including them on operational forms. Items with negative correlations can indicate serious problems with the item content (e.g., multiple correct answers, unusually complex content), an incorrect key, or students have not been taught the content.

The proportion of students choosing each response option:

This statistic indicates the percent of examinees selecting each answer option. Item options not selected by any students or selected by a very low proportion of students indicate problems with plausibility of the option. Items that did not have all answer options functioning would require careful consideration by MSDE before including on operational forms.

The point-biserial correlation of incorrect response option with the total score:

These statistics describe the relationship between selecting an incorrect response option for a specific item and performance on the total test including the item under study. Typically, the correlation between an incorrect answer and total test performance is weak or negative. Values

are typically compared and contrasted with the discrimination index. When the magnitude of these point-biserial correlations for the incorrect answer is stronger, relative to the correct answer, the item will be carefully reviewed for content-related problems. Alternatively, positive point-biserial correlations on incorrect option choices may indicate that students have not had sufficient opportunity to learn the material.

Percent of students omitting an item:

This statistic is useful for identifying problems with test features such as testing time and item/test layout. Typically, it is assumed that if students have an adequate amount of testing time, 95% of students should attempt to answer each question. When a pattern of omit percentages exceeds 5% for a series of items at the end of a timed section, this may indicate that there was insufficient time for students to complete all items. For individual items, if the omit percentage is greater than 5% for a single SR, this could be an indication of an item/test layout problem. For example, students might accidentally skip an item that follows a lengthy stem.

The P-values for all of the Mod-HSA items administered are summarized for the Linking samples and for the Target populations in Tables 3.1 and 3.2. The point-biserials for these items and groups are summarized in Table 3.3 and 3.4. Recall that statistics from the Linking samples were used to select the operational items.

In addition, a series of flags was created to identify items with extreme values. Flagged items were subject to additional scrutiny prior to the inclusion of the items in the final calibrations to place the Mod-HSA operational items onto the HSA scale. The following flagging criteria were applied to all Mod-HSA items administered in May 2008:

- *Difficulty Flag*: P-value less than 0.10 or greater than 0.90.
- *Discrimination Flag*: Point-biserial correlation less than 0.10 for the correct answer.
- *Distractor Flag*: Positive point-biserial correlation for incorrect option.
- *Omit Flag*: Percent omitted is greater than 5.

Following classical item analyses, items with poor item statistics were removed from further analyses (refer to Table 3.5). While these items were retained in the Mod-HSA item bank, they have been identified as “Do Not Use.” Table 3.6 presents the number of items that were flagged but retained for further analyses and evaluation. These items were flagged for statistical reasons including extreme p-values; low item-total correlations; and/or high omit rates. Calibration results indicated the items were estimated reasonably, and therefore were not removed from scaling.

Table 3.1 Distributions of P-Values: May All Mod-HSA Items – Linking

P-Value	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$P < 0.10$	0	0.00	2	1.46	0	0.00	0	0.00
$0.10 \leq P < 0.20$	0	0.00	1	0.73	0	0.00	0	0.00
$0.20 \leq P < 0.30$	2	1.33	1	0.73	0	0.00	0	0.00
$0.30 \leq P < 0.40$	6	4.00	3	2.19	4	3.48	0	0.00
$0.40 \leq P < 0.50$	9	6.00	7	5.11	3	2.61	4	2.67
$0.50 \leq P < 0.60$	16	10.67	16	11.68	12	10.43	15	10.00
$0.60 \leq P < 0.70$	24	16.00	29	21.17	17	14.78	26	17.33
$0.70 \leq P < 0.80$	41	27.33	36	26.28	31	26.96	44	29.33
$0.80 \leq P < 0.90$	33	22.00	30	21.90	35	30.43	37	24.67
$P \geq 0.90$	19	12.67	14	10.22	13	11.30	24	16.00
Descriptive Statistics								
N Items*	150		137		115		150	
Mean	0.72		0.71		0.74		0.76	
SD	0.16		0.16		0.14		0.13	
Min	0.28		0.13		0.30		0.42	
Max	0.98		0.96		0.97		0.99	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 3.2 Distributions of P-Values: May All Mod-HSA Items – Target

P-Value	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$P < 0.10$	0	0.00	0	0.00	0	0.00	0	0.00
$0.10 \leq P < 0.20$	1	0.67	2	1.46	1	0.87	0	0.00
$0.20 \leq P < 0.30$	11	7.33	9	6.57	2	1.74	7	4.67
$0.30 \leq P < 0.40$	29	19.33	32	23.36	24	20.87	34	22.67
$0.40 \leq P < 0.50$	45	30.00	35	25.55	27	23.48	48	32.00
$0.50 \leq P < 0.60$	28	18.67	27	19.71	29	25.22	29	19.33
$0.60 \leq P < 0.70$	19	12.67	22	16.06	24	20.87	19	12.67
$0.70 \leq P < 0.80$	10	6.67	10	7.30	7	6.09	10	6.67
$0.80 \leq P < 0.90$	6	4.00	0	0.00	1	0.87	3	2.00
$P \geq 0.90$	1	0.67	0	0.00	0	0.00	0	0.00
Descriptive Statistics								
N Items*	150		137		115		150	
Mean	0.49		0.48		0.51		0.49	
SD	0.16		0.14		0.13		0.13	
Min	0.15		0.16		0.18		0.23	
Max	0.90		0.79		0.81		0.89	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 3.3 Distributions of Point-Biserial Correlations: May, All Mod-HSA Items – Linking

May 2008	Number and Percentage of Items							
Correlation	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$R < 0.10$	2	1.33	2	1.46	2	1.74	0	0.00
$0.10 \leq R < 0.20$	11	7.33	9	6.57	0	0.00	3	2.00
$0.20 \leq R < 0.30$	34	22.67	25	18.25	32	27.83	13	8.67
$0.30 \leq R < 0.40$	50	33.33	45	32.85	47	40.87	45	30.00
$0.40 \leq R < 0.50$	45	30.00	51	37.23	32	27.83	75	50.00
$0.50 \leq R < 0.60$	7	4.67	5	3.65	2	1.74	14	9.33
$0.60 \leq R < 0.70$	1	0.67	0	0.00	0	0.00	0	0.00
$R \geq 0.70$	0	0.00	0	0.00	0	0.00	0	0.00
Descriptive Statistics								
N Items*	150		137		115		150	
Mean	0.35		0.36		0.35		0.40	
SD	0.11		0.10		0.08		0.08	
Min	-0.03		0.00		0.07		0.12	
Max	0.61		0.54		0.52		0.58	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 3.4 Distributions of Point-Biserial Correlations: May, All Mod-HSA Items – Target

May 2008	Number and Percentage of Items							
Correlation	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$R < 0.10$	11	7.33	17	12.41	8	6.96	8	5.33
$0.10 \leq R < 0.20$	26	17.33	27	19.71	19	16.52	20	13.33
$0.20 \leq R < 0.30$	53	35.33	47	34.31	48	41.74	63	42.00
$0.30 \leq R < 0.40$	48	32.00	39	28.47	34	29.57	54	36.00
$0.40 \leq R < 0.50$	12	8.00	7	5.11	6	5.22	4	2.67
$0.50 \leq R < 0.60$	0	0.00	0	0.00	0	0.00	1	0.67
$0.60 \leq R < 0.70$	0	0.00	0	0.00	0	0.00	0	0.00
$R \geq 0.70$	0	0.00	0	0.00	0	0.00	0	0.00
Descriptive Statistics								
N Items*	150		137		115		150	
Mean	0.26		0.24		0.26		0.27	
SD	0.11		0.11		0.10		0.09	
Min	-0.07		-0.08		-0.05		0.03	
Max	0.48		0.48		0.45		0.50	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 3.5 May Mod-HSA Items Excluded from Calibration

May 2008 Content	MD ID	Form	Sequence	Response Type	Reason
Algebra	258175	108	64	M	Rbis=-0.04
Biology	261615	208	31	M	Rbis= 0.00
English	259462	208	47	M	Rbis= 0.08

Table 3.6 May Mod-HSA Items with Statistical Flags Retained in Calibration

	P-Value < 0.10	P-Value > 0.90	R_ITT < 0.10	Distractor Pt-Bis > 0	Omit Rate SR/SPR > 5%	C-Level DIF	Total Flags	N Items
May 2008								
Algebra	0	18	1	0	0	9	28	28
Biology	0	12	1	4	0	1	18	18
English	0	9	1	1	0	2	13	11
Government	0	20	0	0	0	4	24	23

Differential Item Functioning

Following the classical item analyses, differential item functioning (DIF) analyses were completed. One goal of test development is to assemble a set of items that provides an estimate of student ability that is as fair and accurate as possible for all groups within the population. DIF statistics are used to identify items that identifiable groups of students with the same underlying level of ability have different probabilities of answering correctly (e.g., females, African Americans, Hispanics). If the item is more difficult for an identifiable subgroup, the item may be measuring something different than the intended construct. However, it is important to recognize that DIF flagged items might be related to actual differences in relevant knowledge or skill (item impact) or statistical Type I error. Subsequent review by content experts and bias/sensitivity committees is required to determine the source and meaning of evident differences.

ETS used the Mantel-Haenszel DIF detection method to assess differential SR item performance. As part of the Mantel-Haenszel procedure, the statistic described by

Holland & Thayer (1988), known as MH D-DIF, was used⁴. This statistic is expressed as the difference between the focal and reference group performance on an item after conditioning on total test score. Negative MH D-DIF statistics favor the reference group and positive values favor the focal group. The classification logic used for flagging items is based on a combination of absolute differences and significance testing. Items that are not significantly different based on the MH D-DIF ($p > 0.05$) are considered to have similar performance between the two studied groups; these items are considered to be functioning appropriately. For items where the statistical test indicates significant differences ($p < 0.05$), the effect size is used to determine the direction and severity of the DIF. The male and white groups were treated as the reference groups for gender and ethnicity, respectively; the female and other ethnic groups were considered the focal groups.

Based on their DIF statistics, items are classified into one of three categories and assigned values of A, B or C. Category A items contain negligible DIF, Category B items exhibit slight or moderate DIF, and Category C items have moderate to large DIF. Negative values imply that conditional on the matching variable, the focal group has a lower mean item score than the reference group. In contrast a positive value implies that, conditional on the matching variable; the reference group has a lower mean item score than the focal group.

There were 16 items flagged for C-level DIF involving one or more of the identified focal groups (i.e., female, African American, American Indian, Asian, Hispanic). The items flagged for C-category DIF included nine Algebra items, one Biology item, two English items and four Government items. These items were retained in the Mod-HSA item bank, and will be reviewed and evaluated to determine their eligibility for future use.

⁴ The formula for the estimate of constant odds ratio is:

$$\hat{\alpha}_{MH} = \frac{\left(\sum_m \frac{R_{rm}W_{fm}}{N_m} \right)}{\left(\sum_m \frac{R_{fm}W_{rm}}{N_m} \right)},$$

where,

- R_{rm} = number in reference group at ability level m answering the item right,
- W_{fm} = number in focal group at ability level m, answering the item wrong,
- R_{fm} = number in focal group at ability level m answering the item right,
- W_{rm} = number in reference group at ability level m, answering the item wrong,
- N_m = total group at ability level m.

This can then be used in the following formula (Holland & Thayer, 1988):

$$MH\ D - DIF = -2.35 \ln[\alpha_{MH}].$$

Section 4. Item Calibration and Test Equating

Item Calibration

All of the items in the May 2008 field test forms were calibrated concurrently using the three parameter logistic (3PL) model and the Linking sample for each subject area. As described in Section 1, this sample consisted of a subset of the May 2008 HSA examinees who also took the Mod-HSA in the same content area to provide data that could be used for linking. All students in the Linking sample took the Mod-HSAs online.

The 3PL model states that the probability that a person with ability θ will respond correctly to item j can be expressed as follows:

$$P(U_j = 1 | \theta) = P_j(\theta) = c_j + \frac{1 - c_j}{1 + e^{-1.7a_j(\theta - b_j)}}$$

where:

- U_j is the response to item j , 1 if correct and 0 if incorrect;
- a_j is the slope parameter of item j , characterizing its discrimination;
- b_j is the threshold parameter of item j , characterizing its difficulty; and
- c_j is the lower asymptote parameter of item j , reflecting the chance that students with very low proficiency will select the correct answer; sometimes called the “pseudo-guessing” level.

A proprietary version of the PARSCALE computer program (Muraki & Bock, 1995) was used to estimate the item parameters.

Initially all item parameters were freely estimated and placed on scale using the Stocking and Lord (1983) procedure. Comparisons of the characteristic curves for the linking and reference parameters after linking revealed some divergence at the lower end of the ability scale. A second calibration run was conducted after fixing the c -parameters of the linking items to their bank values. This approach improved the correspondence between the characteristic curves for reference and linking parameters throughout the full range of ability.

Test Equating

The Mod-HSA forms were linked to the HSA scale using two linking methods. The first involved use of common items, and the second involved use of common persons. Two approaches were planned, so that if one method was not effective, there would be an alternative approach to link the Mod-HSAs to the HSA scale. The equating methods used for each design are described in the following sections.

Linking using the Common Items Design

The 24 anchor items in each form were drawn from the HSA item bank and placed on the field test forms without modification. The linking items were placed in approximately the same positions within the test as when the items were originally field tested, to avoid position effects. The same 24 items were used in both forms administered in each content area.

The linking items had parameters estimated when the field test forms were calibrated. The banked parameters were expressed on the HSA reporting scale. The Stocking and Lord (1983) procedure was used to align the TCCs based on the two sets of parameters and to derive linear constants that could be used to transform the Mod-HSA parameters to the HSA reporting scale.

Linking using the Common Persons Design

Students in the linking samples had taken both a regular HSA and a Mod-HSA assessing the same content area. As a result, two sets of scores were available for the students; an HSA scale score and a Mod-HSA theta estimate generated after the Mod-HSA forms were calibrated.

Linear equipercentile equating was used to find linear transformation values that would minimize the differences between scores on two test forms (Yen & Fitzpatrick, 2006). The process involves using the equipercentile equating procedure to identify corresponding scores on the two forms, one of which is a target form. A linear transformation then is found that minimizes the differences between the scores of the form to be equated and the target form. The transformation is applied to the item parameters and ability estimates associated with the form to be equated to align them with the target score scale.

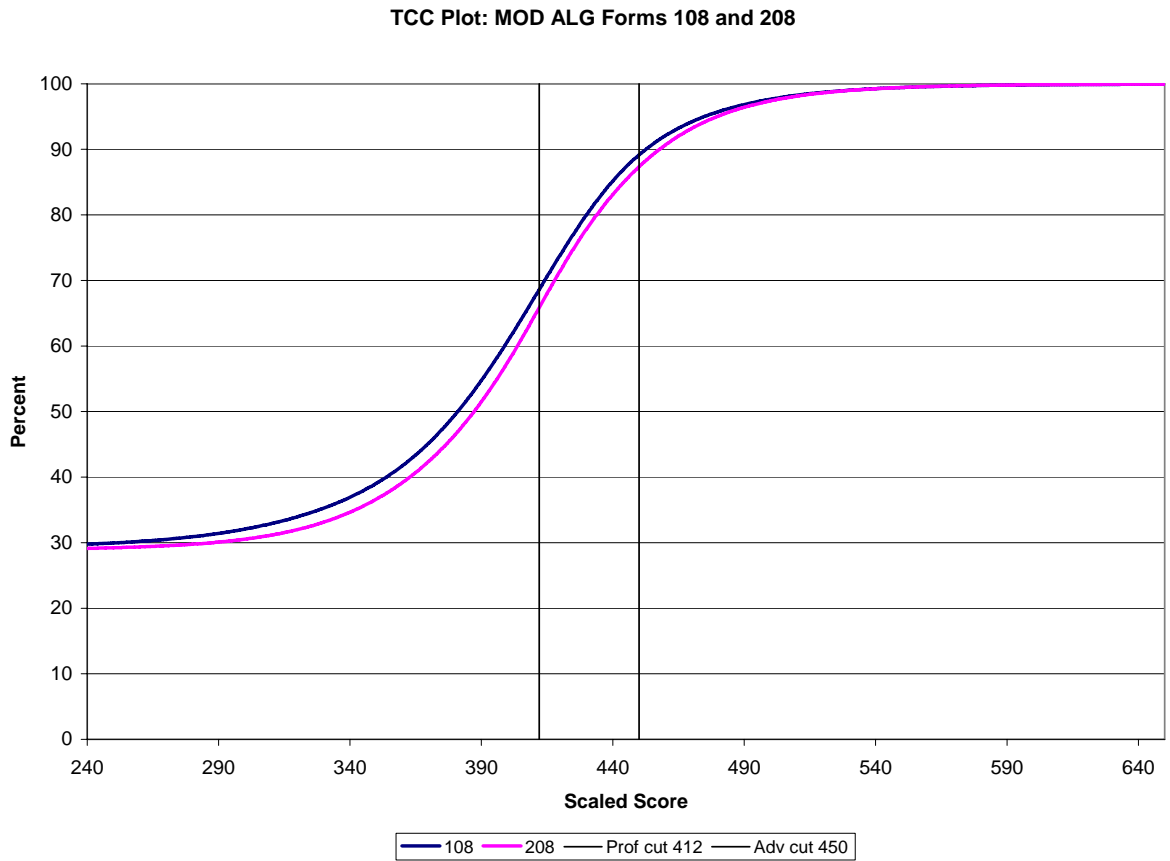
In this case the regular HSA form was the target, so student scores obtained using the Mod-HSAs were aligned to their HSA scale scores. These analyses were completed using *LinEq*, an ETS proprietary software program.

Comparison of Results from the Two Equating Methods

A summary of the equating findings is provided in Appendix C. In general, the two approaches to linking the Mod-HSA to the HSA produced very similar results. The NPC recommended to use the results obtained using the parameters of the common items design and the Stocking and Lord (1983) equating method. One reason for this decision was that IRT equating allows for the removal of misbehaving items; another was that this would allow the same equating method to be used for both the Mod-HSA and the HSA.

Comparison of TCCs and CSEMs

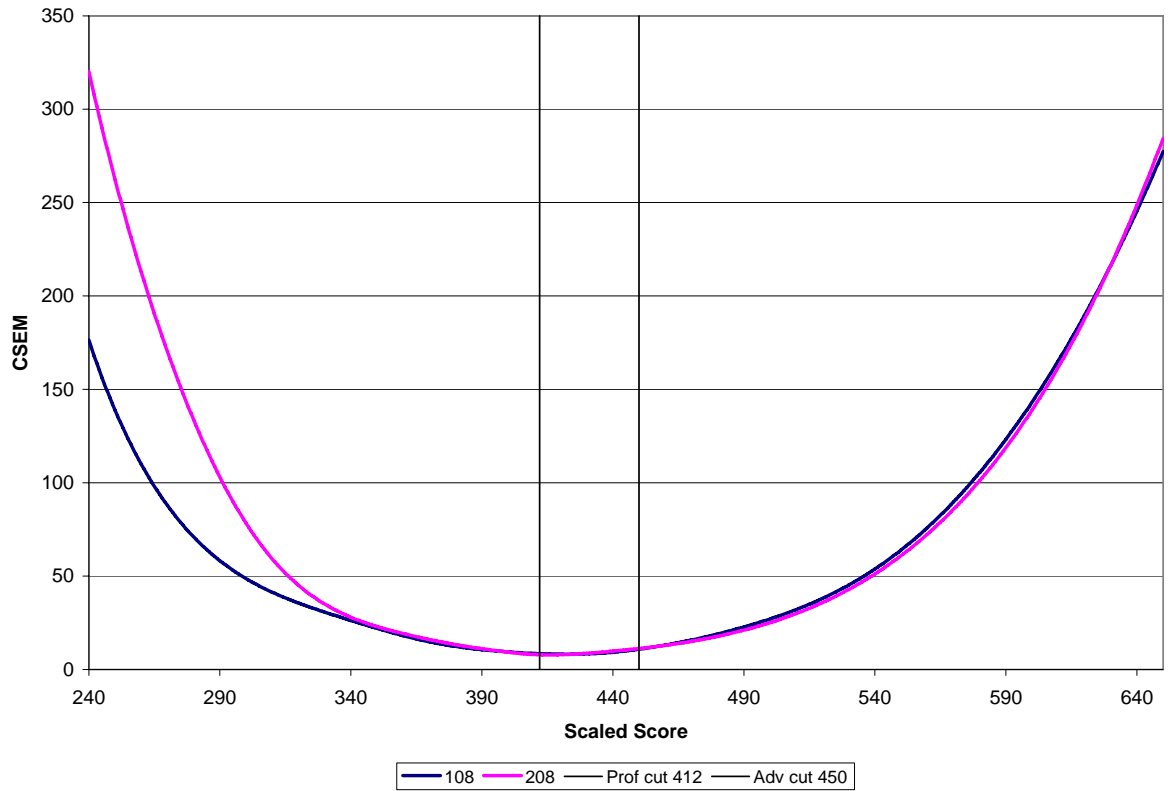
Figures 4.1 to 4.8 present the TCCs and CSEMs, resulting from the Stocking and Lord (1983) equating method, for the two forms in each content area.



Note Algebra Cut Scores: Proficient 412, Advanced 450

Figure 4.1 TCCs for the Mod-HSA Algebra Forms

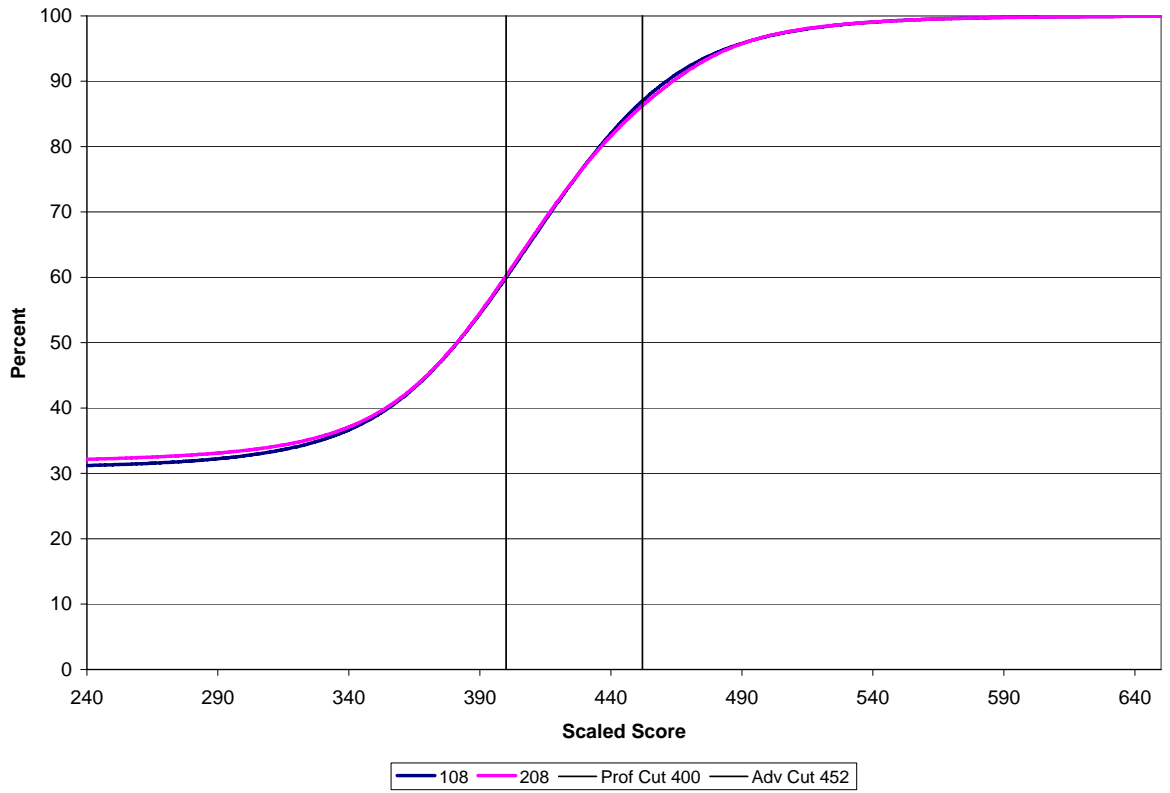
CSEM Plot: MOD ALG Forms 108 and 208



Note Algebra Cut Scores: Proficient 412, Advanced 450

Figure 4.2 CSEMs for the Mod-HSA Algebra Forms

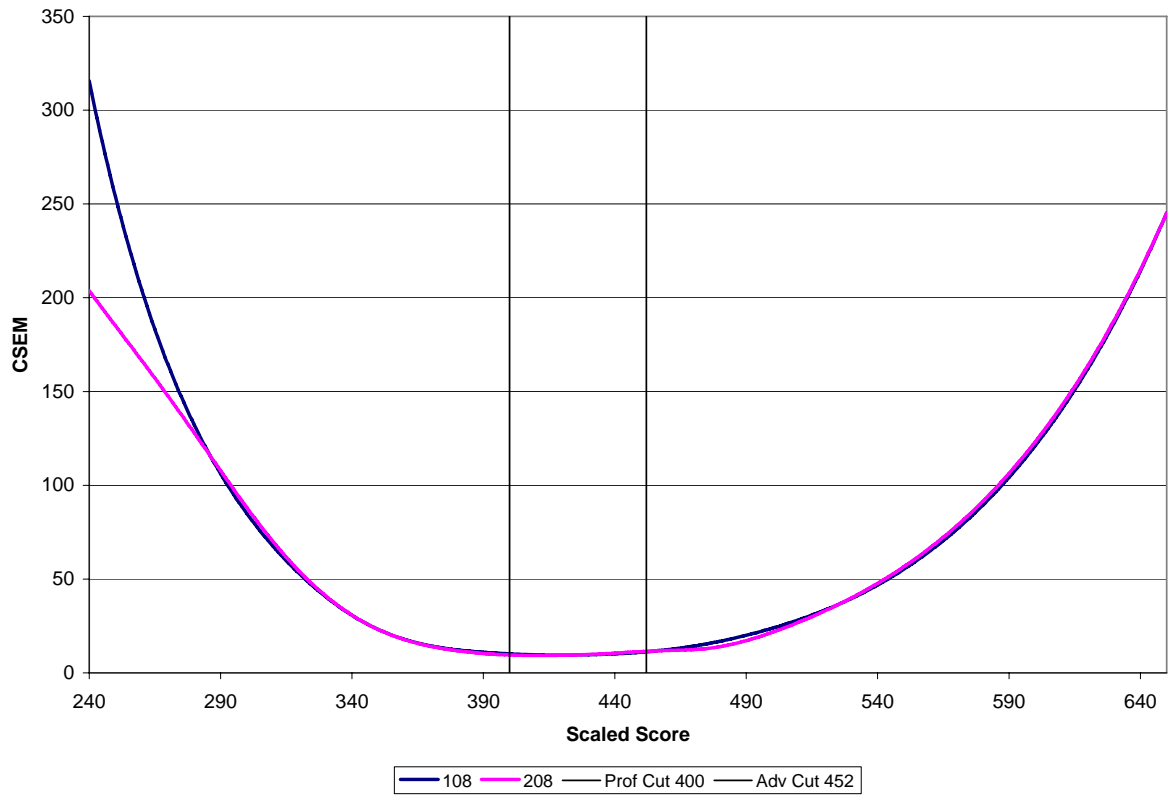
TCC Plot: MOD BIO Forms 108 and 208



Note Biology Cut Scores: Proficient 400; Advanced 452

Figure 4.3 TCCs for the Mod-HSA Biology Forms

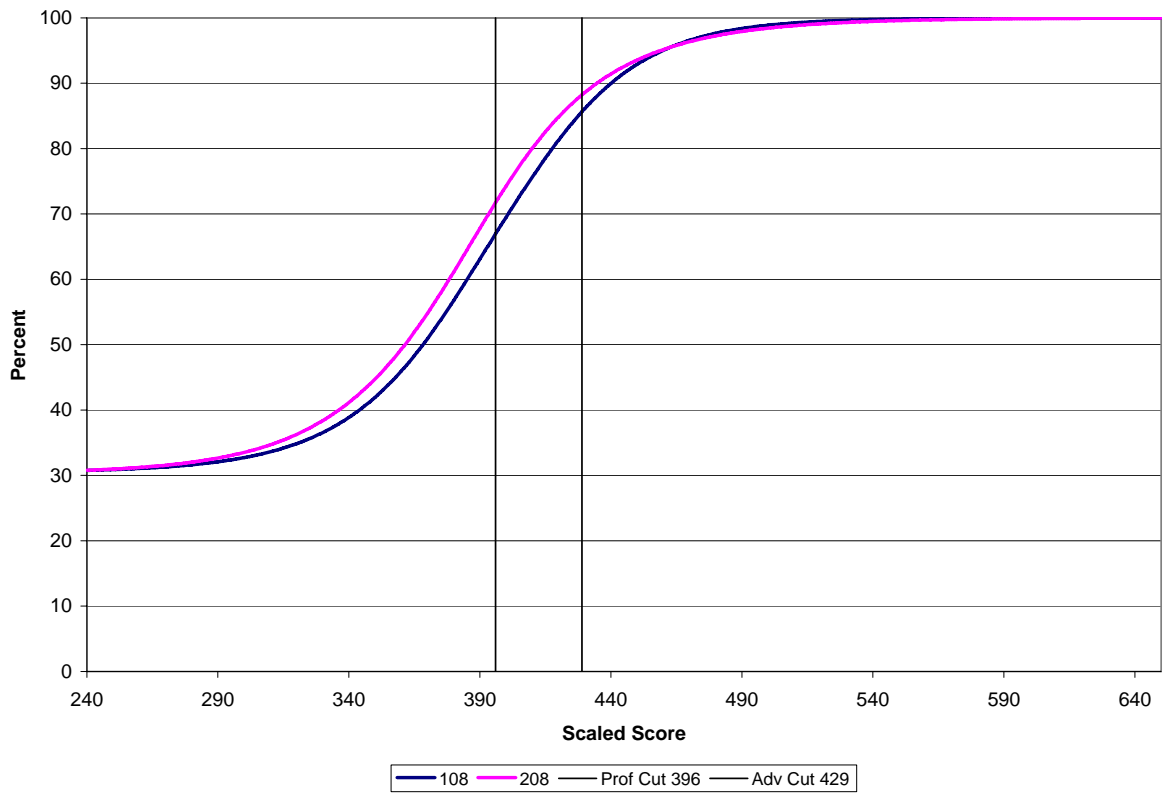
CSEM Plot: MOD BIO Forms 108 and 208



Note Biology Cut Scores: Proficient 400; Advanced 452

Figure 4.4 CSEMs for the Mod-HSA Biology Forms

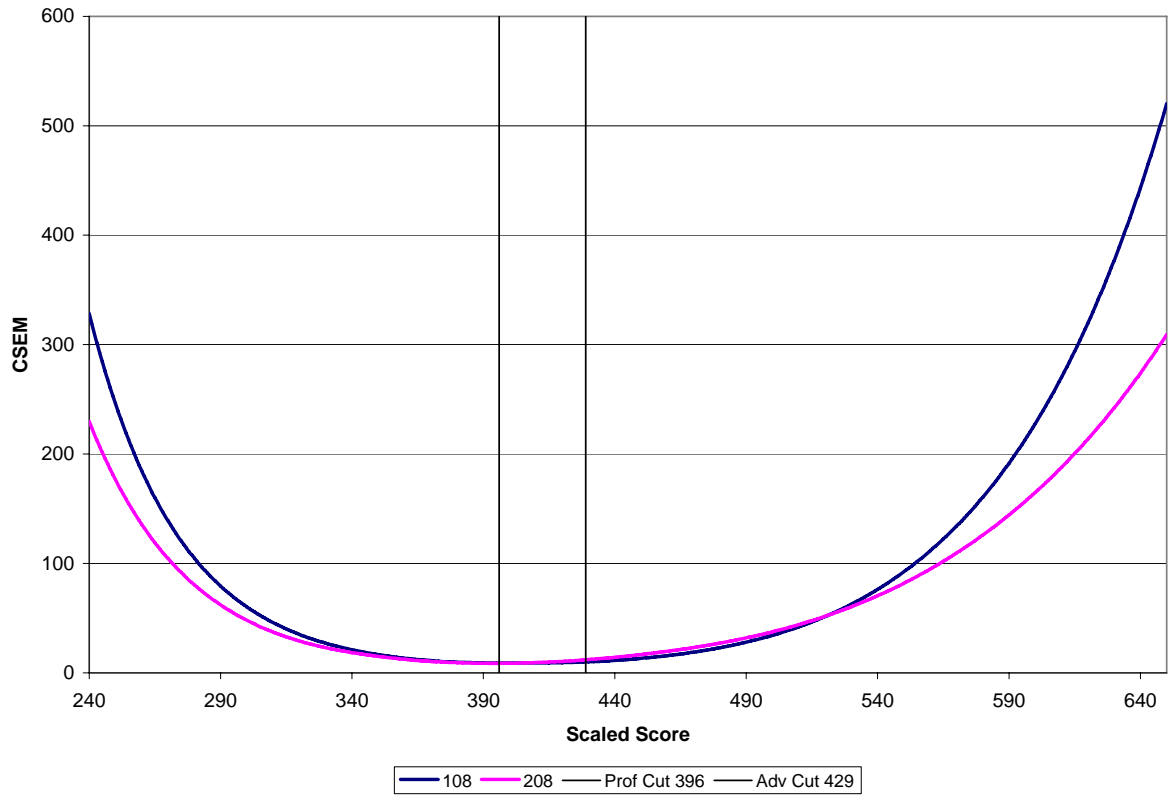
TCC Plot: MOD ENG Forms 108 and 208



Note English Cut Scores: Proficient 396, Advanced 429

Figure 4.5 TCCs for the Mod-HSA English Forms

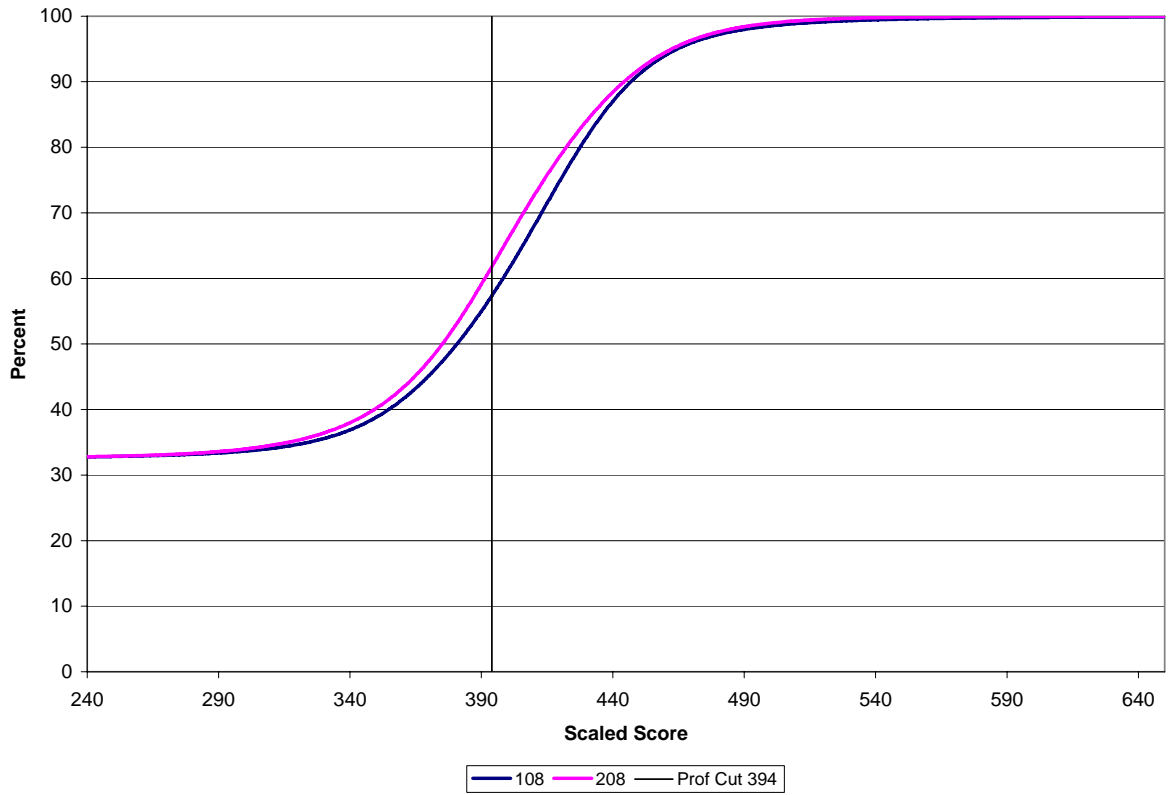
CSEM Plot: MOD ENG Forms 108 and 208



Note English Cut Scores: Proficient 396, Advanced 429

Figure 4.6 CSEMs for the Mod-HSA English Forms

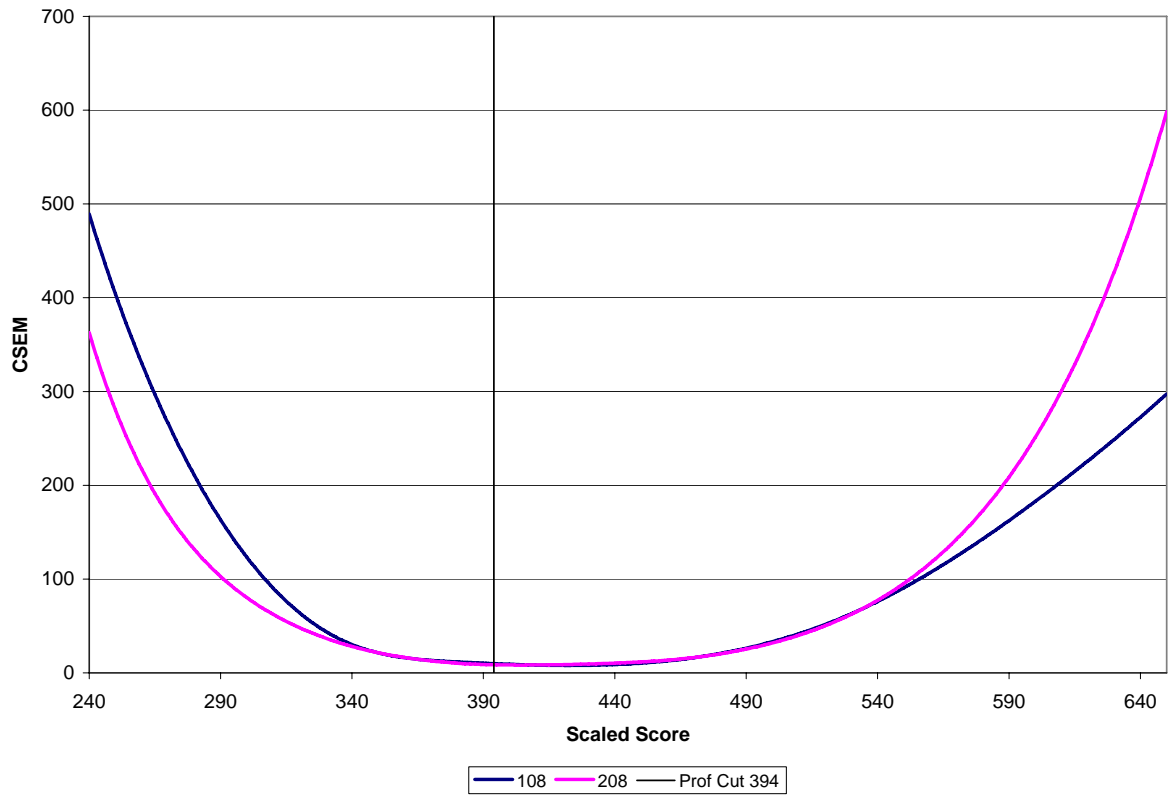
TCC Plot: MOD GOV Forms 108 and 208



Note Government Cut Score: Proficient 394

Figure 4.7 TCCs for the Mod-HSA Government Forms

CSEM Plot: MOD GOV Forms 108 and 208



Note Government Cut Score: Proficient 394

Figure 4.8 CSEMs for the Mod-HSA Government Forms

Section 5. Scoring Procedures

Scale Scores

The Mod-HSA reporting scale ranges from 240 to 650. This scale was aligned to the HSA scale, which was established in 2003. Scale scores describing total test performance on the Mod-HSA are maximum likelihood estimates (MLEs) obtained using item-pattern (IP) scoring. Subscores are based on raw score to scale score (RS-SS) scoring tables.

When IP scoring with the 3PL model is used, the likelihood equation can have multiple maxima. Therefore, a numerical method was used to find the scale score at the global maximum in the likelihood function. RS-SS scoring tables were obtained by taking the inverse of the TCCs for items contributing to the associated subscores (Yen, 1984).

Since the Mod-HSAs forms were aligned with the HSA scale, the cut-scores established for the HSAs were used to generate performance category (Basic, Proficient, and Advanced) and Pass-Fail classifications for the Mod-HSAs.

Lowest and Highest Obtainable Test Scores

The maximum likelihood procedure under the 3PL model cannot produce reasonable scale score estimates for students with perfect scores or scores below the level expected by guessing. While maximum likelihood estimates are usually available for students with extreme scores other than zero or perfect, occasionally these estimates have very large conditional standard errors of measurement (CSEMs), and differences between these extreme values have little meaning. Therefore, scores were established for these students based on the procedure used for the HSA (refer to Appendix 3.C of the 2004 Technical Report). These values were called the lowest obtainable scale score (LOSS) and the highest obtainable scale score (HOSS). The same LOSS and HOSS values were used for RS-SS tables and the IP scoring. Starting with the summer 2005 administration of the HSA, MSDE decided that the LOSS and HOSS values would be 240 and 650, respectively, for all content areas. Since the Mod-HSA is on the same scale as the HSA, the same LOSS and HOSS values were used.

Cut-Scores

MSDE requested that the Mod-HSAs be aligned with the HSA scales so that the cut-scores established for the HSAs could be applied to the Mod-HSAs. The HSA cut-scores associated with each performance level in the non-English content areas were established

by MSDE in 2003⁵. The HSA English cut-scores were established during a standard setting held in October of 2005.

Two cut-scores were established for the Algebra and English tests, enabling students to be classified as Basic, Proficient, or Advanced. Two cut-scores were needed because the results for these tests are used as the high school mathematics and English/language arts components of Maryland’s system of accountability⁶ under NCLB. Prior to the 2007-2008 school year, Biology had only one cut-score. In 2007 two cut-scores were applied to Biology and the results are now used as components of the MSDE accountability system. There is only one cut-score for the Government test; it is used to classify students as Basic or Proficient.

To verify that the cut-scores established for the HSAs were appropriate for the Mod-HSA, a standard setting was conducted in August 2008, using the Mod-HSA student results. The standard setting panels, consisting of Maryland general and special educators, confirmed that the HSA cut-scores were appropriate for the Mod-HSA⁷.

Students eligible to take a Mod-HSA and who entered grade 9 in or after the 2005-2006 academic year, must pass Mod-HSAs or HSAs in all four content areas or achieve an overall combined score of 1602 as part of the requirements for graduation. The Proficient cut-scores are used to determine Pass/Fail classifications. The cut-scores by content area are given in Table 5.1.

Table 5.1 Mod-HSA 2008 Cut-Scores by Content Area

Content Area	Cut-score	
	Proficient	Advanced
Algebra	412	450
Biology	400	452
English	396	429
Government	394	---

⁵ Technical documentation on the standard setting method used to establish the HSA cut-scores is available on the Maryland State Department of Education web site at <http://www.marylandpublicschools.org/msde/divisions/planningresultstest/maryland+standard+setting+technical+reports.htm>.

⁶ Information regarding the system of accountability is available on the Maryland State Department of Education web site at http://www.marylandpublicschools.org/NR/rdonlyres/0146EDA2-5F91-47DD-9A84-16164BDEA25C/18082/Acct_workbook_final_w_table_appendices_r_93008.doc

⁷ Information regarding the standard setting process for the Mod-HSA is available at the MSDE web site http://www.marylandpublicschools.org/NR/rdonlyres/3253C1DD-CA2E-4E64-A066-D6F36EBADF9B/18003/ModHSA_SB_Final.ppt

Section 6. Test Characteristics

The analyses in this section include internal consistency reliability, decision consistency, decision accuracy, and exploratory factor analyses. Results for the May administration are presented for both the Target populations and Linking samples. Results from the Summer administration are presented for each content area by form for the Target population only. Factor analyses were not conducted for the Summer administration.

Reliability

The general concept of reliability concerns the precision of a test score. Of interest is quantifying the degree to which a score will vary from an average result obtained over many testing occasions due to random factors (Haertel, 2006). There are a variety of theories and methods that can be used to estimate reliability.

Classical test theory defines reliability as the proportion of total score variance that is true-score variance. Several different ways of estimating this proportion exist. The estimate of reliability given in this report is Cronbach's alpha (Cronbach, 1951), an internal consistency measure. It is derived from analysis of the consistency of performance over items within a test and provides a lower-bound estimate of a test's reliability. Cronbach's alpha can be expressed as

$$\alpha = \frac{n}{n-1} \left[1 - \frac{\sum_{i=1}^n \sigma_i^2}{\sigma_x^2} \right],$$

where n is the number of items, σ_i^2 is the variance of scores on the i -th item, and σ_x^2 is the variance of the total score (sum of scores on the individual items).

Values for Cronbach's alpha were calculated for each test form, test group, and selected subgroups. The results for the reliability analyses are presented along with other summary statistics in Tables 7.12 to 7.23 of Section 7. The tables show that the reliability coefficients for the May results ranged from 0.71 to 0.79 for the Target populations and from 0.86 to 0.89 for the Linking samples; the reliability coefficients for the Summer results ranged from 0.69 to 0.80.

Decision Accuracy and Decision Consistency

The accuracy of decisions based on specified cut-scores was assessed for Reliability of Classification using the ETS computer program RELCLASS. RELCLASS provides two statistics that describe the reliability of classifications based on test scores (Livingston & Lewis, 1995). More specifically, information from an administration of one form is used to estimate the following:

- 1) Decision Accuracy describes the extent to which examinees are classified in the same way as they would be on the basis of the average of all possible forms of a test. Decision accuracy answers the question: How does the actual classification of test takers, based on their single-form scores, agree with the classification that would be made on the basis of their true scores, if their true scores were somehow known?
- 2) Decision Consistency describes the extent to which examinees are classified in the same way as they would be on the basis of a single form of a test other than the one for which data are available. Decision consistency answers the question: What is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test?

RELCLASS estimates decision accuracy using an estimated joint distribution of reported performance level classifications on the current form of the test and the performance level classifications based on an all-forms average (true score). RELCLASS estimates decision consistency using an estimated joint distribution of reported performance level classifications on the current form of the test and performance level classifications on an alternate (parallel) form. In each case, the proportion of performance level classifications with exact agreement is the sum of the entries in the diagonal of the contingency table representing the joint distribution.

RELCLASS results were calculated using student scale scores derived from item pattern (IP) score distributions, for each form and content area. In four cases, the RELCLASS program would not converge due to the nature of the data (e.g., small sample sizes, and/or skewed performance distributions). The four exceptions were: Biology, Form 208 taken by the May Target population, Government, Form 208 taken by the May Linking sample, and Biology and English, Forms 308 taken by the summer Target populations. RELCLASS models unimodal data, and the IP scores for these tests did not appear to match this model. As an approximation to the RELCLASS results based on IP scoring, decision accuracy and consistency analyses for these four forms were obtained using raw score-to-scale score conversion tables. In all but one case (Biology, Form 308 taken by the Summer Target population) RELCLASS was able to converge using these RS-SS scores. Comparisons between the consistency and accuracy results obtained using IP and RS-SS scoring for the other HSA and Mod-HSA forms indicated that the two approaches typically produced findings that differed by 1% or less. However, because operational scores are based on IP scoring, results based on RS-SS should be regarded as an approximation.

Results are provided in Tables 6.1 to 6.12 for each group of students by form and content area for the May administration and by content area for the Target population of the Summer administration. Results from the Summer administration are provided for Form 308 only; very small numbers of students took Form 408. The tables show decision accuracy values which describe the agreement between classifications based on an observable variable (scores on one form of a test) and classifications based on an

unobservable variable (the test takers' true scores). For Target students in the May administration, decision accuracy values ranged from 0.85 to 0.89 across all performance levels and content areas and from 0.82 to 0.91 for the Proficient and Advanced classifications in Algebra, Biology and English. For Linking students in the May administration, decision accuracy values ranged from 0.74 to 0.86 across all performance levels and content areas and from 0.86 to 0.90 for the Proficient and Advanced classifications in Algebra, Biology and English. For Target students in the Summer administration, decision accuracy values ranged from 0.87 to 0.90 across all performance levels for Algebra, English, and Government, and from 0.82 to 0.91 for the Proficient and Advanced classifications in Algebra and English.⁸

Decision consistency values describe the agreement between classifications based on two variables (scores on the form students have taken and a parallel form of the same test that is not administered to the students). For Target students in the May administration, decision consistency values ranged from 0.79 to 0.85 across all performance levels and content areas and from 0.82 to 0.87 for the Proficient and Advanced classifications in Algebra, Biology and English. For Linking students in the May administration, decision consistency values ranged from 0.68 to 0.82 across all performance levels and content areas and from 0.81 to 0.86 for the Proficient and Advanced classifications in Algebra, Biology and English. For Target students in the Summer administration, decision consistency values ranged from 0.79 to 0.85 across all performance levels for Algebra, English, and Government, and from 0.82 to 0.87 for the Proficient and Advanced classifications in Algebra and English.

Note that in all cases the decision accuracy indices are somewhat larger than the decision consistency indices. This is due to differences in the estimation procedures. The estimation procedure for decision accuracy includes a random component on one of the two variables, whereas in estimating decision consistency each variable includes a random component (Livingston & Lewis, 1995).

⁸ RELCLASS did not converge for Biology for the Summer Target population.

Table 6.1 Decision Accuracy and Consistency: May, Algebra Linking

	Placement Scores	Estimated Proportion Within Category			
		Advanced	Proficient	Basic	Category Total
Form 108					
Decision Accuracy	450 - 650	0.15	0.02	0.00	0.16
	412 - 449	0.07	0.33	0.11	0.50
	240 - 411	0.00	0.02	0.31	0.33
	Estimated Proportion Correctly Classified = 0.79 ; Proficient & Above = 0.88				
Decision Consistency	450 - 650	0.14	0.03	0.00	0.16
	412 - 449	0.09	0.28	0.13	0.50
	240 - 411	0.00	0.04	0.29	0.33
	Estimated Proportion Consistently Classified = 0.71 ; Proficient & Above = 0.83				
Form 208					
Decision Accuracy	450 - 650	0.12	0.03	0.00	0.15
	412 - 449	0.06	0.34	0.09	0.50
	240 - 411	0.00	0.03	0.32	0.35
	Estimated Proportion Correctly Classified = 0.79 ; Proficient & Above = 0.88				
Decision Consistency	450 - 650	0.11	0.04	0.00	0.15
	412 - 449	0.08	0.29	0.12	0.50
	240 - 411	0.00	0.05	0.30	0.35
	Estimated Proportion Consistently Classified = 0.71 ; Proficient & Above = 0.83				

*Inconsistencies within category cell entries are due to rounding.

Table 6.2 Decision Accuracy and Consistency: May, Algebra Target

		Estimated Proportion Within Category			
	Placement Scores	Advanced	Proficient	Basic	Category Total
Form 108					
Decision Accuracy	450 - 650	0.01	0.00	0.00	0.01
	412 - 449	0.02	0.05	0.03	0.10
	240 - 411	0.01	0.05	0.83	0.89
	Estimated Proportion Correctly Classified = 0.89 ; Proficient & Above = 0.91				
Decision Consistency	450 - 650	0.01	0.00	0.00	0.01
	412 - 449	0.02	0.04	0.04	0.10
	240 - 411	0.02	0.07	0.80	0.89
	Estimated Proportion Consistently Classified = 0.85 ; Proficient & Above = 0.87				
Form 208					
Decision Accuracy	450 - 650	0.00	0.00	0.00	0.00
	412 - 449	0.01	0.05	0.03	0.09
	240 - 411	0.01	0.05	0.85	0.91
	Estimated Proportion Correctly Classified = 0.89 ; Proficient & Above = 0.91				
Decision Consistency	450 - 650	0.00	0.00	0.00	0.00
	412 - 449	0.02	0.04	0.03	0.09
	240 - 411	0.02	0.07	0.82	0.91
	Estimated Proportion Consistently Classified = 0.85 ; Proficient & Above = 0.87				

*Inconsistencies within category cell entries are due to rounding.

Table 6.3 Decision Accuracy and Consistency: Summer, Algebra Target

		Estimated Proportion Within Category			
	Placement Scores	Advanced	Proficient	Basic	Category Total
Form 308					
Decision Accuracy	450 - 650	0.01	0.00	0.00	0.01
	412 - 449	0.00	0.05	0.01	0.07
	240 - 411	0.02	0.07	0.83	0.92
	Estimated Proportion Correctly Classified = 0.90 ; Proficient & Above = 0.90				
Decision Consistency	450 - 650	0.01	0.00	0.00	0.01
	412 - 449	0.01	0.04	0.02	0.07
	240 - 411	0.03	0.09	0.80	0.92
	Estimated Proportion Consistently Classified = 0.85 ; Proficient & Above = 0.86				
Form 408	Insufficient Sample Size (N = 3)				

*Inconsistencies within category cell entries are due to rounding.

Table 6.4 Decision Accuracy and Consistency: May, Biology Linking

	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
Form 108					
Decision Accuracy	452 - 650	0.14	0.04	0.00	0.18
	400 - 451	0.06	0.45	0.06	0.57
	240 - 399	0.00	0.04	0.22	0.25
Estimated Proportion Correctly Classified = 0.80 ; Proficient & Above = 0.90					
Decision Consistency	452 - 650	0.13	0.05	0.00	0.18
	400 - 451	0.09	0.40	0.09	0.57
	240 - 399	0.00	0.05	0.20	0.25
Estimated Proportion Consistently Classified = 0.73 ; Proficient & Above = 0.86					
Form 208					
Decision Accuracy	452 - 650	0.14	0.03	0.00	0.16
	400 - 451	0.08	0.43	0.08	0.59
	240 - 399	0.00	0.03	0.22	0.25
Estimated Proportion Correctly Classified = 0.79 ; Proficient & Above = 0.90					
Decision Consistency	452 - 650	0.12	0.04	0.00	0.16
	400 - 451	0.11	0.	0.10	0.59
	240 - 399	0.00	0.04	0.21	0.25
Estimated Proportion Consistently Classified = 0.71 ; Proficient & Above = 0.86					

*Inconsistencies within category cell entries are due to rounding.

Table 6.5 Decision Accuracy and Consistency: May, Biology Target

		Estimated Proportion Within Category			
	Placement Scores	Advanced	Proficient	Basic	Category Total
Form 108					
Decision Accuracy	452 - 650	0.00	0.00	0.00	0.00
	400 - 451	0.01	0.08	0.06	0.15
	240 - 399	0.01	0.06	0.78	0.85
	Estimated Proportion Correctly Classified = 0.86 ; Proficient & Above = 0.87				
Decision Consistency	452 - 650	0.00	0.00	0.00	0.00
	400 - 451	0.02	0.07	0.06	0.15
	240 - 399	0.02	0.09	0.74	0.85
	Estimated Proportion Consistently Classified = 0.80 ; Proficient & Above = 0.83				
Form 208**					
Decision Accuracy	452 - 650	0.00	0.00	0.00	0.00
	400 - 451	0.02	0.10	0.07	0.20
	240 - 399	0.01	0.06	0.74	0.80
	Estimated Proportion Correctly Classified = 0.85 ; Proficient & Above = 0.87				
Decision Consistency	452 - 650	0.00	0.00	0.00	0.00
	400 - 451	0.04	0.08	0.08	0.20
	240 - 399	0.01	0.09	0.70	0.80
	Estimated Proportion Consistently Classified = 0.79 ; Proficient & Above = 0.82				

*Inconsistencies within category cell entries are due to rounding.

**Results calculated using scores from a raw score-to-scale score conversion table.

Table 6.6 Decision Accuracy and Consistency: Summer, Biology Target

		Estimated Proportion Within Category			
	Placement Scores	Advanced	Proficient	Basic	Category Total
Form 308	RELCLASS would not converge for this data				
Form 408	Insufficient Sample Size (N = 2)				

Table 6.7 Decision Accuracy and Consistency: May, English Linking

		Estimated Proportion Within Category			
	Placement Scores	Advanced	Proficient	Basic	Category Total
Form 108					
Decision Accuracy	429 - 650	0.21	0.03	0.00	0.24
	396 - 428	0.08	0.27	0.08	0.43
	240 - 395	0.00	0.03	0.30	0.33
	Estimated Proportion Correctly Classified = 0.78 ; Proficient & Above = 0.89				
Decision Consistency	429 - 650	0.20	0.04	0.00	0.24
	396 - 428	0.10	0.22	0.10	0.43
	240 - 395	0.00	0.05	0.28	0.33
	Estimated Proportion Consistently Classified = 0.71 ; Proficient & Above = 0.85				
Form 208					
Decision Accuracy	429 - 650	0.19	0.05	0.00	0.24
	396 - 428	0.05	0.24	0.14	0.43
	240 - 395	0.00	0.00	0.32	0.32
	Estimated Proportion Correctly Classified = 0.76 ; Proficient & Above = 0.86				
Decision Consistency	429 - 650	0.19	0.05	0.00	0.24
	396 - 428	0.07	0.21	0.15	0.43
	240 - 395	0.00	0.04	0.29	0.32
	Estimated Proportion Consistently Classified = 0.68 ; Proficient & Above = 0.81				

*Inconsistencies within category cell entries are due to rounding.

Table 6.8 Decision Accuracy and Consistency: May, English Target

		Estimated Proportion Within Category			
	Placement Scores	Advanced	Proficient	Basic	Category Total
Form 108					
Decision Accuracy	429 - 650	0.00	0.00	0.00	0.00
	396 - 428	0.01	0.04	0.04	0.09
	240 - 395	0.02	0.05	0.84	0.91
	Estimated Proportion Correctly Classified = 0.88 ; Proficient & Above = 0.90				
Decision Consistency	429 - 650	0.00	0.00	0.00	0.00
	396 - 428	0.02	0.03	0.04	0.09
	240 - 395	0.03	0.08	0.80	0.91
	Estimated Proportion Consistently Classified = 0.84 ; Proficient & Above = 0.86				
Form 208					
Decision Accuracy	429 - 650	0.00	0.00	0.00	0.00
	396 - 428	0.01	0.06	0.04	0.12
	240 - 395	0.01	0.05	0.82	0.88
	Estimated Proportion Correctly Classified = 0.88 ; Proficient & Above = 0.90				
Decision Consistency	429 - 650	0.00	0.00	0.00	0.00
	396 - 428	0.02	0.05	0.04	0.12
	240 - 395	0.02	0.07	0.79	0.88
	Estimated Proportion Consistently Classified = 0.84 ; Proficient & Above = 0.86				

*Inconsistencies within category cell entries are due to rounding.

Table 6.9 Decision Accuracy and Consistency: Summer, English Target

	Placement Scores	Estimated Proportion Within Category			
		Advanced	Proficient	Basic	Category Total
Form 308**					
Decision Accuracy	429 - 650	0.00	0.00	0.00	0.00
	396 - 428	0.01	0.04	0.04	0.09
	240 - 395	0.02	0.05	0.84	0.91
	Estimated Proportion Correctly Classified = 0.88 ; Proficient & Above = 0.89				
Decision Consistency	429 - 650	0.00	0.00	0.00	0.00
	396 - 428	0.02	0.03	0.04	0.09
	240 - 395	0.03	0.08	0.80	0.91
	Estimated Proportion Correctly Classified = 0.83 ; Proficient & Above = 0.85				
Form 408	Insufficient Sample Size (N = 2)				

*Inconsistencies within category cell entries are due to rounding.

**Results calculated using scores from a raw score-to-scale score conversion table.

Table 6.10 Decision Accuracy and Consistency: May, Government Linking

		Estimated Proportion Within Category			
		Placement Scores	Proficient	Basic	Category Total
Form 108					
Decision Accuracy	394 - 650		0.67	0.14	0.81
	240 - 393		0.00	0.19	0.19
	Estimated Proportion Correctly Classified = 0.86				
Decision Consistency	394 - 650		0.66	0.15	0.81
	240 - 393		0.02	0.17	0.19
	Estimated Proportion Consistently Classified = 0.82				
Form 208**					
Decision Accuracy	394 - 650		0.73	0.08	0.81
	240 - 393		0.18	0.01	0.19
	Estimated Proportion Correctly Classified = 0.74				
Decision Consistency	394 - 650		0.61	0.19	0.81
	240 - 393		0.11	0.09	0.19
	Estimated Proportion Consistently Classified = 0.70				

*Inconsistencies within category cell entries are due to rounding.

**Results calculated using scores from a raw score-to-scale score conversion table.

Table 6.11 Decision Accuracy and Consistency: May, Government Target

		Estimated Proportion Within Category			
		Placement Scores	Proficient	Basic	Category Total
Form 108					
Decision Accuracy	394 - 650		0.16	0.06	0.22
	240 - 393		0.05	0.73	0.78
	Estimated Proportion Correctly Classified = 0.89				
Decision Consistency	394 - 650		0.15	0.07	0.22
	240 - 393		0.09	0.70	0.78
	Estimated Proportion Consistently Classified = 0.84				
Form 208					
Decision Accuracy	394 - 650		0.13	0.05	0.18
	240 - 393		0.06	0.76	0.82
	Estimated Proportion Correctly Classified = 0.89				
Decision Consistency	394 - 650		0.12	0.05	0.18
	240 - 393		0.10	0.73	0.82
	Estimated Proportion Consistently Classified = 0.85				

*Inconsistencies within category cell entries are due to rounding.

Table 6.12 Decision Accuracy and Consistency: Summer, Government Target

		Estimated Proportion Within Category		
	Placement Scores	Proficient	Basic	Category Total
Form 308				
Decision Accuracy	394 - 650	0.16	0.04	0.20
	240 - 393	0.08	0.72	0.80
	Estimated Proportion Correctly Classified = 0.87			
Decision Consistency	394 - 650	0.15	0.06	0.20
	240 - 393	0.12	0.68	0.80
	Estimated Proportion Consistently Classified = 0.82			
Form 408	Insufficient Sample Size (N = 1)			

*Inconsistencies within category cell entries are due to rounding.

Exploratory Factor Analysis

To investigate the dimensionality of the Mod-HSA operational forms created after the May administration, exploratory factor analyses were conducted at the item level for each 50-item operational form created after the May 2008 test administration. The software program MPLUS (Muthén & Muthén, 2007) was used to generate tetrachoric correlations that were then read into the program for the analyses. Two groups of students, the Target populations and the Linking samples, were analyzed separately. The estimator used in these exploratory analyses was a weighted least-squares with mean and variance adjustment (Muthén, DuToit, & Spisic, 1997). This estimator was specifically designed for the analysis of ordered categorical data. Solutions were rotated by Quartimin methods, because the factors were expected to be correlated.

The percentage of score variance accounted for by each factor having an eigenvalue greater than 1.0 is shown in Tables 6.13 to 6.20 for each form. The decision to include only eigenvalues greater than 1.0 follows the Kaiser-Guttman rule (Kaiser, 1960). Scree plots (Catell, 1966) for each form are given in Figures 6.1 to 6.16 for the first 50 factors extracted. The scree plot involves plotting the eigenvalues of the factors extracted in order of magnitude from high to low. The plot is examined for a point at which the decrease in eigenvalues levels off. Factors prior to this point are considered important because of the variance they explain. Factors at and beyond this point add relatively little information.

Examination of the plots and tables for the Linking samples shows that the eigenvalues for the first factors ranged from about 12.0 to 15.6 across forms and subject areas, and these first factors accounted for 24% to 31% of the variance. The eigenvalues for the second and subsequent factors were no greater than about 2.0, and these factors accounted for about 2% to 5% of the remaining variance. Results for the two forms taken by the Linking samples were very similar across forms. The sizable amount of variance accounted for by the first factor indicates a large first factor; confirmatory factor analyses

or a study of the essential dimensionality of the data for the Linking samples could be used to assess the fit of a single factor model to the data.

With regard to the Target populations, the first factor results tended to be about half of those obtained for the Linking samples. Specifically, the eigenvalues for the first factors ranged from about 5.5 to 7.0, and this factor accounted for about 11% to 14% of the variance. Thus, for the Target populations a much smaller first factor was found. Like the Linking samples, the second and subsequent factors had small eigenvalues and accounted for 4% or less of the remaining variance.

The lower eigenvalues and percentages of score variance accounted for by the first factor in the Target populations appears to be a product of the difficulty of the Mod-HSA items for students in the Target populations. Table 6.22 shows that for the Linking group the mean item p-values were in the low 0.70's, a moderate degree of difficulty. For the Target populations, Table 6.23 shows that they were in the high 0.40's, on average. The Mod-HSA items are multiple-choice items with three answer choices; therefore the item p-values could reflect a considerable amount of guessing.

Very difficult items discriminate less well than do moderately difficult items and introduce more error because of increased guessing. As shown in Tables 6.23 and 6.24, the Mod-HSA item point-biserials were considerably lower for the Target population than they were for the Linking sample. Also the internal consistency results were notably lower: for the Linking samples, internal consistency ranged from 0.86 to 0.89 across subject areas, whereas for the Target populations it ranged from 0.71 to 0.79. Comparison of the tetrachoric correlations read into the factor analyses and summarized in Table 6.25 also shows that the item intercorrelations for the Target population were quite low and about half the size of those observed for the Linking sample, on average. Presumably as achievement in the Target populations improves, item discrimination, internal consistency and the item intercorrelations will improve concomitantly.

Table 6.13 Factor Analysis Results for Algebra, May Linking

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	11.87	23.75	12.49	24.98
2	2.13	4.26	2.01	4.01
3	1.64	3.28	1.67	3.34
4	1.47	2.93	1.62	3.24
5	1.40	2.79	1.46	2.93
6	1.36	2.72	1.40	2.81
7	1.33	2.67	1.34	2.68
8	1.26	2.51	1.26	2.52
9	1.23	2.46	1.23	2.46
10	1.16	2.32	1.16	2.32
11	1.10	2.20	1.09	2.19
12	1.08	2.16	1.07	2.14
13	1.07	2.13	1.06	2.11
14	1.04	2.08	1.05	2.10
15	1.01	2.01		

Table 6.14 Factor Analysis Results for Algebra, May Target

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	7.08	14.17	6.48	12.96
2	1.71	3.41	2.30	4.60
3	1.66	3.31	1.81	3.62
4	1.49	2.98	1.54	3.08
5	1.43	2.86	1.47	2.95
6	1.38	2.77	1.45	2.90
7	1.34	2.68	1.40	2.80
8	1.32	2.65	1.35	2.70
9	1.26	2.52	1.31	2.63
10	1.25	2.49	1.29	2.58
11	1.21	2.42	1.26	2.52
12	1.17	2.34	1.22	2.44
13	1.11	2.22	1.18	2.36
14	1.10	2.20	1.12	2.24
15	1.07	2.14	1.11	2.22
16	1.04	2.08	1.09	2.18
17	1.01	2.02	1.08	2.16
18			1.07	2.14
19			1.01	2.03

Table 6.15 Factor Analysis Results for Biology, May Linking

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	12.28	24.57	12.04	24.07
2	1.54	3.08	1.77	3.53
3	1.50	2.99	1.56	3.12
4	1.42	2.84	1.52	3.05
5	1.39	2.78	1.32	2.63
6	1.35	2.71	1.29	2.58
7	1.29	2.58	1.21	2.42
8	1.26	2.51	1.19	2.38
9	1.18	2.36	1.17	2.34
10	1.13	2.27	1.12	2.24
11	1.10	2.20	1.11	2.23
12	1.08	2.16	1.08	2.16
13	1.07	2.14	1.06	2.13
14	1.04	2.09	1.03	2.05
15	1.00	2.00	1.01	2.02

Table 6.16 Factor Analysis Results for Biology, May Target

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	5.55	11.11	6.23	12.45
2	1.81	3.61	1.79	3.58
3	1.63	3.27	1.69	3.38
4	1.59	3.17	1.53	3.05
5	1.50	2.99	1.48	2.96
6	1.49	2.97	1.45	2.90
7	1.43	2.87	1.42	2.84
8	1.40	2.79	1.36	2.72
9	1.36	2.73	1.33	2.66
10	1.33	2.65	1.29	2.59
11	1.27	2.54	1.26	2.52
12	1.24	2.49	1.24	2.47
13	1.22	2.43	1.22	2.44
14	1.19	2.39	1.20	2.40
15	1.17	2.34	1.14	2.28
16	1.14	2.29	1.13	2.26
17	1.13	2.26	1.11	2.22
18	1.11	2.22	1.10	2.19
19	1.08	2.15	1.05	2.10
20	1.04	2.08		
21	1.01	2.02		

Table 6.17 Factor Analysis Results for English, May Linking

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	12.90	25.79	12.62	25.23
2	1.90	3.81	2.01	4.01
3	1.83	3.65	1.76	3.52
4	1.57	3.14	1.68	3.36
5	1.52	3.04	1.57	3.14
6	1.47	2.95	1.43	2.87
7	1.39	2.77	1.32	2.64
8	1.25	2.51	1.27	2.54
9	1.22	2.44	1.24	2.48
10	1.19	2.38	1.22	2.44
11	1.18	2.36	1.18	2.36
12	1.17	2.33	1.14	2.28
13	1.06	2.12	1.10	2.19
14	1.01	2.03	1.07	2.14
15			1.04	2.07

Table 6.18 Factor Analysis Results for English, May Target

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	5.67	11.35	6.69	13.37
2	1.81	3.61	1.84	3.68
3	1.66	3.33	1.78	3.56
4	1.56	3.11	1.65	3.31
5	1.49	2.98	1.44	2.88
6	1.47	2.94	1.42	2.84
7	1.38	2.75	1.39	2.78
8	1.31	2.62	1.30	2.61
9	1.27	2.53	1.28	2.57
10	1.25	2.49	1.26	2.52
11	1.22	2.44	1.24	2.49
12	1.21	2.41	1.20	2.40
13	1.18	2.36	1.18	2.35
14	1.17	2.34	1.15	2.30
15	1.15	2.30	1.09	2.19
16	1.09	2.18	1.08	2.16
17	1.06	2.11	1.04	2.08
18	1.03	2.06	1.01	2.03
19	1.01	2.02	1.01	2.01

Table 6.19 Factor Analysis Results for Government, May Linking

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	14.74	29.47	15.61	31.22
2	1.93	3.86	1.74	3.48
3	1.66	3.31	1.60	3.20
4	1.45	2.89	1.51	3.02
5	1.41	2.81	1.40	2.79
6	1.34	2.69	1.30	2.60
7	1.29	2.58	1.25	2.50
8	1.25	2.49	1.20	2.39
9	1.18	2.36	1.15	2.31
10	1.11	2.22	1.12	2.23
11	1.08	2.16	1.09	2.17
12	1.06	2.12	1.05	2.10
13	1.01	2.02	1.01	2.02

Table 6.20 Factor Analysis Results for Government, May Target

Factor	Form 108		Form 208	
	Eigenvalue	%Var	Eigenvalue	%Var
1	6.50	12.99	6.58	13.16
2	1.86	3.71	1.90	3.81
3	1.55	3.10	1.77	3.55
4	1.51	3.02	1.66	3.31
5	1.42	2.84	1.52	3.04
6	1.38	2.77	1.41	2.83
7	1.37	2.73	1.39	2.78
8	1.33	2.67	1.33	2.67
9	1.30	2.60	1.32	2.63
10	1.25	2.50	1.27	2.54
11	1.22	2.44	1.26	2.52
12	1.20	2.39	1.21	2.42
13	1.16	2.31	1.16	2.32
14	1.14	2.29	1.14	2.28
15	1.09	2.19	1.10	2.21
16	1.08	2.17	1.07	2.15
17	1.06	2.12	1.04	2.08
18	1.04	2.07	1.02	2.05
19	1.02	2.05	1.02	2.05

Table 6.21 Distributions of P-Values: May Operational Items – Linking

P-Value	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$P < 0.10$	0	0.00	0	0.00	0	0.00	0	0.00
$0.10 \leq P < 0.20$	0	0.00	0	0.00	0	0.00	0	0.00
$0.20 \leq P < 0.30$	1	1.00	1	1.02	0	0.00	0	0.00
$0.30 \leq P < 0.40$	1	1.00	1	1.02	1	1.03	0	0.00
$0.40 \leq P < 0.50$	4	4.00	6	6.12	3	3.09	2	2.00
$0.50 \leq P < 0.60$	12	12.00	13	13.27	9	9.28	10	10.00
$0.60 \leq P < 0.70$	22	22.00	20	20.41	16	16.49	17	17.00
$0.70 \leq P < 0.80$	28	28.00	27	27.55	26	26.80	33	33.00
$0.80 \leq P < 0.90$	26	26.00	24	24.49	34	35.05	29	29.00
$P \geq 0.90$	6	6.00	6	6.12	8	8.25	9	9.00
Descriptive Statistics								
N Items*	100		98		97		100	
Mean	0.72		0.71		0.74		0.75	
SD	0.14		0.14		0.13		0.11	
Min	0.29		0.23		0.31		0.48	
Max	0.96		0.93		0.93		0.94	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 6.22 Distributions of P-Values: May Operational Items – Target

P-Value	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$P < 0.10$	0	0.00	0	0.00	0	0.00	0	0.00
$0.10 \leq P < 0.20$	0	0.00	1	1.02	1	1.03	0	0.00
$0.20 \leq P < 0.30$	7	7.00	7	7.14	1	1.03	4	4.00
$0.30 \leq P < 0.40$	21	21.00	20	20.41	19	19.59	21	21.00
$0.40 \leq P < 0.50$	32	32.00	27	27.55	27	27.84	36	36.00
$0.50 \leq P < 0.60$	22	22.00	22	22.45	24	24.74	23	23.00
$0.60 \leq P < 0.70$	13	13.00	17	17.35	21	21.65	13	13.00
$0.70 \leq P < 0.80$	5	5.00	4	4.08	4	4.12	3	3.00
$0.80 \leq P < 0.90$	0	0.00	0	0.00	0	0.00	0	0.00
$P \geq 0.90$	0	0.00	0	0.00	0	0.00	0	0.00
Descriptive Statistics								
N Items*	100		98		97		100	
Mean	0.47		0.48		0.50		0.48	
SD	0.13		0.13		0.12		0.11	
Min	0.23		0.16		0.18		0.23	
Max	0.79		0.79		0.76		0.79	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 6.23 Distributions of Point-Biserial Correlations: May Operational Items – Linking

May 2008	Number and Percentage of Items							
Correlation	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$R < 0.10$	0	0.00	1	1.02	0	0.00	0	0.00
$0.10 \leq R < 0.20$	4	4.00	5	5.10	0	0.00	1	1.00
$0.20 \leq R < 0.30$	16	16.00	17	17.35	23	23.71	6	6.00
$0.30 \leq R < 0.40$	40	40.00	34	34.69	43	44.33	29	29.00
$0.40 \leq R < 0.50$	35	35.00	36	36.73	28	28.87	52	52.00
$0.50 \leq R < 0.60$	4	4.00	5	5.1	3	3.09	12	12.00
$0.60 \leq R < 0.70$	1	1.00	0	0.00	0	0.00	0	0.00
$R \geq 0.70$	0	0.00	0	0.00	0	0.00	0	0.00
Descriptive Statistics								
N Items*	100		98		97		100	
Mean	0.37		0.37		0.37		0.41	
SD	0.09		0.09		0.08		0.08	
Min	0.18		0.09		0.23		0.13	
Max	0.61		0.54		0.53		0.56	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 6.24 Distributions of Point-Biserial Correlations: May Operational Items – Target

May 2008	Number and Percentage of Items							
Correlation	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$R < 0.10$	1	1.00	6	6.12	3	3.09	2	2.00
$0.10 \leq R < 0.20$	15	15.00	17	17.35	15	15.46	12	12.00
$0.20 \leq R < 0.30$	37	37.00	36	36.73	41	42.27	40	40.00
$0.30 \leq R < 0.40$	37	37.00	33	33.67	32	32.99	41	41.00
$0.40 \leq R < 0.50$	10	10.00	6	6.12	6	6.19	4	4.00
$0.50 \leq R < 0.60$	0	0.00	0	0.00	0	0.00	1	1.00
$0.60 \leq R < 0.70$	0	0.00	0	0.00	0	0.00	0	0.00
$R \geq 0.70$	0	0.00	0	0.00	0	0.00	0	0.00
Descriptive Statistics								
N Items*	100		98		97		100	
Mean	0.29		0.26		0.27		0.29	
SD	0.09		0.10		0.09		0.09	
Min	0.06		-0.03		-0.04		0.05	
Max	0.48		0.48		0.45		0.50	

* N Items includes the number of unique items; some Biology and English items appear on both Forms 108 and 208.

Table 6.25 Summary Statistics of Tetrachoric Correlations by Sample, Content, and Form

Sample	Content	Form	Mean	Std Dev	Minimum	Maximum
Linking	Algebra	108	0.206	0.101	-0.120	0.747
		208	0.220	0.102	-0.077	0.581
	Biology	108	0.211	0.106	-0.076	0.524
		208	0.203	0.111	-0.072	0.533
	English	108	0.233	0.094	-0.042	0.627
		208	0.223	0.103	-0.060	0.638
	Government	108	0.266	0.107	-0.072	0.703
		208	0.286	0.104	0.020	0.633
Target	Algebra	108	0.104	0.083	-0.236	0.395
		208	0.099	0.079	-0.114	0.424
	Biology	108	0.071	0.082	-0.196	0.338
		208	0.081	0.088	-0.259	0.402
	English	108	0.081	0.071	-0.180	0.337
		208	0.102	0.077	-0.094	0.346
	Government	108	0.097	0.075	-0.088	0.506
		208	0.097	0.083	-0.145	0.338

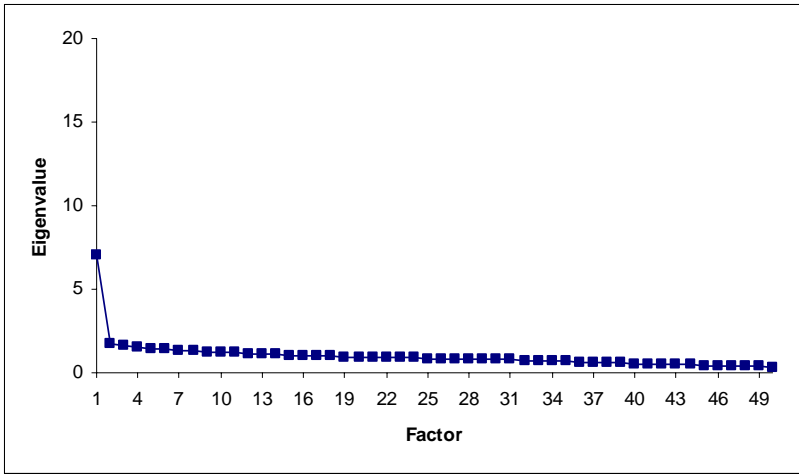


Figure 6.1 Scree Plot: Algebra - Target Population - Form 108

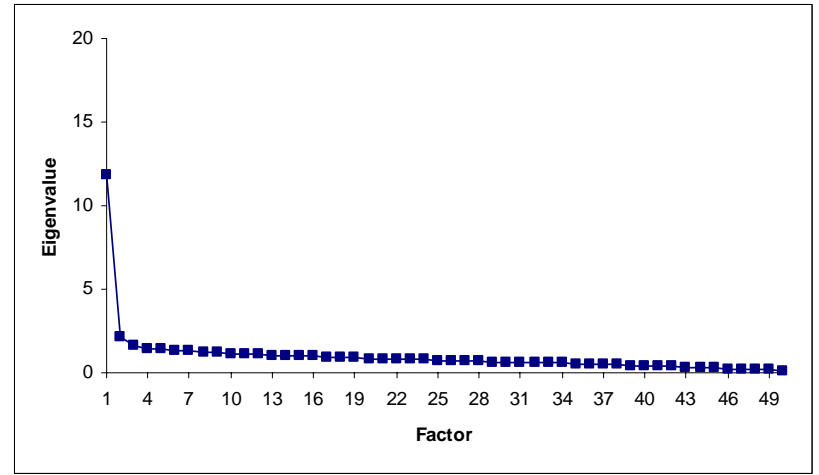


Figure 6.3 Scree Plot: Algebra - Linking Sample - Form 108

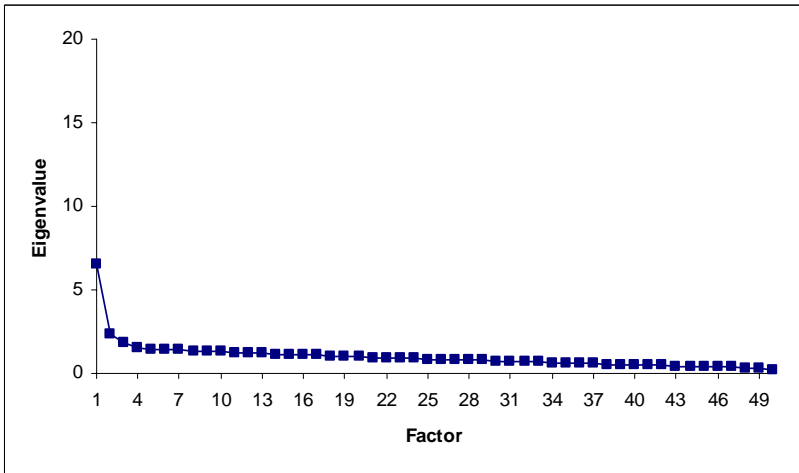


Figure 6.2 Scree Plot: Algebra - Target Population - Form 208

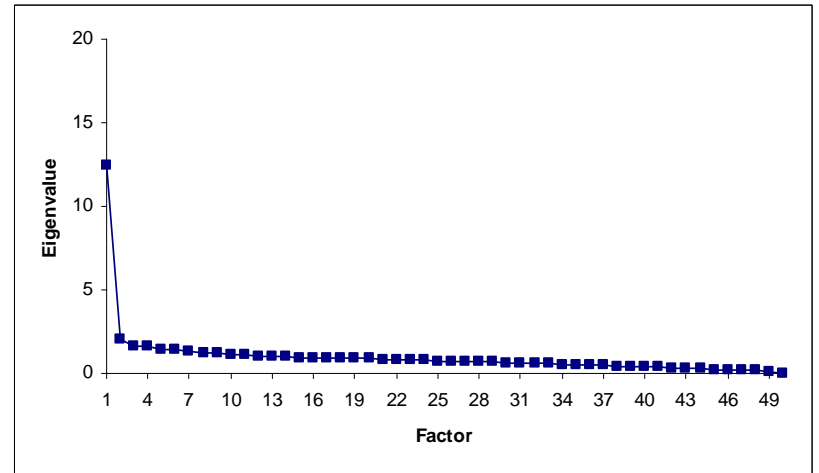


Figure 6.4 Scree Plot: Algebra - Linking Sample - Form 208

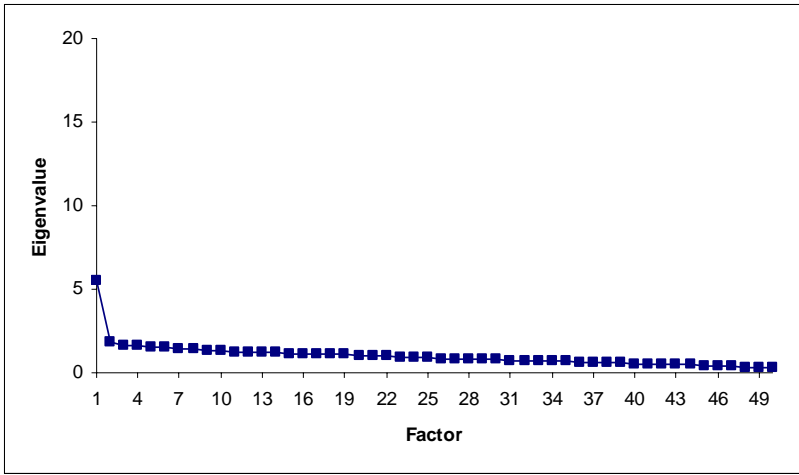


Figure 6.5 Scree Plot: Biology – Target Population - Form 108

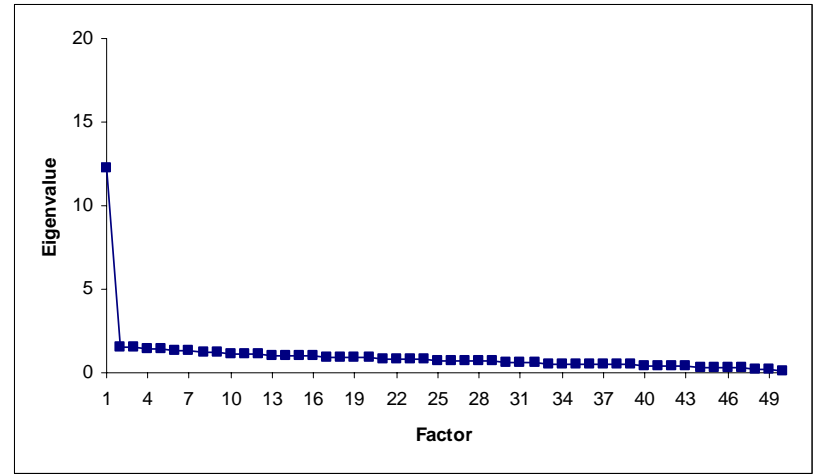


Figure 6.7 Scree Plot: Biology – Linking Sample - Form 108

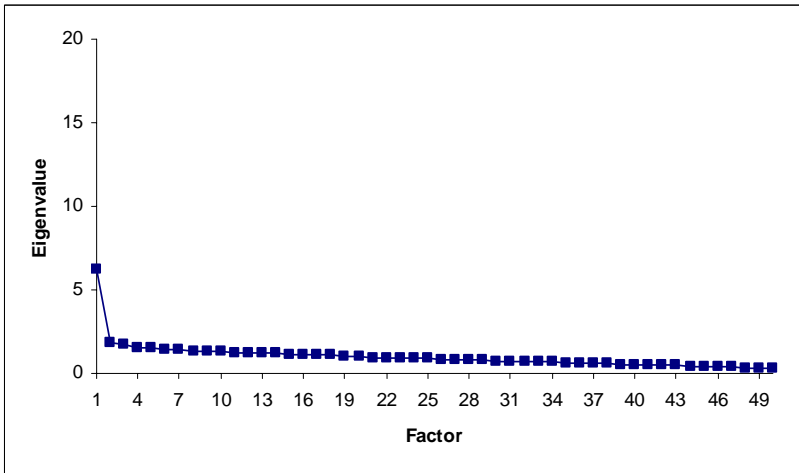


Figure 6.6 Scree Plot: Biology – Target Population - Form 208

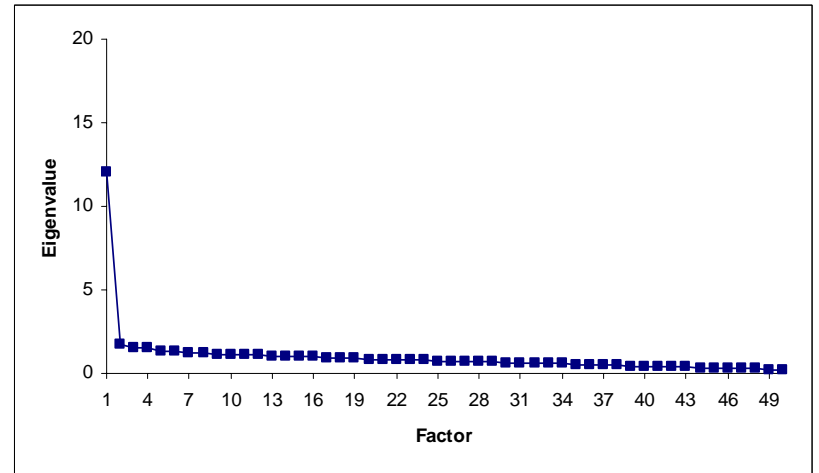


Figure 6.8 Scree Plot: Biology – Linking Sample - Form 208

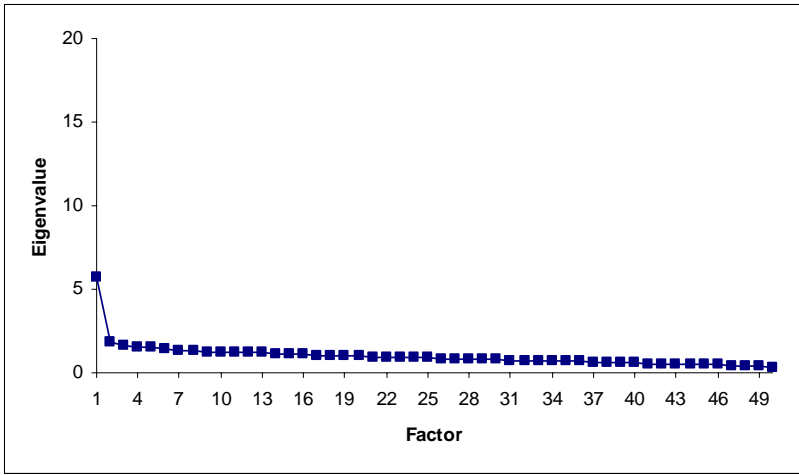


Figure 6.9 Scree Plot: English - Target Population - Form 108

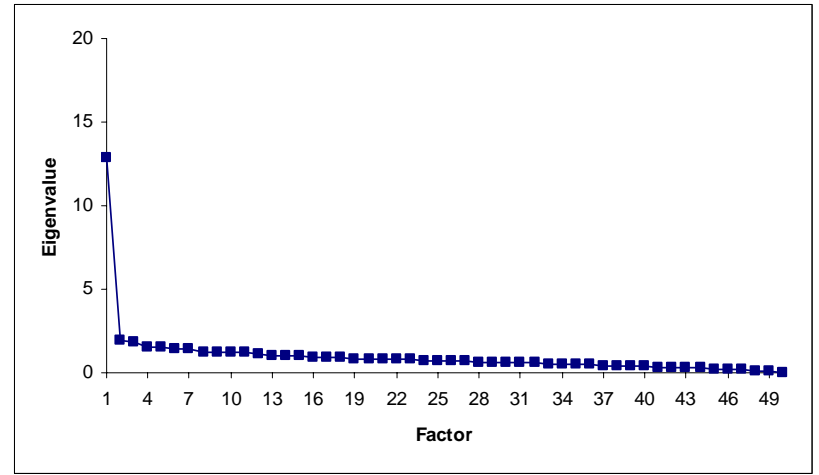


Figure 6.11 Scree Plot: English - Linking Sample - Form 108

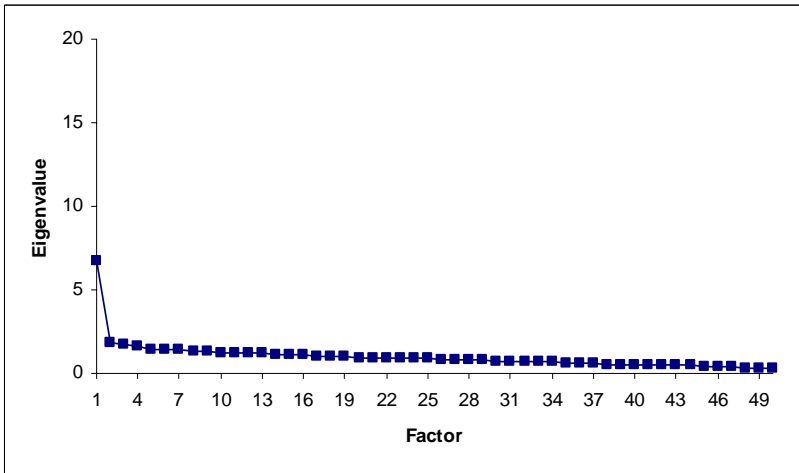


Figure 6.10 Scree Plot: English - Target Population - Form 208

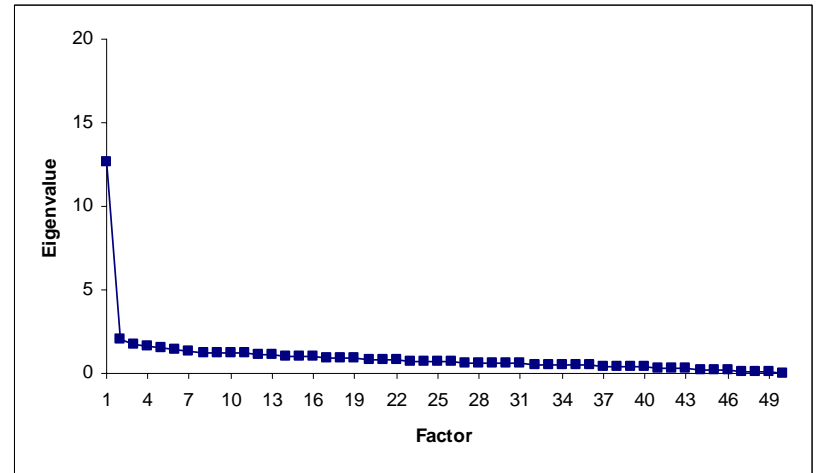


Figure 6.12 Scree Plot: English - Linking Sample - Form 208

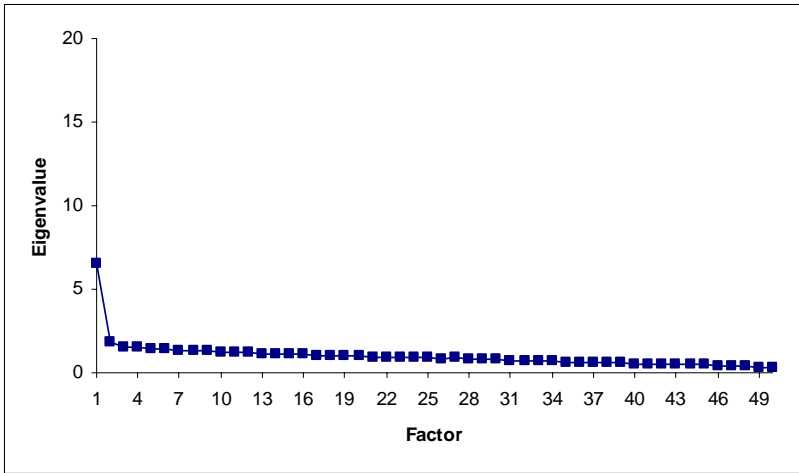


Figure 6.13 Scree Plot: Government - Target Population – Form 108

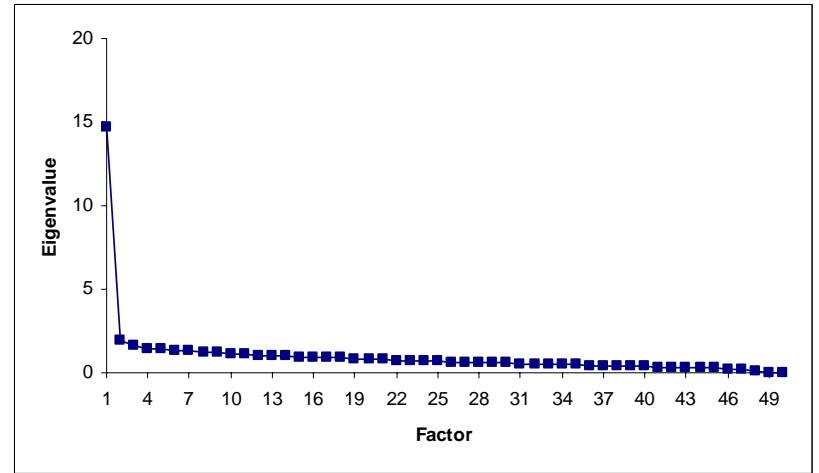


Figure 6.15 Scree Plot: Government – Linking Sample – Form 108

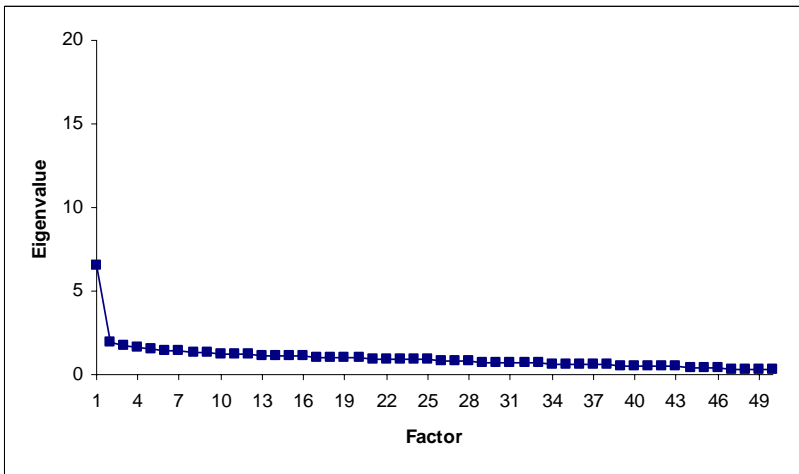


Figure 6.14 Scree Plot: Government - Target Population – Form 208

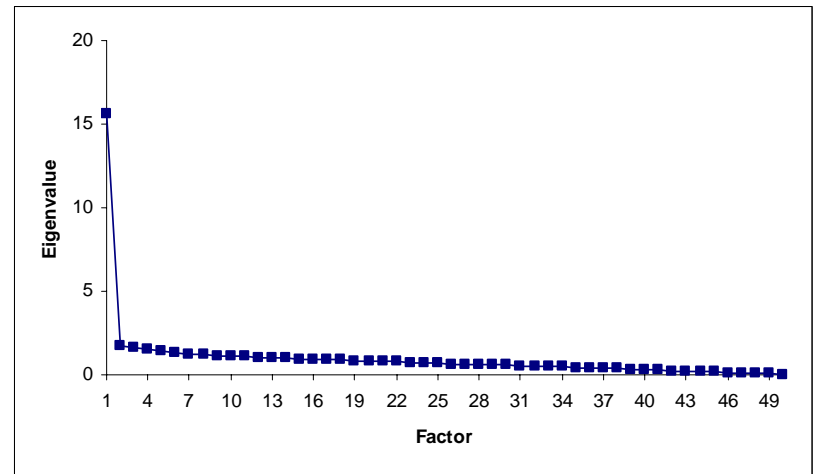


Figure 6.16 Scree Plot: Government – Linking Sample – Form 208

Section 7. Student Characteristics

Student characteristics include demographic distributions and summary statistics. The results are provided for both the Target population and the Linking sample for each content area for the May administration⁹ and for the Target population for the Summer administration.

Demographic Distributions

The demographic characteristics of all students that took the Mod-HSAs during the May administration are provided in Tables 7.1, 7.3, 7.5 and 7.7 for Algebra, Biology, English, and Government, respectively. The demographic characteristics of the students taking the Mod-HSAs during the Summer administration are provided in Tables 7.2, 7.4, 7.6 and 7.8 for Algebra, Biology, English, and Government, respectively. As a comparison, the results from the corresponding administrations of the HSAs are also provided. For both administrations, information is provided by form (i.e., 108, 208, both forms combined; 308, 408, both forms combined) and by gender and ethnicity. The results from online and paper test-takers were analyzed together.

The number of students taking the Mod-HSAs during the May administration ranged from 2,012 for the Biology test to 2,720 for the Algebra test for the Target population; the sample sizes ranged from 1,947 for the English test to 3,144 for the Biology test for the Linking sample. Similar numbers of students took each form, within each group and content area.

For the Target population, about 66 percent of the students were male. The ethnicity breakdown included approximately 62 percent African American, 28 percent White, 8 percent Hispanic, 1 percent Asian/Pacific Islander and less than 1 percent American Indian. The gender and ethnicity percentages were consistent across content area.

For the Linking sample, the male to female ratio was approximately equal. The ethnicity breakdown included approximately 60 percent White, 30 percent were African American, and the remaining 10 percent coming from the Hispanic and Asian/Pacific Islander groups. The gender and ethnicity percentages were comparable across content areas.

The number of students taking the Mod-HSAs during the Summer administration ranged from 65 for the Government test to 98 for the Algebra test. Approximately 69 percent of the students were male, with ethnicity percentages similar to the May Target populations.

⁹ In this section, results for the May Target populations are presented before the Linking samples because the Mod-HSA was designed for the Target populations.

Table 7.1 Demographic Information for Algebra: May

		HSA May08		Target Form 108		Target Form 208		Target Forms Combined		Linking Form 108		Linking Form 208		Linking Forms Combined	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall		75,843	100.00	1,597	100.00	1,123	100.00	2,720	100.00	1,206	100.00	1,307	100.00	2,513	100.00
Gender															
	Male	37,956	50.05	1,021	63.93	735	65.45	1,756	64.56	611	50.66	649	49.66	1,260	50.14
	Female	37,882	49.95	576	36.07	388	34.55	964	35.44	595	49.34	658	50.34	1,253	49.86
	Missing	5	0.01	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Ethnicity															
	American Indian	292	0.39	3	0.19	2	0.18	5	0.18	3	0.25	1	0.08	4	0.16
	Asian/Pacific Islander	4,189	5.52	18	1.13	18	1.60	36	1.32	55	4.56	44	3.37	99	3.94
	African American	31,912	42.08	1,010	63.24	679	60.46	1,689	62.10	403	33.42	393	30.07	796	31.68
	White	33,061	43.59	443	27.74	322	28.67	765	28.13	683	56.63	818	62.59	1,501	59.73
	Hispanic	6,381	8.41	122	7.64	102	9.08	224	8.24	62	5.14	51	3.90	113	4.50
	Missing	8	0.01	1	0.06	0	0.00	1	0.04	0	0.00	0	0.00	0	0.00

Table 7.2 Demographic Information for Algebra: Summer

		HSA Summer08		Form 308		Form 408		Forms Combined	
		N	%	N	%	N	%	N	%
Overall		1,586	100.00	95	100.00	3	100.00	98	100.00
Gender									
	Male	887	55.93	65	68.42	1	33.33	66	67.35
	Female	697	43.95	30	31.58	2	66.67	32	32.65
	Missing	2	0.13	0	0.00	0	0.00	0	0.00
Ethnicity									
	American Indian	11	0.69	0	0.00	0	0.00	0	0.00
	Asian/Pacific Islander	62	3.91	1	1.05	0	0.00	1	1.02
	African American	1,045	65.89	62	65.26	2	66.67	64	65.31
	White	326	20.55	28	29.47	1	33.33	29	29.59
	Hispanic	139	8.76	4	4.21	0	0.00	4	4.08
	Missing	3	0.19	0	0.00	0	0.00	0	0.00

Table 7.3 Demographic Information for Biology: May

	HSA May08		Target Form 108		Target Form 208		Target Forms Combined		Linking Form 108		Linking Form 208		Linking Forms Combined	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall	60,686	100.00	1,058	100.00	954	100.00	2,012	100.00	1,519	100.00	1,625	100.00	3,144	100.00
Gender														
Male	29,927	49.31	703	66.45	615	64.47	1,318	65.51	782	51.48	798	49.11	1,580	50.25
Female	30,759	50.69	355	33.55	339	35.53	694	34.49	737	48.52	827	50.89	1,564	49.75
Missing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Ethnicity														
American Indian	218	0.36	3	0.28	2	0.21	5	0.25	2	0.13	7	0.43	9	0.29
Asian/Pacific Islander	3,587	5.91	17	1.61	12	1.26	29	1.44	39	2.57	36	2.22	75	2.39
African American	24,465	40.31	624	58.98	609	63.84	1,233	61.28	464	30.55	489	30.09	953	30.31
White	27,964	46.08	341	32.23	243	25.47	584	29.03	944	62.15	1,026	63.14	1,970	62.66
Hispanic	4,452	7.34	73	6.90	88	9.22	161	8.00	70	4.61	67	4.12	137	4.36
Missing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00

Table 7.4 Demographic Information for Biology: Summer

	HSA Summer08		Form 308		Form 408		Forms Combined	
	N	%	N	%	N	%	N	%
Overall	882	100.00	67	100.00	2	100.00	69	100.00
Gender								
Male	481	54.54	48	71.64	1	50.00	49	71.01
Female	400	45.35	19	28.36	1	50.00	20	28.99
Missing	1	0.11	0	0.00	0	0.00	0	0.00
Ethnicity								
American Indian	4	0.45	0	0.00	0	0.00	0	0.00
Asian/Pacific Islander	20	2.27	0	0.00	0	0.00	0	0.00
African American	567	64.29	41	61.19	1	50.00	42	60.87
White	186	21.09	24	35.82	1	50.00	25	36.23
Hispanic	104	11.79	2	2.99	0	0.00	2	2.90
Missing	1	0.11	0	0.00	0	0.00	0	0.00

Table 7.5 Demographic Information for English: May

		HSA May08		Target Form 108		Target Form 208		Target Forms Combined		Linking Form 108		Linking Form 208		Linking Forms Combined	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall		63,474	100.00	1,446	100.00	1,086	100.00	2,532	100.00	927	100.00	1,020	100.00	1,947	100.00
Gender															
	Male	31,864	50.20	958	66.25	714	65.75	1,672	66.03	484	52.21	506	49.61	990	50.85
	Female	31,604	49.79	488	33.75	372	34.25	860	33.97	443	47.79	514	50.39	957	49.15
	Missing	6	0.01	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Ethnicity															
	American Indian	212	0.33	7	0.48	2	0.18	9	0.36	4	0.43	1	0.10	5	0.26
	Asian/Pacific Islander	3,605	5.68	18	1.24	17	1.57	35	1.38	44	4.75	46	4.51	90	4.62
	African American	26,033	41.01	869	60.10	667	61.42	1,536	60.66	303	32.69	306	30.00	609	31.28
	White	29,000	45.69	442	30.57	297	27.35	739	29.19	542	58.47	639	62.65	1,181	60.66
	Hispanic	4,618	7.28	110	7.61	103	9.48	213	8.41	34	3.67	28	2.75	62	3.18
	Missing	6	0.01	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00

Table 7.6 Demographic Information for English: Summer

		HSA Summer08		Form 308		Form 408		Forms Combined	
		N	%	N	%	N	%	N	%
Overall		1,398	100.00	77	100.00	2	100.00	79	100.00
Gender									
	Male	772	55.22	53	68.83	1	50.00	54	68.35
	Female	625	44.71	24	31.17	1	50.00	25	31.65
	Missing	1	0.07	0	0.00	0	0.00	0	0.00
Ethnicity									
	American Indian	9	0.64	0	0.00	0	0.00	0	0.00
	Asian/Pacific Islander	36	2.58	0	0.00	0	0.00	0	0.00
	African American	907	64.88	52	67.53	2	100.00	54	68.35
	White	302	21.60	24	31.17	0	0.00	24	30.38
	Hispanic	143	10.23	1	1.30	0	0.00	1	1.27
	Missing	1	0.07	0	0.00	0	0.00	0	0.00

Table 7.7 Demographic Information for Government: May

		HSA May08		Target Form 108		Target Form 208		Target Forms Combined		Linking Form 108		Linking Form 208		Linking Forms Combined	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall		64,376	100.00	1,279	100.00	991	100.00	2,270	100.00	1,136	100.00	1,113	100.00	2,249	100.00
Gender															
	Male	31,980	49.68	826	64.58	644	64.98	1,470	64.76	534	47.01	550	49.42	1,084	48.20
	Female	32,388	50.31	453	35.42	347	35.02	800	35.24	602	52.99	563	50.58	1,165	51.80
	Missing	8	0.01	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Ethnicity															
	American Indian	244	0.38	6	0.47	1	0.10	7	0.31	2	0.18	3	0.27	5	0.22
	Asian/Pacific Islander	3,686	5.73	13	1.02	14	1.41	27	1.19	59	5.19	56	5.03	115	5.11
	African American	27,000	41.94	799	62.47	612	61.76	1,411	62.16	334	29.40	311	27.94	645	28.68
	White	28,778	44.70	378	29.55	257	25.93	635	27.97	671	59.07	674	60.56	1,345	59.80
	Hispanic	4,660	7.24	81	6.33	107	10.80	188	8.28	70	6.16	69	6.20	139	6.18
	Missing	8	0.01	2	0.16	0	0.00	2	0.09	0	0.00	0	0.00	0	0.00

Table 7.8 Demographic Information for Government: Summer

		HSA Summer08		Form 308		Form 408		Forms Combined	
		N	%	N	%	N	%	N	%
Overall		977	100.00	64	100.00	1	100.00	65	100.00
Gender									
	Male	574	58.75	44	68.75	0	0.00	44	67.69
	Female	403	41.25	20	31.25	1	100.00	21	32.31
	Missing	0	0.00	0	0.00	0	0.00	0	0.00
Ethnicity									
	American Indian	12	1.23	0	0.00	0	0.00	0	0.00
	Asian/Pacific Islander	26	2.66	2	3.13	0	0.00	2	3.08
	African American	660	67.55	39	60.94	1	100.00	40	61.54
	White	219	22.42	22	34.38	0	0.00	22	33.85
	Hispanic	59	6.04	1	1.56	0	0.00	1	1.54
	Missing	1	0.10	0	0.00	0	0.00	0	0.00

Summary Statistics

Students' scale score means and standard deviations are presented in Table 7.9 for each content area and student group from the May administration and for each content area from the Summer administration.

Table 7.9 Mean Scale Scores by Content and Group

	May - Target Population			May - Linking Sample			Summer		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Algebra	2,720	359.88	49.54	2,513	420.32	36.69	98	367.34	45.90
Biology	2,012	359.93	48.30	3,144	419.56	39.62	69	365.94	44.07
English	2,532	353.34	42.49	1,947	407.72	39.67	79	350.00	42.76
Government	2,270	357.00	49.58	2,249	423.97	49.75	65	365.49	47.94

Table 7.10 presents the percentages of students classified as Passing for the Target population and the Linking sample from the May administration and for the Target population from the Summer administration. Students are identified as passing if they obtain a scale score at or above the Proficient cut-score (see Table 5.1). As would be expected, the passing rates for the Linking samples were much higher than those for the Target population.

Table 7.10 Passing Percentages by Content and Group

	May Target Population	May Linking Sample	Summer
Algebra	9.85	65.70	7.14
Biology	15.95	74.87	18.84
English	10.47	67.39	7.59
Government	19.82	81.15	20.00

Results from the Algebra, Biology, and English tests are used in the MSDE AYP reports as required under the NCLB Act for the 2007-2008 school year. Table 7.11 shows the percentages of Algebra, Biology, and English students classified as Basic, Proficient, or Advanced. As shown in the table, for the May administration between 84 and 90 percent of the students in the Target population were classified as Basic across content areas. In contrast, between 25 and 34 percent of students in the Linking samples were classified as Basic across the content areas. For the Summer administration, between 81 and 93 percent of students were classified as Basic across content areas.

Table 7.11 Percentages of Students Classified as Basic, Proficient or Advanced, by Content and Group

	May - Target Population			May - Linking Sample		
	Algebra	Biology	English	Algebra	Biology	English
Basic	90.15	84.05	89.53	34.30	25.13	32.61
Proficient	9.52	15.85	10.27	49.86	57.82	43.25
Advanced	0.33	0.10	0.20	15.84	17.05	24.14
	Summer					
	Algebra	Biology	English			
Basic	92.86	81.16	92.41			
Proficient	6.12	18.84	7.59			
Advanced	1.02	0.00	0.00			

Summary statistics for all students and for subgroups based on gender and ethnicity are presented by group and content area in Tables 7.12 through 7.23. For each administration, information is provided for each form individually and the two forms combined. As noted previously, results from the paper and online versions of Form 108 of the May administration of the Mod-HSAs were pooled for the Target population. As a comparison, the results from the May 2008 administration of the HSAs are also provided.

The tables include the number of students tested for whom valid scores were available, mean scale scores, standard deviations of scale scores, and reliabilities. Note that the overall reliabilities were lower for the Target population (range of 0.71 to 0.79) than for the Linking samples (range of 0.86 to 0.89). Histograms of the scale score distributions are presented in Appendix D. The distributions for the Target population were negatively skewed due to the sizeable numbers of students with scores at the LOSS.

The tables show that within each group of test-takers the means and standard deviations of students' scores were quite similar across forms for the May administration. Students in the Linking sample performed better than students in the Target population for all content areas, as would be expected. For the Summer administration, the majority of students took Form 308.

As can be seen in Tables 7.12, 7.15, 7.18 and 7.21, a consistent trend was found across ethnic groups and content areas for the Target students in the May administration. White students scored higher than Hispanic students, who in turn scored higher than African American students. There were insufficient numbers of examinees to report mean scale scores for Asian/Pacific Islander and American Indian students. For the Linking students, Asian/Pacific Islander and White students tended to perform better than African American and Hispanic students across content areas (Tables 7.13, 7.16, 7.19 and 7.22). There were insufficient numbers of examinees to report mean scale scores for American Indian students.

Table 7.12 Summary Statistics for Algebra: May, Target

	HSA May08				Target Form 108					Target Form 208					Target Combined				
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%	
Overall	426.60	37.44	75,843	100.00	358.46	51.51	1,597	100.00	0.79	361.91	46.56	1,123	100.00	0.77	359.88	49.54	2,720	100.00	
Gender																			
Male	425.82	40.00	37,956	50.05	360.36	52.30	1,021	63.93	0.81	359.93	49.17	735	65.45	0.77	360.18	51.00	1,756	64.56	
Female	427.39	34.64	37,882	49.95	355.09	49.93	576	36.07	0.74	365.65	40.96	388	34.55	0.78	359.34	46.79	964	35.44	
Missing	*	*	5	0.01	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00	
Ethnicity																			
American Indian	421.91	37.88	292	0.39	*	*	3	0.19	*	*	*	2	0.18	*	*	*	5	0.18	
Asian/Pacific Islander	451.05	33.45	4,189	5.52	*	*	18	1.13	*	*	*	18	1.60	*	*	*	36	1.32	
African American	410.07	35.45	31,912	42.08	350.30	52.58	1,010	63.24	0.77	353.89	48.11	679	60.46	0.75	351.75	50.84	1,689	62.10	
White	441.04	32.61	33,061	43.59	373.61	44.57	443	27.74	0.78	377.09	39.50	322	28.67	0.78	375.07	42.52	765	28.13	
Hispanic	418.70	33.96	6,381	8.41	371.05	53.49	122	7.64	0.84	365.51	43.82	102	9.08	0.77	368.53	49.29	224	8.24	
Missing	*	*	8	0.01	*	*	1	0.06	*	*	*	0	0.00	*	*	*	1	0.04	

* Statistics not reported for sample size less than 50

Table 7.13 Summary Statistics for Algebra: May, Linking

	Linking Form 108					Linking Form 208					Linking Combined			
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	421.88	38.18	1,206	100.00	0.87	418.88	35.22	1,307	100.00	0.86	420.32	36.69	2,513	100.00
Gender														
Male	421.85	41.17	611	50.66	0.89	417.04	37.18	649	49.66	0.88	419.37	39.23	1,260	50.14
Female	421.92	34.89	595	49.34	0.87	420.69	33.09	658	50.34	0.87	421.27	33.95	1,253	49.86
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity														
American Indian	*	*	3	0.25	*	*	*	1	0.08	*	*	*	4	0.16
Asian/Pacific Islander	439.65	43.24	55	4.56	0.88	*	*	44	3.37	*	439.46	36.47	99	3.94
African American	407.66	37.73	403	33.42	0.87	404.63	39.86	393	30.07	0.88	406.16	38.80	796	31.68
White	429.04	34.46	683	56.63	0.85	424.39	30.41	818	62.59	0.85	426.51	32.39	1,501	59.73
Hispanic	421.50	46.89	62	5.14	0.90	422.55	41.99	51	3.90	0.90	421.97	44.55	113	4.50
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.14 Summary Statistics for Algebra: Summer, Target

	HSA Summer08				Target Form 308					Target Form 408					Target Combined			
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	395.55	38.17	1,586	100.00	367.04	46.58	95	100.00	0.80	*	*	3	100.00	*	367.34	45.90	98	100.00
Gender																		
Male	393.02	42.32	887	55.93	359.92	48.56	65	68.42	0.79	*	*	1	33.33	*	360.05	48.19	66	67.35
Female	398.72	31.93	697	43.95	*	*	30	31.58	*	*	*	2	66.67	*	*	*	32	32.65
Missing	*	*	2	0.13	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity																		
American Indian	*	*	11	0.69	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Asian/Pacific Islander	429.92	42.27	62	3.91	*	*	1	1.05	*	*	*	0	0.00	*	*	*	1	1.02
African American	391.34	36.55	1,045	65.89	367.44	49.09	62	65.26	0.85	*	*	2	66.67	*	367.86	48.38	64	65.31
White	404.08	39.40	326	20.55	*	*	28	29.47	*	*	*	1	33.33	*	*	*	29	29.59
Hispanic	392.61	35.62	139	8.76	*	*	4	4.21	*	*	*	0	0.00	*	*	*	4	4.08
Missing	*	*	3	0.19	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.15 Summary Statistics for Biology: May, Target

	HSA May08				Target Form 108					Target Form 208					Target Combined			
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	418.82	35.28	60,686	100.00	358.22	49.41	1,058	100.00	0.71	361.84	46.99	954	100.00	0.73	359.93	48.30	2,012	100
Gender																		
Male	418.06	36.79	29,927	49.31	358.04	50.86	703	66.45	0.73	362.19	48.39	615	64.47	0.76	359.98	49.75	1,318	65.51
Female	419.56	33.72	30,759	50.69	358.57	46.48	355	33.55	0.67	361.2	44.41	339	35.53	0.72	359.85	45.47	694	34.49
Missing	*	*	0	0.00	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity																		
American Indian	414.27	33.57	218	0.36	*	*	3	0.28	*	*	*	2	0.21	*	*	*	5	0.25
Asian/Pacific Islander	440.78	32.03	3,587	5.91	*	*	17	1.61	*	*	*	12	1.26	*	*	*	29	1.44
African American	401.93	32.82	24,465	40.31	348.69	51.71	624	58.98	0.69	355.58	48.26	609	63.84	0.72	352.09	50.13	1,233	61.28
White	432.00	31.08	27,964	46.08	372.36	41.69	341	32.23	0.71	378.47	41.09	243	25.47	0.76	374.9	41.52	584	29.03
Hispanic	411.36	31.46	4,452	7.34	369.25	44.08	73	6.9	0.73	361.28	42.84	88	9.22	0.62	364.89	43.45	161	8
Missing	*	*	0	0.00	*	*	0	0	*	*	*	0	0	*	*	*	0	0

* Statistics not reported for sample size less than 50

Table 7.16 Summary Statistics for Biology: May, Linking

	Linking Form 108					Linking Form 208					Linking Combined			
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	420.20	37.98	1,519	100.00	0.87	418.96	41.10	1,625	100.00	0.86	419.56	39.62	3,144	100.00
Gender														
Male	421.98	41.46	782	51.48	0.88	421.32	42.70	798	49.11	0.87	421.64	42.08	1,580	50.25
Female	418.31	33.83	737	48.52	0.85	416.68	39.39	827	50.89	0.87	417.45	36.87	1,564	49.75
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity														
American Indian	*	*	2	0.13	*	*	*	7	0.43	*	*	*	9	0.29
Asian/Pacific Islander	*	*	39	2.57	*	*	*	36	2.22	*	424.72	52.00	75	2.39
African American	399.69	37.81	464	30.55	0.83	397.48	40.98	489	30.09	0.84	398.56	39.46	953	30.31
White	430.92	33.83	944	62.15	0.85	429.98	35.64	1,026	63.14	0.84	430.43	34.78	1,970	62.66
Hispanic	409.27	35.87	70	4.61	0.84	403.52	37.57	67	4.12	0.85	406.46	36.69	137	4.36
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.17 Summary Statistics for Biology: Summer, Target

	HSA Summer08				Target Form 308					Target Form 408					Target Combined			
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	385.77	36.47	882	100.00	367.49	41.84	67	100.00	0.69	*	*	2	100.00	*	365.94	44.07	69	100.00
Gender																		
Male	382.63	39.86	481	54.54	*	*	48	71.64	*	*	*	1	50.00	*	*	*	49	71.01
Female	389.47	31.58	400	45.35	*	*	19	28.36	*	*	*	1	50.00	*	*	*	20	28.99
Missing	*	*	1	0.11	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity																		
American Indian	*	*	4	0.45	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Asian/Pacific Islander	*	*	20	2.27	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
African American	379.88	37.83	567	64.29	*	*	41	61.19	*	*	*	1	50.00	*	*	*	42	60.87
White	397.44	33.35	186	21.09	*	*	24	35.82	*	*	*	1	50.00	*	*	*	25	36.23
Hispanic	389.84	26.94	104	11.79	*	*	2	2.99	*	*	*	0	0.00	*	*	*	2	2.90
Missing	*	*	1	0.11	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.18 Summary Statistics for English: May, Target

	HSA May08				Target Form 108					Target Form 208					Target Combined			
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	408.23	34.81	63,474	100.00	350.31	44.61	1,446	100.00	0.74	357.38	39.14	1,086	100.00	0.78	353.34	42.49	2,532	100.00
Gender																		
Male	402.21	35.59	31,864	50.20	348.18	46.79	958	66.25	0.76	355.49	40.54	714	65.75	0.79	351.30	44.36	1,672	66.03
Female	414.31	32.88	31,604	49.79	354.50	39.70	488	33.75	0.70	361.01	36.07	372	34.25	0.78	357.31	38.29	860	33.97
Missing	*	*	6	0.01	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity																		
American Indian	405.82	31.38	212	0.33	*	*	7	0.48	*	*	*	2	0.18	*	*	*	9	0.36
Asian/Pacific Islander	426.08	36.55	3,605	5.68	*	*	18	1.24	*	*	*	17	1.57	*	*	*	35	1.38
African American	394.71	30.50	26,033	41.01	343.73	46.09	869	60.10	0.74	351.65	40.02	667	61.42	0.77	347.17	43.72	1,536	60.66
White	419.76	33.60	29,000	45.69	361.99	38.13	442	30.57	0.71	369.86	36.82	297	27.35	0.82	365.16	37.78	739	29.19
Hispanic	398.28	31.74	4,618	7.28	356.01	45.08	110	7.61	0.74	357.50	33.87	103	9.48	0.75	356.73	39.97	213	8.41
Missing	*	*	6	0.01	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.19 Summary Statistics for English: May, Linking

	Linking Form 108					Linking Form 208					Linking Combined			
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	406.53	39.84	927	100.00	0.87	408.81	39.50	1,020	100.00	0.86	407.72	39.67	1,947	100.00
Gender														
Male	400.85	43.16	484	52.21	0.89	401.70	36.84	506	49.61	0.88	401.29	40.04	990	50.85
Female	412.73	34.88	443	47.79	0.87	415.80	40.80	514	50.39	0.86	414.38	38.18	957	49.15
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity														
American Indian	*	*	4	0.43	*	*	*	1	0.10	*	*	*	5	0.26
Asian/Pacific Islander	*	*	44	4.75	*	*	*	46	4.51	*	420.90	51.94	90	4.62
African American	389.74	32.79	303	32.69	0.83	391.76	32.80	306	30.00	0.83	390.75	32.78	609	31.28
White	416.58	38.64	542	58.47	0.88	416.80	38.10	639	62.65	0.85	416.70	38.33	1,181	60.66
Hispanic	*	*	34	3.67	*	*	*	28	2.75	*	386.90	43.14	62	3.18
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.20 Summary Statistics for English: Summer, Target

	HSA Summer08				Target Form 308					Target Form 408					Target Combined			
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	376.84	34.37	1,398	100.00	349.84	43.29	77	100.00	0.70	*	*	2	100.00	*	350.00	42.76	79	100.00
Gender																		
Male	370.91	38.01	772	55.22	353.87	36.51	53	68.83	0.70	*	*	1	50.00	*	354.02	36.18	54	68.35
Female	384.24	27.53	625	44.71	*	*	24	31.17	*	*	*	1	50.00	*	*	*	25	31.65
Missing	*	*	1	0.07	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity																		
American Indian	*	*	9	0.64	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Asian/Pacific Islander	*	*	36	2.58	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
African American	374.00	33.99	907	64.88	352.21	44.70	52	67.53	0.74	*	*	2	100.00	*	352.35	43.87	54	68.35
White	382.92	36.85	302	21.60	*	*	24	31.17	*	*	*	0	0.00	*	*	*	24	30.38
Hispanic	380.00	30.58	143	10.23	*	*	1	1.30	*	*	*	0	0.00	*	*	*	1	1.27
Missing	*	*	1	0.07	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.21 Summary Statistics for Government: May, Target

	HSA May08				Target Form 108					Target Form 208					Target Combined			
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	422.67	40.86	64,376	100.00	356.78	51.65	1,279	100.00	0.78	357.30	46.81	991	100.00	0.77	357.00	49.58	2,270	100.00
Gender																		
Male	421.48	42.06	31,980	49.68	356.37	52.92	826	64.58	0.80	358.25	47.70	644	64.98	0.80	357.19	50.69	1,470	64.76
Female	423.86	39.56	32,388	50.31	357.53	49.29	453	35.42	0.75	355.52	45.11	347	35.02	0.73	356.66	47.50	800	35.24
Missing	*	*	6	0.01	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity																		
American Indian	413.04	43.20	244	0.38	*	*	6	0.47	*	*	*	1	0.10	*	*	*	7	0.31
Asian/Pacific Islander	448.50	41.12	3,686	5.73	*	*	13	1.02	*	*	*	14	1.41	*	*	*	27	1.19
African American	406.96	36.26	27,000	41.94	351.18	52.44	799	62.47	0.78	351.77	48.61	612	61.76	0.75	351.44	50.80	1,411	62.16
White	435.42	39.46	28,778	44.70	366.51	48.69	378	29.55	0.76	373.79	34.86	257	25.93	0.80	369.46	43.74	635	27.97
Hispanic	415.17	36.69	4,660	7.24	364.11	48.03	81	6.33	0.81	349.12	53.51	107	10.80	0.80	355.58	51.63	188	8.28
Missing	*	*	8	0.01	*	*	2	0.16	*	*	*	0	0	*	*	*	2	0.09

* Statistics not reported for sample size less than 50

Table 7.22 Summary Statistics for Government: May, Linking

	Linking Form 108					Linking Form 208					Linking Combined			
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	422.71	47.95	1,136	100.00	0.89	425.26	51.50	1,113	100.00	0.89	423.97	49.75	2,249	100.00
Gender														
Male	425.15	53.55	534	47.01	0.91	427.27	56.50	550	49.42	0.91	426.23	55.05	1,084	48.20
Female	420.54	42.29	602	52.99	0.88	423.29	46.07	563	50.58	0.88	421.87	44.16	1,165	51.80
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity														
American Indian	*	*	2	0.18	*	*	*	3	0.27	*	*	*	5	0.22
Asian/Pacific Islander	440.80	29.17	59	5.19	0.88	441.75	57.59	56	5.03	0.88	441.26	45.09	115	5.11
African American	410.35	43.27	334	29.40	0.90	417.78	41.07	311	27.94	0.89	413.93	42.35	645	28.68
White	429.17	50.13	671	59.07	0.89	427.80	54.18	674	60.56	0.90	428.48	52.18	1,345	59.80
Hispanic	404.43	43.26	70	6.16	0.88	416.97	50.89	69	6.20	0.89	410.65	47.45	139	6.18
Missing	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

Table 7.23 Summary Statistics for Government: Summer, Target

	HSA Summer08				Target Form 308					Target Form 408					Target Combined			
	Mean	SD	N	%	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%
Overall	383.27	39.54	977	100.00	365.20	48.26	64	100.00	0.75	*	*	1	100.00	*	365.49	47.94	65	100.00
Gender																		
Male	380.87	43.17	574	58.75	*	*	44	68.75	*	*	*	0	0.00	*	*	*	44	67.69
Female	386.68	33.48	403	41.25	*	*	20	31.25	*	*	*	1	100.00	*	*	*	21	32.31
Missing	*	*	0	0.00	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Ethnicity																		
American Indian	*	*	12	1.23	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00
Asian/Pacific Islander	*	*	26	2.66	*	*	2	3.13	*	*	*	0	0.00	*	*	*	2	3.08
African American	380.29	38.96	660	67.55	*	*	39	60.94	*	*	*	1	100.00	*	*	*	40	61.54
White	387.24	39.82	219	22.42	*	*	22	34.38	*	*	*	0	0.00	*	*	*	22	33.85
Hispanic	389.80	34.28	59	6.04	*	*	1	1.56	*	*	*	0	0.00	*	*	*	1	1.54
Missing	*	*	1	0.10	*	*	0	0.00	*	*	*	0	0.00	*	*	*	0	0.00

* Statistics not reported for sample size less than 50

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Appendix A. Classical Item Statistics: Operational Forms

Table A1. Algebra Operational Items: May08 - Target - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	1	258090	0.60	0.34	-0.20	-0.22	0.34	0.13
	2	258095	0.71	0.40	0.40	-0.24	-0.28	0.00
	4	258166	0.73	0.35	-0.31	0.35	-0.13	0.06
	6	258312	0.53	0.42	0.42	-0.29	-0.23	0.06
	9	258173	0.54	0.30	-0.13	0.30	-0.22	0.13
	10	258115	0.41	0.36	0.36	-0.22	-0.16	0.38
	13	258223	0.30	0.13	-0.08	0.13	-0.05	0.13
	22	258230	0.46	0.27	0.27	-0.21	-0.10	0.25
	25	258147	0.49	0.31	0.31	-0.14	-0.22	0.31
	28	261560	0.62	0.31	-0.17	0.31	-0.20	0.38
	29	258227	0.61	0.35	0.35	-0.17	-0.25	0.44
	30	258308	0.39	0.26	0.26	-0.14	-0.13	0.44
	31	258101	0.52	0.30	-0.24	0.30	-0.09	0.44
	34	258210	0.74	0.34	-0.22	0.34	-0.22	0.56
	35	258116	0.40	0.16	0.16	-0.13	-0.05	0.50
	36	258089	0.32	0.28	-0.11	0.28	-0.14	0.50
	41	261556	0.41	0.26	0.26	-0.17	-0.09	0.50
	42	258309	0.79	0.41	-0.23	-0.28	0.41	0.63
	43	258098	0.58	0.38	-0.23	-0.22	0.38	0.50
	44	258208	0.42	0.20	-0.02	-0.17	0.20	0.56
	45	258161	0.55	0.48	0.48	-0.39	-0.13	0.56
	46	258159	0.43	0.27	-0.10	-0.17	0.27	0.88
	56	258184	0.46	0.30	-0.13	0.30	-0.18	0.75
	58	258136	0.51	0.39	-0.21	0.39	-0.22	0.94
	59	258102	0.48	0.34	-0.14	0.34	-0.22	0.63
	60	258226	0.38	0.31	-0.09	-0.21	0.31	0.82
	62	258188	0.65	0.29	-0.15	0.29	-0.19	0.88
	63	258174	0.44	0.25	-0.08	-0.16	0.25	0.82
	67	258187	0.55	0.32	-0.09	-0.23	0.32	1.19
	68	258154	0.35	0.44	-0.25	-0.16	0.44	1.13
	69	258113	0.54	0.36	-0.23	0.36	-0.15	1.19
	72	258198	0.40	0.27	-0.15	-0.10	0.27	1.25
	73	258167	0.62	0.35	-0.20	0.35	-0.18	1.07
	74	258169	0.46	0.27	-0.12	-0.13	0.27	1.13
	75	258119	0.43	0.30	0.30	-0.07	-0.23	1.13
	76	258160	0.40	0.27	0.27	-0.14	-0.10	1.07
	77	258241	0.53	0.36	-0.18	0.36	-0.20	1.07
	78	258130	0.47	0.28	0.28	-0.15	-0.12	1.19
	79	258131	0.23	0.06	0.06	0.09	-0.12	1.38
	88	258128	0.65	0.41	-0.23	0.41	-0.23	1.44
	89	258509	0.35	0.19	0.19	-0.20	0.05	1.38
	90	258231	0.60	0.45	-0.24	-0.26	0.45	1.44

Table A1. Algebra Operational Items: May08 - Target - Form 108

Form	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	91	258111	0.55	0.36	-0.16	0.36	-0.24	1.50
108	92	258096	0.26	0.13	0.13	0.10	-0.20	1.57
	93	258125	0.40	0.13	-0.15	0.13	0.03	1.44
	94	258144	0.30	0.15	0.15	0.04	-0.15	1.38
	95	261558	0.37	0.21	-0.04	0.21	-0.13	1.44
	97	261562	0.39	0.23	0.23	-0.11	-0.08	1.38
	98	258220	0.33	0.19	-0.08	-0.05	0.19	1.38
	99	258135	0.51	0.23	-0.12	0.23	-0.08	1.63

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A2. Algebra Operational Items: May08 - Target - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
208	6	258190	0.42	0.28	-0.18	-0.13	0.28	0.00
	8	258164	0.38	0.26	-0.17	-0.11	0.26	0.00
	9	258224	0.31	0.35	-0.02	0.35	-0.32	0.00
	10	258107	0.32	0.15	-0.04	-0.11	0.15	0.00
	11	258126	0.50	0.36	0.36	-0.24	-0.17	0.09
	22	258239	0.37	0.19	-0.07	0.19	-0.14	0.00
	23	258123	0.58	0.43	0.43	-0.33	-0.18	0.00
	24	258124	0.31	0.34	-0.11	-0.21	0.34	0.09
	25	258168	0.56	0.20	-0.09	0.20	-0.18	0.00
	26	258200	0.26	0.26	0.26	0.00	-0.24	0.00
	27	258179	0.33	0.18	-0.10	-0.09	0.18	0.00
	28	258235	0.62	0.39	-0.27	0.39	-0.21	0.09
	30	258105	0.34	0.21	0.21	-0.21	-0.02	0.18
	32	258236	0.49	0.27	-0.20	0.27	-0.13	0.09
	33	261559	0.34	0.18	0.18	-0.13	-0.07	0.09
	34	258211	0.44	0.36	-0.29	0.36	-0.10	0.45
	35	258209	0.68	0.22	-0.11	-0.17	0.22	0.54
	36	258182	0.60	0.46	-0.19	-0.34	0.46	0.54
	40	258238	0.23	0.34	-0.14	-0.14	0.34	0.54
	42	261561	0.56	0.32	0.32	-0.15	-0.21	0.45
	44	258132	0.48	0.29	-0.12	0.29	-0.19	0.45
	45	258158	0.43	0.34	-0.16	-0.19	0.34	0.45
	46	258145	0.57	0.37	-0.23	0.37	-0.18	0.54
	55	258117	0.46	0.28	-0.12	-0.16	0.28	0.62
	56	258229	0.66	0.29	-0.18	0.29	-0.15	0.54
	57	258197	0.50	0.34	-0.22	0.34	-0.16	0.54
	58	258097	0.30	0.37	0.37	-0.11	-0.25	0.54
	59	258310	0.60	0.39	-0.21	-0.26	0.39	0.54
	60	258109	0.44	0.34	0.34	-0.18	-0.18	0.62
	61	258110	0.40	0.18	-0.03	0.18	-0.15	0.71
	62	258103	0.28	0.13	0.13	-0.12	0.03	0.54
	63	258108	0.49	0.13	-0.04	0.13	-0.08	0.62
	64	258196	0.59	0.22	-0.09	0.22	-0.17	0.62
	65	261564	0.49	0.34	0.34	-0.17	-0.19	0.54
	67	258153	0.32	0.24	0.24	-0.04	-0.16	0.89
	68	258181	0.72	0.42	-0.23	-0.27	0.42	0.80
	69	258240	0.58	0.27	-0.12	0.27	-0.19	0.89
	71	258157	0.23	0.17	0.17	-0.04	-0.07	0.80
	74	258091	0.29	0.25	-0.07	0.25	-0.14	0.80
	75	258118	0.51	0.37	0.37	-0.21	-0.20	0.80
	77	258225	0.55	0.26	-0.14	0.26	-0.14	0.80
	78	261557	0.41	0.22	0.22	-0.23	0.04	0.80

Table A2. Algebra Operational Items: May08 - Target - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	89	258152	0.43	0.25	0.25	-0.18	-0.06	0.80
208	90	258133	0.39	0.32	0.32	-0.19	-0.11	0.89
	91	258311	0.42	0.26	-0.15	0.26	-0.09	0.80
	92	258178	0.65	0.28	-0.15	-0.16	0.28	0.80
	93	258100	0.57	0.31	-0.21	0.31	-0.12	0.80
	95	258171	0.49	0.33	-0.17	0.33	-0.17	0.80
	96	258142	0.46	0.34	-0.11	-0.23	0.34	0.80
	97	258150	0.40	0.24	0.24	-0.05	-0.17	0.80

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A3. Algebra Operational Items: May08 - Linking - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	1	258090	0.83	0.22	-0.13	-0.17	0.22	0.00
	2	258095	0.96	0.24	0.24	-0.12	-0.24	0.08
	4	258166	0.93	0.23	-0.19	0.23	-0.15	0.00
	6	258312	0.88	0.48	0.48	-0.42	-0.22	0.00
	9	258173	0.69	0.28	-0.17	0.28	-0.19	0.17
	10	258115	0.79	0.46	0.46	-0.36	-0.24	0.08
	13	258223	0.44	0.27	-0.12	0.27	-0.18	0.08
	22	258230	0.64	0.18	0.18	-0.15	-0.09	0.08
	25	258147	0.75	0.40	0.40	-0.33	-0.17	0.08
	28	261560	0.84	0.30	-0.23	0.30	-0.16	0.08
	29	258227	0.84	0.35	0.35	-0.23	-0.23	0.08
	30	258308	0.73	0.37	0.37	-0.20	-0.26	0.17
	31	258101	0.83	0.39	-0.23	0.39	-0.28	0.08
	34	258210	0.95	0.23	-0.17	0.23	-0.10	0.25
	35	258116	0.62	0.28	0.28	-0.20	-0.18	0.25
	36	258089	0.67	0.49	-0.27	0.49	-0.33	0.33
	41	261556	0.66	0.30	0.30	-0.12	-0.23	0.25
	42	258309	0.94	0.27	-0.19	-0.15	0.27	0.25
	43	258098	0.84	0.35	-0.17	-0.28	0.35	0.25
	44	258208	0.77	0.47	-0.30	-0.30	0.47	0.33
	45	258161	0.88	0.44	0.44	-0.37	-0.19	0.25
	46	258159	0.65	0.40	-0.25	-0.24	0.40	0.25
	56	258184	0.70	0.47	-0.18	0.47	-0.38	0.25
	58	258136	0.86	0.41	-0.20	0.41	-0.32	0.42
	59	258102	0.77	0.40	-0.20	0.40	-0.30	0.25
	60	258226	0.59	0.43	-0.17	-0.32	0.43	0.25
	62	258188	0.84	0.38	-0.25	0.38	-0.24	0.25
	63	258174	0.67	0.38	-0.20	-0.26	0.38	0.25
	67	258187	0.82	0.42	-0.19	-0.31	0.42	0.50
	68	258154	0.79	0.44	-0.28	-0.25	0.44	0.58
	69	258113	0.81	0.43	-0.33	0.43	-0.20	0.50
	72	258198	0.68	0.46	-0.26	-0.30	0.46	0.50
	73	258167	0.88	0.43	-0.33	0.43	-0.18	0.50
	74	258169	0.75	0.51	-0.28	-0.33	0.51	0.66
	75	258119	0.66	0.37	0.37	-0.25	-0.22	0.50
	76	258160	0.61	0.43	0.43	-0.23	-0.26	0.50
	77	258241	0.80	0.44	-0.34	0.44	-0.19	0.50
	78	258130	0.69	0.39	0.39	-0.26	-0.20	0.58
	79	258131	0.29	0.17	0.17	-0.05	-0.11	0.50
	88	258128	0.89	0.33	-0.18	0.33	-0.20	0.58
	89	258509	0.57	0.37	0.37	-0.31	-0.15	0.66
	90	258231	0.87	0.43	-0.25	-0.28	0.43	0.75

Table A3. Algebra Operational Items: May08 - Linking - Form 108

Form	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	91	258111	0.76	0.40	-0.28	0.40	-0.23	0.66
108	92	258096	0.38	0.36	0.36	-0.14	-0.26	0.66
	93	258125	0.60	0.22	-0.17	0.22	-0.13	0.66
	94	258144	0.54	0.48	0.48	-0.32	-0.24	0.66
	95	261558	0.70	0.44	-0.28	0.44	-0.24	0.66
	97	261562	0.72	0.43	0.43	-0.30	-0.21	0.66
	98	258220	0.57	0.48	-0.25	-0.29	0.48	0.75
	99	258135	0.76	0.43	-0.35	0.43	-0.16	0.75

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A4. Algebra Operational Items: May08 - Linking - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
208	6	258190	0.71	0.42	-0.31	-0.23	0.42	0.15
	8	258164	0.61	0.35	-0.22	-0.24	0.35	0.00
	9	258224	0.71	0.43	-0.20	0.43	-0.36	0.00
	10	258107	0.51	0.38	-0.20	-0.26	0.38	0.00
	11	258126	0.67	0.36	0.36	-0.23	-0.24	0.00
	22	258239	0.64	0.38	-0.29	0.38	-0.19	0.08
	23	258123	0.88	0.48	0.48	-0.38	-0.27	0.00
	24	258124	0.73	0.51	-0.31	-0.35	0.51	0.00
	25	258168	0.76	0.31	-0.25	0.31	-0.15	0.00
	26	258200	0.49	0.34	0.34	-0.10	-0.34	0.00
	27	258179	0.46	0.22	-0.23	-0.08	0.22	0.15
	28	258235	0.87	0.28	-0.21	0.28	-0.18	0.08
	30	258105	0.53	0.30	0.30	-0.26	-0.13	0.00
	32	258236	0.73	0.44	-0.21	0.44	-0.35	0.00
	33	261559	0.54	0.31	0.31	-0.15	-0.23	0.23
	34	258211	0.59	0.19	-0.16	0.19	-0.10	0.00
	35	258209	0.86	0.21	-0.15	-0.16	0.21	0.00
	36	258182	0.91	0.34	-0.15	-0.31	0.34	0.00
	40	258238	0.65	0.61	-0.52	-0.21	0.61	0.00
	42	261561	0.89	0.31	0.31	-0.22	-0.21	0.00
	44	258132	0.64	0.33	-0.15	0.33	-0.26	0.00
	45	258158	0.71	0.38	-0.21	-0.28	0.38	0.15
	46	258145	0.80	0.44	-0.27	0.44	-0.33	0.00
	55	258117	0.65	0.34	-0.16	-0.27	0.34	0.00
	56	258229	0.85	0.31	-0.21	0.31	-0.21	0.08
	57	258197	0.78	0.36	-0.29	0.36	-0.19	0.00
	58	258097	0.70	0.46	0.46	-0.37	-0.22	0.00
	59	258310	0.88	0.37	-0.18	-0.31	0.37	0.00
	60	258109	0.62	0.42	0.42	-0.32	-0.20	0.00
	61	258110	0.62	0.31	-0.13	0.31	-0.28	0.00
	62	258103	0.44	0.38	0.38	-0.41	-0.02	0.08
	63	258108	0.50	0.19	-0.10	0.19	-0.12	0.08
	64	258196	0.74	0.25	-0.16	0.25	-0.19	0.08
	65	261564	0.80	0.43	0.43	-0.34	-0.22	0.08
	67	258153	0.58	0.39	0.39	-0.13	-0.31	0.38
	68	258181	0.95	0.31	-0.22	-0.17	0.31	0.38
	69	258240	0.85	0.32	-0.26	0.32	-0.13	0.46
	71	258157	0.53	0.45	0.45	-0.21	-0.31	0.38
	74	258091	0.69	0.58	-0.36	0.58	-0.38	0.38
	75	258118	0.81	0.36	0.36	-0.28	-0.18	0.46
	77	258225	0.76	0.33	-0.16	0.33	-0.24	0.38
	78	261557	0.66	0.34	0.34	-0.20	-0.21	0.38

Table A4. Algebra Operational Items: May08 - Linking - Form 208

Form	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	89	258152	0.74	0.40	0.40	-0.31	-0.20	0.38
208	90	258133	0.70	0.36	0.36	-0.31	-0.16	0.46
	91	258311	0.74	0.56	-0.46	0.56	-0.23	0.46
	92	258178	0.82	0.31	-0.20	-0.20	0.31	0.46
	93	258100	0.77	0.37	-0.26	0.37	-0.21	0.38
	95	258171	0.77	0.43	-0.28	0.43	-0.26	0.46
	96	258142	0.75	0.41	-0.18	-0.32	0.41	0.54
	97	258150	0.54	0.29	0.29	-0.14	-0.20	0.46

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A5. Algebra Operational Items: Summer08 - Form 308

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
308	1	258090	0.70	0.39	-0.36	-0.13	0.39	0.00
	2	258095	0.79	0.36	0.36	-0.25	-0.23	0.00
	4	258166	0.77	0.36	-0.36	0.36	-0.07	0.00
	6	258312	0.51	0.21	0.21	-0.12	-0.15	0.00
	9	258173	0.44	0.41	-0.10	0.41	-0.36	0.00
	10	258115	0.40	0.38	0.38	-0.21	-0.20	0.00
	13	258223	0.29	-0.03	-0.04	-0.03	0.06	0.00
	14	258230	0.48	0.35	0.35	-0.24	-0.17	0.00
	17	258147	0.40	0.40	0.40	-0.24	-0.20	0.00
	20	261560	0.67	0.31	-0.26	0.31	-0.14	0.00
	21	258227	0.60	0.38	0.38	-0.17	-0.32	0.00
	22	258308	0.48	0.38	0.38	-0.26	-0.19	0.00
	23	258101	0.48	0.46	-0.28	0.46	-0.25	0.00
	26	258210	0.81	0.32	-0.27	0.32	-0.16	0.00
	27	258116	0.52	0.24	0.24	-0.19	-0.11	0.00
	28	258089	0.28	0.39	-0.21	0.39	-0.14	0.00
	33	261556	0.38	0.14	0.14	-0.25	0.10	0.00
	34	258309	0.80	0.21	0.03	-0.26	0.21	0.00
	35	258098	0.67	0.24	-0.09	-0.21	0.24	0.00
	36	258208	0.53	0.39	-0.24	-0.21	0.39	0.00
	37	258161	0.62	0.45	0.45	-0.40	-0.13	0.00
	38	258159	0.35	0.38	-0.20	-0.19	0.38	0.00
	40	258184	0.53	0.38	-0.16	0.38	-0.30	0.00
	42	258136	0.57	0.21	-0.17	0.21	-0.09	0.00
	43	258102	0.48	0.26	-0.25	0.26	-0.08	0.00
	44	258226	0.49	0.25	-0.16	-0.13	0.25	0.00
	46	258188	0.72	0.19	-0.07	0.19	-0.18	0.00
	47	258174	0.49	0.16	-0.15	-0.08	0.16	2.13
	51	258187	0.64	0.44	-0.28	-0.26	0.44	0.00
	52	258154	0.31	0.50	-0.44	-0.04	0.50	0.00
	53	258113	0.64	0.35	-0.20	0.35	-0.25	0.00
	56	258198	0.36	0.33	-0.38	0.02	0.33	0.00
	57	258167	0.59	0.33	-0.29	0.33	-0.10	0.00
	58	258169	0.40	0.29	-0.02	-0.28	0.29	0.00
	59	258119	0.48	0.30	0.30	-0.19	-0.16	0.00
	60	258160	0.44	0.42	0.42	-0.17	-0.29	0.00
	61	258241	0.52	0.17	-0.04	0.17	-0.17	0.00
	62	258130	0.50	0.18	0.18	-0.10	-0.11	0.00
	63	258131	0.18	0.09	0.09	0.03	-0.14	0.00
	64	258128	0.61	0.39	-0.25	0.39	-0.22	1.06
	65	258509	0.38	0.18	0.18	-0.27	0.08	0.00
	66	258231	0.60	0.47	-0.20	-0.38	0.47	0.00

Table A5. Algebra Operational Items: Summer08 - Form 308

Form	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	67	258111	0.53	0.27	-0.09	0.27	-0.28	0.00
308	68	258096	0.26	0.10	0.10	-0.03	-0.08	0.00
	69	258125	0.41	-0.03	-0.21	-0.03	0.23	1.06
	70	258144	0.38	0.19	0.19	0.02	-0.23	0.00
	71	261558	0.46	0.15	0.03	0.15	-0.19	0.00
	73	261562	0.46	0.25	0.25	-0.25	-0.02	0.00
	74	258220	0.34	0.06	-0.09	0.02	0.06	0.00
	75	258135	0.49	0.31	-0.27	0.31	-0.07	0.00

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A6. Biology Operational Items: May08 - Target - Form 108

Form	Pos No	ItemID	P Val	R ITT	P BIS1	P BIS2	P BIS3	%Omits
108	1	258636	0.63	0.31	-0.19	0.31	-0.20	0.00
	2	258653	0.37	0.29	0.29	-0.10	-0.21	0.28
	4	258690	0.40	0.14	0.00	-0.14	0.14	0.00
	5	258702	0.59	0.38	-0.31	0.38	-0.15	0.19
	18	258662	0.37	0.33	-0.12	-0.20	0.33	0.28
	20	258659	0.28	0.14	0.14	-0.12	0.01	0.38
	23	258673	0.63	0.26	-0.09	-0.22	0.26	0.38
	25	258701	0.38	0.29	-0.22	0.29	-0.08	0.28
	26	258628	0.61	0.25	0.25	-0.16	-0.12	0.28
	27	258685	0.30	0.25	0.25	-0.18	-0.09	0.28
	30	261611	0.16	0.06	-0.02	-0.01	0.06	0.38
	31	258615	0.46	0.20	-0.11	0.20	-0.09	0.28
	32	258683	0.64	0.40	-0.25	0.40	-0.24	0.38
	33	258641	0.53	0.14	-0.06	0.14	-0.08	0.38
	34	258676	0.44	0.15	-0.06	0.15	-0.09	0.38
	35	258607	0.59	0.23	-0.14	0.23	-0.15	0.38
	36	258645	0.51	0.43	-0.20	-0.27	0.43	0.38
	37	258666	0.52	0.21	-0.09	0.21	-0.14	0.28
	38	258675	0.48	0.28	-0.15	0.28	-0.16	0.47
	39	261609	0.60	0.22	-0.05	-0.24	0.22	0.28
	40	258665	0.30	0.20	0.20	-0.04	-0.14	0.38
	41	258682	0.53	0.17	-0.13	0.17	-0.05	0.28
	42	258648	0.46	0.31	-0.15	0.31	-0.18	0.38
	53	258614	0.43	0.36	-0.18	-0.19	0.36	0.28
	54	258680	0.45	0.25	-0.08	-0.18	0.25	0.47
	55	258681	0.38	0.20	-0.07	-0.12	0.20	0.38
	56	258642	0.54	0.22	-0.06	0.22	-0.17	0.38
	58	261623	0.64	0.34	-0.15	-0.26	0.34	0.57
	59	258649	0.27	0.19	0.19	-0.30	0.13	0.38
	61	258687	0.49	0.23	-0.12	0.23	-0.13	0.28
	62	258646	0.36	0.24	0.24	-0.22	-0.01	0.57
	63	261626	0.63	0.34	-0.28	-0.14	0.34	0.38
	64	258707	0.48	0.38	0.38	-0.25	-0.16	0.47
	66	258643	0.53	0.25	0.25	-0.14	-0.16	0.57
	67	258698	0.36	0.10	-0.09	0.01	0.10	0.57
	68	258728	0.24	0.16	-0.14	-0.04	0.16	0.50
	69	258734	0.52	0.34	-0.15	-0.22	0.34	0.65
	70	258735	0.51	0.31	-0.20	0.31	-0.15	0.45
	71	258704	0.51	0.28	-0.14	0.28	-0.16	0.66
	72	258624	0.52	0.30	0.30	-0.20	-0.11	0.66
	73	258697	0.42	0.19	0.19	-0.11	-0.07	0.45
	74	258616	0.22	-0.02	-0.06	-0.02	0.10	0.50
	83	258617	0.47	0.13	0.13	-0.20	0.07	0.76

Table A6. Biology Operational Items: May08 - Target - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	84	258688	0.42	0.21	-0.17	-0.03	0.21	0.57
	85	258669	0.61	0.29	-0.15	-0.17	0.29	0.85
	86	261621	0.66	0.42	0.42	-0.24	-0.26	0.66
	88	261619	0.62	0.31	-0.20	0.31	-0.15	0.57
	91	258692	0.46	0.23	-0.03	-0.19	0.23	0.57
	93	258635	0.54	0.38	-0.23	-0.19	0.38	0.57
	94	261616	0.47	0.36	-0.25	-0.12	0.36	0.66

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A7. Biology Operational Items: May08 - Target - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
208	1	258627	0.76	0.24	-0.15	0.24	-0.18	0.00
	2	258733	0.50	0.10	0.10	-0.01	-0.12	0.00
	4	258684	0.47	0.11	0.10	-0.22	0.11	0.11
	5	258644	0.37	0.31	0.31	-0.14	-0.18	0.11
	7	258634	0.44	0.26	-0.23	0.26	-0.06	0.11
	8	261645	0.34	0.30	-0.06	-0.25	0.30	0.11
	9	258619	0.38	0.31	0.31	-0.13	-0.18	0.21
	18	258700	0.63	0.35	-0.25	-0.21	0.35	0.21
	19	258618	0.32	0.18	-0.04	-0.13	0.18	0.21
	21	261627	0.65	0.21	-0.14	0.21	-0.11	0.11
	22	258639	0.39	0.24	0.24	-0.08	-0.16	0.11
	24	258732	0.56	0.26	0.26	-0.18	-0.12	0.11
	25	258727	0.50	0.33	-0.22	0.33	-0.16	0.11
	26	258622	0.51	0.37	0.37	-0.28	-0.14	0.11
	27	258695	0.47	0.14	-0.03	0.14	-0.11	0.42
	28	258631	0.77	0.37	0.37	-0.26	-0.21	0.32
	32	258699	0.26	-0.03	-0.23	-0.03	0.25	0.32
	33	261607	0.67	0.09	-0.08	0.09	-0.02	0.21
	34	261624	0.44	0.35	-0.16	-0.22	0.35	0.21
	35	258612	0.64	0.32	-0.26	0.32	-0.13	0.21
	36	261610	0.45	0.35	-0.15	-0.22	0.35	0.32
	37	258714	0.32	0.35	0.35	-0.16	-0.17	0.32
	39	258725	0.66	0.31	-0.19	0.31	-0.19	0.21
	40	258664	0.63	0.30	-0.18	0.30	-0.17	0.21
	41	258638	0.33	0.11	0.01	-0.11	0.11	0.32
	55	258650	0.50	0.34	-0.11	-0.27	0.34	0.21
	57	261614	0.58	0.40	0.40	-0.27	-0.22	0.21
	58	261622	0.79	0.31	-0.16	0.31	-0.22	0.21
	60	258705	0.28	0.21	-0.10	-0.08	0.21	0.32
	62	258678	0.64	0.37	-0.17	0.37	-0.27	0.21
	63	261642	0.40	0.29	0.29	-0.26	-0.02	0.21
	64	258654	0.56	0.26	-0.25	-0.05	0.26	0.53
	65	258670	0.34	0.18	-0.02	-0.14	0.18	0.32
	66	258660	0.45	0.34	-0.11	-0.25	0.34	0.32
	67	258637	0.49	0.38	-0.17	0.38	-0.25	0.32
	71	258640	0.56	0.17	-0.06	0.17	-0.14	0.32
	72	258674	0.44	0.23	-0.05	-0.19	0.23	0.32
	73	258697	0.42	0.19	0.19	-0.11	-0.07	0.45
	74	258616	0.22	-0.02	-0.06	-0.02	0.10	0.50
	83	258611	0.72	0.32	-0.20	0.32	-0.20	0.42
	84	261640	0.38	0.26	-0.18	-0.09	0.26	0.32
	86	261617	0.48	0.24	0.24	-0.12	-0.20	0.42

Table A7. Biology Operational Items: May08 - Target - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	87	258726	0.43	0.22	0.22	-0.06	-0.17	0.32
208	88	258730	0.37	0.27	0.27	-0.11	-0.17	0.32
	90	258651	0.49	0.48	0.48	-0.28	-0.25	0.32
	91	258657	0.23	0.17	-0.09	-0.06	0.17	0.32
	92	258712	0.45	0.37	-0.21	-0.20	0.37	0.32
	93	258731	0.36	0.20	-0.01	-0.18	0.20	0.32
	94	261608	0.51	0.41	-0.20	-0.26	0.41	0.42
	95	258693	0.39	0.36	0.36	-0.19	-0.21	0.32

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A8. Biology Operational Items: May08 - Linking - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	1	258636	0.89	0.38	-0.31	0.38	-0.21	0.07
	2	258653	0.67	0.45	0.45	-0.29	-0.34	0.13
	4	258690	0.56	0.34	-0.11	-0.31	0.34	0.07
	5	258702	0.87	0.34	-0.28	0.34	-0.19	0.07
	18	258662	0.69	0.46	-0.23	-0.35	0.46	0.07
	20	258659	0.50	0.37	0.37	-0.31	-0.10	0.07
	23	258673	0.82	0.20	-0.14	-0.14	0.20	0.07
	25	258701	0.70	0.35	-0.24	0.35	-0.23	0.07
	26	258628	0.90	0.40	0.40	-0.25	-0.29	0.07
	27	258685	0.57	0.42	0.42	-0.08	-0.38	0.20
	30	261611	0.43	0.46	-0.28	-0.22	0.46	0.07
	31	258615	0.64	0.31	-0.16	0.31	-0.22	0.07
	32	258683	0.92	0.35	-0.26	0.35	-0.22	0.07
	33	258641	0.72	0.48	-0.35	0.48	-0.24	0.13
	34	258676	0.74	0.32	-0.19	0.32	-0.22	0.20
	35	258607	0.80	0.31	-0.10	0.31	-0.27	0.20
	36	258645	0.88	0.44	-0.26	-0.33	0.44	0.20
	37	258666	0.71	0.24	-0.20	0.24	-0.10	0.13
	38	258675	0.78	0.44	-0.21	0.44	-0.35	0.13
	39	261609	0.59	0.09	-0.03	-0.21	0.09	0.20
	40	258665	0.48	0.40	0.40	-0.17	-0.29	0.26
	41	258682	0.69	0.29	-0.15	0.29	-0.21	0.13
	42	258648	0.85	0.43	-0.21	0.43	-0.35	0.20
	53	258614	0.75	0.48	-0.27	-0.34	0.48	0.33
	54	258680	0.75	0.39	-0.25	-0.25	0.39	0.26
	55	258681	0.52	0.33	-0.10	-0.26	0.33	0.33
	56	258642	0.71	0.36	-0.10	0.36	-0.38	0.20
	58	261623	0.82	0.28	-0.20	-0.21	0.28	0.33
	59	258649	0.51	0.46	0.46	-0.31	-0.32	0.20
	61	258687	0.75	0.41	-0.20	0.41	-0.31	0.20
	62	258646	0.67	0.46	0.46	-0.17	-0.38	0.20
	63	261626	0.87	0.26	-0.14	-0.20	0.26	0.26
	64	258707	0.78	0.44	0.44	-0.33	-0.23	0.26
	66	258643	0.70	0.27	0.27	-0.20	-0.17	0.46
	67	258698	0.54	0.37	-0.25	-0.20	0.37	0.46
	68	258728	0.54	0.39	-0.16	-0.32	0.39	0.41
	69	258734	0.74	0.42	-0.24	-0.27	0.42	0.48
	70	258735	0.74	0.35	-0.20	0.35	-0.22	0.48
	71	258704	0.83	0.43	-0.31	0.43	-0.23	0.53
	72	258624	0.76	0.42	0.42	-0.38	-0.17	0.53
	73	258697	0.60	0.25	0.25	-0.19	-0.07	0.45
	74	258616	0.33	0.29	-0.22	0.29	-0.07	0.57

Table A8. Biology Operational Items: May08 - Linking - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	83	258617	0.50	0.16	0.16	-0.14	-0.05	0.46
108	84	258688	0.71	0.52	-0.37	-0.26	0.52	0.59
	85	258669	0.83	0.40	-0.21	-0.29	0.40	0.53
	86	261621	0.89	0.39	0.39	-0.23	-0.26	0.46
	88	261619	0.74	0.23	-0.14	0.23	-0.13	0.53
	91	258692	0.66	0.37	-0.19	-0.26	0.37	0.53
	93	258635	0.84	0.46	-0.27	-0.31	0.46	0.46
	94	261616	0.77	0.50	-0.37	-0.27	0.50	0.53

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A9. Biology Operational Items: May08 - Linking - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
208	1	258627	0.92	0.28	-0.23	0.28	-0.15	0.00
	2	258733	0.49	0.16	0.16	-0.07	-0.16	0.00
	4	258684	0.51	0.13	-0.11	-0.03	0.13	0.00
	5	258644	0.69	0.37	0.37	-0.27	-0.20	0.00
	7	258634	0.68	0.34	-0.24	0.34	-0.19	0.00
	8	261645	0.54	0.32	-0.23	-0.14	0.32	0.25
	9	258619	0.64	0.41	0.41	-0.27	-0.21	0.37
	18	258700	0.89	0.42	-0.15	-0.36	0.42	0.25
	19	258618	0.64	0.43	-0.20	-0.31	0.43	0.37
	21	261627	0.86	0.27	-0.19	0.27	-0.14	0.19
	22	258639	0.59	0.29	0.29	-0.17	-0.17	0.19
	24	258732	0.66	0.24	0.24	-0.11	-0.19	0.19
	25	258727	0.77	0.31	-0.19	0.31	-0.20	0.25
	26	258622	0.79	0.41	0.41	-0.31	-0.22	0.19
	27	258695	0.63	0.39	-0.11	0.39	-0.34	0.19
	28	258631	0.90	0.30	0.30	-0.16	-0.23	0.19
	32	258699	0.23	0.19	-0.27	0.19	0.01	0.19
	33	261607	0.80	0.32	-0.19	0.32	-0.21	0.31
	34	261624	0.77	0.42	-0.27	-0.25	0.42	0.31
	35	258612	0.84	0.39	-0.20	0.39	-0.29	0.31
	36	261610	0.80	0.47	-0.26	-0.32	0.47	0.49
	37	258714	0.68	0.50	0.50	-0.32	-0.28	0.31
	39	258725	0.89	0.37	-0.16	0.37	-0.29	0.37
	40	258664	0.86	0.43	-0.23	0.43	-0.32	0.43
	41	258638	0.44	0.36	-0.20	-0.23	0.36	0.31
	55	258650	0.70	0.28	-0.12	-0.26	0.28	0.43
	57	261614	0.89	0.38	0.38	-0.21	-0.25	0.37
	58	261622	0.91	0.14	-0.05	0.14	-0.08	0.43
	60	258705	0.60	0.50	-0.24	-0.34	0.50	0.37
	62	258678	0.89	0.42	-0.21	0.42	-0.30	0.43
	63	261642	0.64	0.35	0.35	-0.28	-0.12	0.37
	64	258654	0.71	0.29	-0.23	-0.16	0.29	0.37
	65	258670	0.48	0.27	-0.10	-0.19	0.27	0.37
	66	258660	0.72	0.44	-0.21	-0.33	0.44	0.37
	67	258637	0.85	0.47	-0.34	0.47	-0.25	0.37
	71	258640	0.77	0.40	-0.34	0.40	-0.12	0.43
	72	258674	0.68	0.39	-0.22	-0.25	0.39	0.43
	73	258697	0.60	0.25	0.25	-0.19	-0.07	0.45
	74	258616	0.33	0.29	-0.22	0.29	-0.07	0.57
	83	258611	0.93	0.38	-0.28	0.38	-0.17	0.49
	84	261640	0.73	0.53	-0.26	-0.38	0.53	0.49
	86	261617	0.57	0.26	0.26	-0.19	-0.18	0.43

Table A9. Biology Operational Items: May08 - Linking - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	87	258726	0.69	0.41	0.41	-0.24	-0.25	0.49
208	88	258730	0.75	0.54	0.54	-0.36	-0.31	0.49
	90	258651	0.86	0.46	0.46	-0.31	-0.27	0.37
	91	258657	0.46	0.43	-0.11	-0.33	0.43	0.49
	92	258712	0.72	0.46	-0.18	-0.36	0.46	0.56
	93	258731	0.62	0.45	-0.18	-0.36	0.45	0.37
	94	261608	0.82	0.49	-0.34	-0.29	0.49	0.37
	95	258693	0.69	0.41	0.41	-0.32	-0.16	0.37

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A10. Biology Operational Items: Summer08 - Form 308

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
308	1	258636	0.75	0.29	-0.29	0.29	-0.08	0.00
	2	258653	0.37	0.34	0.34	-0.03	-0.33	0.00
	4	258690	0.39	0.14	0.02	-0.16	0.14	0.00
	5	258702	0.58	0.33	-0.33	0.33	-0.05	0.00
	10	258662	0.37	0.15	-0.17	0.00	0.15	0.00
	12	258659	0.19	0.08	0.08	-0.12	0.07	0.00
	15	258673	0.63	0.11	0.01	-0.21	0.11	0.00
	17	258701	0.40	0.26	-0.15	0.26	-0.13	0.00
	18	258628	0.78	-0.02	-0.02	0.08	-0.03	0.00
	19	258685	0.30	0.34	0.34	-0.26	-0.15	0.00
	22	261611	0.09	0.10	-0.06	0.01	0.10	0.00
	23	258615	0.54	0.16	0.02	0.16	-0.20	0.00
	24	258683	0.73	0.22	-0.04	0.22	-0.26	0.00
	25	258641	0.61	0.31	-0.28	0.31	-0.09	0.00
	26	258676	0.54	0.05	0.15	0.05	-0.21	0.00
	27	258607	0.55	0.10	-0.08	0.10	-0.07	0.00
	28	258645	0.40	0.43	-0.30	-0.18	0.43	0.00
	29	258666	0.42	0.20	-0.14	0.20	-0.08	0.00
	30	258675	0.43	0.22	-0.16	0.22	-0.09	0.00
	31	261609	0.60	0.28	-0.18	-0.20	0.28	0.00
	32	258665	0.31	0.37	0.37	-0.23	-0.14	0.00
	33	258682	0.46	0.07	-0.12	0.07	0.05	0.00
	34	258648	0.54	0.11	-0.04	0.11	-0.09	0.00
	37	258614	0.49	0.43	-0.22	-0.27	0.43	0.00
	38	258680	0.45	0.37	-0.14	-0.27	0.37	0.00
	39	258681	0.42	0.12	-0.02	-0.11	0.12	0.00
	40	258642	0.63	0.28	-0.06	0.28	-0.28	0.00
	42	261623	0.55	0.33	-0.09	-0.34	0.33	0.00
	43	258649	0.21	0.14	0.14	-0.37	0.18	0.00
	45	258687	0.57	0.42	-0.23	0.42	-0.29	0.00
	46	258646	0.33	0.41	0.41	-0.20	-0.21	0.00
	47	261626	0.64	0.23	-0.33	-0.02	0.23	0.00
	48	258707	0.55	0.57	0.57	-0.39	-0.29	0.00
	50	258643	0.51	-0.03	-0.03	-0.02	0.15	0.00
	51	258698	0.54	0.23	-0.19	-0.09	0.23	0.00
	52	258728	0.30	0.35	-0.01	-0.32	0.35	0.00
	53	258734	0.58	0.48	-0.33	-0.25	0.48	0.00
	54	258735	0.52	0.35	-0.15	0.35	-0.21	1.45
	55	258704	0.55	0.30	-0.23	0.30	-0.13	0.00
	56	258624	0.45	0.31	0.31	-0.21	-0.13	0.00
	57	258697	0.36	0.23	0.23	-0.21	-0.02	0.00
	58	258616	0.22	0.02	0.10	0.02	-0.11	0.00

Table A10. Biology Operational Items: Summer08 - Form 308

Form	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	59	258617	0.42	-0.01	-0.01	-0.21	0.21	0.00
308	60	258688	0.34	0.20	-0.09	-0.12	0.20	0.00
	61	258669	0.57	0.23	-0.21	-0.09	0.23	0.00
	62	261621	0.79	0.29	0.29	-0.18	-0.20	0.00
	64	261619	0.67	0.25	-0.20	0.25	-0.10	0.00
	67	258692	0.40	0.05	0.08	-0.12	0.05	0.00
	69	258635	0.49	0.45	-0.31	-0.24	0.45	1.49
	70	261616	0.60	0.43	-0.24	-0.28	0.43	0.00

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A11. English Operational Items: May08 - Target - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	1	259429	0.54	0.22	0.22	-0.14	-0.13	0.00
	3	259426	0.64	0.36	0.36	-0.19	-0.26	0.07
	4	259349	0.65	0.33	-0.23	0.33	-0.19	0.07
	5	259427	0.47	0.24	-0.08	0.24	-0.19	0.00
	7	259323	0.38	0.26	0.26	-0.16	-0.12	0.04
	9	259453	0.37	0.15	0.03	-0.21	0.15	0.35
	10	259382	0.62	0.27	-0.21	0.27	-0.12	0.14
	11	259452	0.42	0.21	-0.16	0.21	-0.09	0.07
	12	259465	0.39	0.16	0.16	-0.16	-0.02	0.28
	19	259407	0.18	-0.04	-0.12	-0.04	0.16	0.28
	20	259335	0.36	0.14	-0.15	-0.02	0.14	0.44
	21	259410	0.67	0.30	-0.22	0.30	-0.15	0.32
	22	259413	0.52	0.24	-0.11	0.24	-0.20	0.28
	23	259411	0.48	0.19	-0.17	-0.07	0.19	0.32
	24	259414	0.38	0.16	-0.06	-0.09	0.16	0.36
	26	259338	0.33	0.06	0.06	0.06	-0.11	0.40
	27	259339	0.63	0.34	-0.21	0.34	-0.22	0.28
	29	259441	0.34	0.18	0.18	-0.09	-0.08	0.35
	31	259362	0.58	0.44	0.44	-0.29	-0.24	0.35
	32	259436	0.35	0.17	0.17	-0.04	-0.15	0.35
	33	259432	0.63	0.28	0.28	-0.21	-0.12	0.28
	34	259433	0.49	0.30	0.30	-0.15	-0.19	0.48
	35	259354	0.41	0.25	-0.16	-0.09	0.25	0.48
	42	259347	0.43	0.26	0.26	-0.15	-0.12	0.35
	43	259424	0.64	0.36	-0.18	-0.24	0.36	0.35
	44	259423	0.49	0.20	-0.12	-0.09	0.20	0.42
	45	259425	0.48	0.22	-0.16	0.22	-0.07	0.69
	46	259422	0.41	0.25	-0.10	0.25	-0.16	0.69
	47	259445	0.59	0.35	-0.27	0.35	-0.13	0.48
	48	259374	0.38	0.27	-0.08	-0.23	0.27	0.55
	49	259450	0.39	0.32	-0.20	-0.12	0.32	0.48
	50	259376	0.58	0.41	-0.20	-0.28	0.41	0.55
	52	259310	0.57	0.29	-0.15	0.29	-0.17	0.55
	53	259365	0.56	0.33	-0.12	0.33	-0.24	0.76
	54	259449	0.60	0.30	0.30	-0.16	-0.19	0.76
	61	259443	0.55	0.28	-0.18	0.28	-0.12	0.76
	63	259437	0.43	0.27	0.27	-0.09	-0.19	0.67
	64	259360	0.48	0.32	0.32	-0.24	-0.08	0.76
	65	259435	0.22	0.16	-0.05	-0.07	0.16	0.76
	83	259457	0.36	0.24	0.24	-0.19	-0.02	1.11
	84	259330	0.63	0.35	-0.18	0.35	-0.21	1.04
	85	259458	0.34	0.13	0.13	-0.14	0.05	1.11

Table A11. English Operational Items: May08 - Target - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	86	259466	0.51	0.41	-0.21	-0.25	0.41	1.04
108	87	259395	0.43	0.31	-0.10	0.31	-0.20	1.04
	88	259459	0.45	0.28	-0.12	-0.17	0.28	1.25
	89	259396	0.37	0.21	-0.12	-0.06	0.21	1.25
	90	259460	0.59	0.37	0.37	-0.27	-0.14	1.11
	91	259398	0.54	0.32	-0.16	0.32	-0.18	1.18
	93	259444	0.57	0.25	-0.13	0.25	-0.13	0.99
	94	259356	0.47	0.28	-0.14	-0.15	0.28	1.07

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A12. English Operational Items: May08 - Target - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
208	1	259343	0.63	0.29	-0.22	-0.14	0.29	0.00
	2	259415	0.62	0.25	0.25	-0.27	-0.07	0.18
	4	259417	0.48	0.17	0.17	-0.15	-0.03	0.00
	5	259416	0.76	0.29	-0.12	0.29	-0.24	0.18
	8	259312	0.64	0.39	0.39	-0.29	-0.20	0.00
	9	259368	0.35	0.21	0.21	-0.17	-0.06	0.00
	10	259371	0.71	0.39	-0.25	-0.26	0.39	0.09
	11	259367	0.72	0.29	-0.19	0.29	-0.20	0.09
	12	259370	0.52	0.21	-0.23	0.21	-0.06	0.00
	28	259318	0.53	0.35	0.35	-0.22	-0.18	0.09
	30	259319	0.36	0.09	0.03	-0.15	0.09	0.09
	31	259320	0.65	0.32	-0.18	0.32	-0.21	0.28
	33	259351	0.43	0.30	-0.18	0.30	-0.14	0.37
	34	259430	0.71	0.24	-0.22	0.24	-0.05	0.37
	35	259431	0.66	0.41	0.41	-0.19	-0.29	0.37
	42	259419	0.62	0.22	-0.10	0.22	-0.15	0.37
	44	259421	0.59	0.31	0.31	-0.23	-0.11	0.55
	45	259463	0.35	0.23	0.23	-0.19	-0.03	0.74
	46	259345	0.45	0.37	-0.13	-0.26	0.37	0.55
	48	259325	0.57	0.36	-0.20	0.36	-0.20	0.65
	49	259385	0.57	0.30	-0.18	-0.16	0.30	0.74
	50	259390	0.60	0.35	-0.14	-0.25	0.35	0.65
	51	259383	0.51	0.29	-0.22	0.29	-0.08	0.65
	52	259386	0.41	0.32	-0.17	-0.14	0.32	0.46
	53	259388	0.46	0.26	0.26	-0.09	-0.18	0.46
	54	259389	0.40	0.24	-0.14	0.24	-0.09	0.46
	61	259438	0.41	0.13	-0.06	0.13	-0.06	0.55
	62	259439	0.44	0.25	-0.22	0.25	-0.06	0.46
	63	259437	0.43	0.27	0.27	-0.09	-0.19	0.67
	64	259358	0.55	0.38	-0.15	-0.26	0.38	0.83
	65	259434	0.41	0.15	-0.09	0.15	-0.05	0.55
	66	259332	0.60	0.14	-0.09	0.14	-0.05	0.71
	67	259403	0.32	0.14	0.04	-0.16	0.14	0.75
	68	259401	0.42	0.21	0.21	-0.09	-0.11	0.87
	69	259402	0.35	0.30	-0.23	-0.04	0.30	0.79
	70	259399	0.68	0.35	-0.17	-0.23	0.35	0.75
	71	259400	0.50	0.29	-0.11	-0.22	0.29	0.75
	72	259404	0.60	0.23	0.23	-0.15	-0.10	0.75
	73	259461	0.69	0.32	-0.19	-0.18	0.32	0.71
	76	259446	0.52	0.34	-0.16	-0.20	0.34	0.79
	77	259447	0.48	0.22	-0.08	0.22	-0.16	0.91
	78	259448	0.53	0.26	-0.13	-0.13	0.26	0.87

Table A12. English Operational Items: May08 - Target - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	85	259391	0.51	0.31	-0.11	0.31	-0.22	0.74
208	86	259454	0.31	0.16	0.16	-0.11	0.00	0.74
	87	259455	0.50	0.39	-0.25	-0.17	0.39	0.65
	89	259392	0.44	0.37	-0.13	-0.23	0.37	0.65
	90	259394	0.65	0.43	0.43	-0.26	-0.25	0.74
	92	259393	0.48	0.45	0.45	-0.23	-0.24	0.74
	93	259444	0.57	0.25	-0.13	0.25	-0.13	0.99
	94	259356	0.47	0.28	-0.14	-0.15	0.28	1.07

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A13. English Operational Items: May08 - Linking - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	1	259429	0.81	0.39	0.39	-0.21	-0.31	0.00
	3	259426	0.90	0.38	0.38	-0.24	-0.29	0.00
	4	259349	0.91	0.34	-0.25	0.34	-0.22	0.11
	5	259427	0.81	0.41	-0.29	0.41	-0.26	0.00
	7	259323	0.74	0.37	0.37	-0.29	-0.20	0.00
	9	259453	0.53	0.31	-0.23	-0.20	0.31	0.00
	10	259382	0.87	0.40	-0.28	0.40	-0.26	0.00
	11	259452	0.73	0.26	-0.09	0.26	-0.23	0.00
	12	259465	0.59	0.32	0.32	-0.20	-0.20	0.00
	19	259407	0.31	0.25	-0.20	0.25	-0.07	0.00
	20	259335	0.50	0.27	-0.14	-0.21	0.27	0.05
	21	259410	0.85	0.30	-0.26	0.30	-0.14	0.05
	22	259413	0.62	0.34	-0.27	0.34	-0.22	0.00
	23	259411	0.68	0.38	-0.23	-0.26	0.38	0.05
	24	259414	0.55	0.24	-0.13	-0.17	0.24	0.05
	26	259338	0.54	0.25	0.25	-0.10	-0.27	0.05
	27	259339	0.90	0.38	-0.30	0.38	-0.23	0.00
	29	259441	0.60	0.37	0.37	-0.19	-0.26	0.00
	31	259362	0.87	0.47	0.47	-0.40	-0.23	0.00
	32	259436	0.63	0.34	0.34	-0.27	-0.18	0.22
	33	259432	0.85	0.28	0.28	-0.14	-0.23	0.11
	34	259433	0.87	0.32	0.32	-0.22	-0.21	0.11
	35	259354	0.62	0.38	-0.19	-0.26	0.38	0.22
	42	259347	0.75	0.39	0.39	-0.18	-0.32	0.22
	43	259424	0.86	0.35	-0.22	-0.25	0.35	0.11
	44	259423	0.71	0.27	-0.22	-0.16	0.27	0.43
	45	259425	0.66	0.35	-0.29	0.35	-0.16	0.32
	46	259422	0.72	0.46	-0.33	0.46	-0.25	0.54
	47	259445	0.86	0.40	-0.34	0.40	-0.19	0.11
	48	259374	0.64	0.46	-0.36	-0.22	0.46	0.22
	49	259450	0.75	0.49	-0.29	-0.35	0.49	0.11
	50	259376	0.84	0.45	-0.33	-0.28	0.45	0.32
	52	259310	0.86	0.44	-0.29	0.44	-0.30	0.54
	53	259365	0.84	0.33	-0.20	0.33	-0.27	0.43
	54	259449	0.83	0.30	0.30	-0.23	-0.21	0.32
	61	259443	0.74	0.29	-0.22	0.29	-0.15	0.22
	63	259437	0.75	0.41	0.41	-0.25	-0.29	0.21
	64	259360	0.76	0.43	0.43	-0.36	-0.19	0.22
	65	259435	0.45	0.44	-0.36	-0.12	0.44	0.11
	83	259457	0.57	0.30	0.30	-0.28	-0.06	0.11
	84	259330	0.82	0.44	-0.31	0.44	-0.26	0.32
	85	259458	0.61	0.44	0.44	-0.34	-0.20	0.32

Table A13. English Operational Items: May08 - Linking - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	86	259466	0.81	0.53	-0.23	-0.45	0.53	0.11
108	87	259395	0.73	0.47	-0.24	0.47	-0.35	0.11
	88	259459	0.69	0.39	-0.27	-0.22	0.39	0.22
	89	259396	0.57	0.44	-0.27	-0.25	0.44	0.22
	90	259460	0.83	0.37	0.37	-0.29	-0.20	0.22
	91	259398	0.71	0.42	-0.30	0.42	-0.22	0.22
	93	259444	0.79	0.35	-0.21	0.35	-0.24	0.26
	94	259356	0.72	0.36	-0.21	-0.26	0.36	0.21

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A14. English Operational Items: May08 - Linking - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
208	1	259343	0.88	0.30	-0.27	-0.13	0.30	0.00
	2	259415	0.82	0.38	0.38	-0.27	-0.28	0.00
	4	259417	0.67	0.31	0.31	-0.27	-0.11	0.00
	5	259416	0.93	0.26	-0.15	0.26	-0.23	0.10
	8	259312	0.89	0.38	0.38	-0.28	-0.25	0.10
	9	259368	0.63	0.34	0.34	-0.24	-0.20	0.00
	10	259371	0.93	0.31	-0.18	-0.25	0.31	0.00
	11	259367	0.88	0.29	-0.21	0.29	-0.22	0.00
	12	259370	0.73	0.32	-0.23	0.32	-0.24	0.00
	28	259318	0.80	0.37	0.37	-0.34	-0.13	0.00
	30	259319	0.43	0.25	-0.16	-0.17	0.25	0.00
	31	259320	0.88	0.29	-0.16	0.29	-0.23	0.10
	33	259351	0.71	0.36	-0.11	0.36	-0.31	0.20
	34	259430	0.86	0.24	-0.17	0.24	-0.14	0.20
	35	259431	0.91	0.36	0.36	-0.20	-0.27	0.20
	42	259419	0.80	0.34	-0.18	0.34	-0.27	0.20
	44	259421	0.81	0.31	0.31	-0.21	-0.17	0.49
	45	259463	0.69	0.44	0.44	-0.22	-0.32	0.39
	46	259345	0.80	0.47	-0.31	-0.29	0.47	0.29
	48	259325	0.81	0.50	-0.35	0.50	-0.30	0.29
	49	259385	0.76	0.45	-0.20	-0.36	0.45	0.29
	50	259390	0.86	0.36	-0.21	-0.25	0.36	0.20
	51	259383	0.70	0.39	-0.31	0.39	-0.16	0.29
	52	259386	0.70	0.50	-0.33	-0.29	0.50	0.20
	53	259388	0.69	0.30	0.30	-0.08	-0.31	0.20
	54	259389	0.78	0.45	-0.32	0.45	-0.25	0.20
	61	259438	0.67	0.32	-0.13	0.32	-0.25	0.29
	62	259439	0.58	0.26	-0.21	0.26	-0.13	0.20
	63	259437	0.43	0.27	0.27	-0.09	-0.19	0.67
	64	259358	0.80	0.46	-0.25	-0.33	0.46	0.29
	65	259434	0.71	0.37	-0.32	0.37	-0.11	0.29
	66	259332	0.69	0.24	-0.20	0.24	-0.09	0.21
	67	259403	0.46	0.26	-0.14	-0.15	0.26	0.15
	68	259401	0.61	0.23	0.23	-0.08	-0.22	0.26
	69	259402	0.71	0.46	-0.38	-0.21	0.46	0.15
	70	259399	0.87	0.36	-0.20	-0.27	0.36	0.21
	71	259400	0.80	0.44	-0.33	-0.26	0.44	0.31
	72	259404	0.77	0.25	0.25	-0.09	-0.23	0.31
	73	259461	0.91	0.37	-0.25	-0.24	0.37	0.15
	76	259446	0.84	0.39	-0.26	-0.25	0.39	0.26
	77	259447	0.70	0.28	-0.21	0.28	-0.12	0.31
	78	259448	0.80	0.43	-0.27	-0.29	0.43	0.21

Table A14. English Operational Items: May08 - Linking - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	85	259391	0.71	0.41	-0.26	0.41	-0.26	0.39
208	86	259454	0.59	0.26	0.26	-0.19	-0.10	0.39
	87	259455	0.76	0.44	-0.28	-0.27	0.44	0.29
	89	259392	0.70	0.48	-0.29	-0.31	0.48	0.29
	90	259394	0.90	0.50	0.50	-0.40	-0.23	0.29
	92	259393	0.84	0.52	0.52	-0.30	-0.37	0.39
	93	259444	0.57	0.25	-0.13	0.25	-0.13	0.99
	94	259356	0.47	0.28	-0.14	-0.15	0.28	1.07

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A15. English Operational Items: Summer08 - Form 308

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
308	1	259429	0.48	0.13	0.13	-0.02	-0.14	0.00
	3	259426	0.71	0.18	0.18	-0.05	-0.19	0.00
	4	259349	0.64	0.17	0.04	0.17	-0.27	0.00
	5	259427	0.49	0.41	-0.30	0.41	-0.17	0.00
	7	259323	0.41	0.25	0.25	-0.12	-0.15	0.00
	9	259453	0.39	0.00	0.05	-0.07	0.00	0.00
	10	259382	0.61	0.28	-0.07	0.28	-0.27	0.00
	11	259452	0.47	0.27	-0.08	0.27	-0.22	0.00
	12	259465	0.39	0.10	0.10	-0.14	0.03	0.00
	13	259407	0.14	0.03	-0.16	0.03	0.13	0.00
	14	259335	0.33	0.03	-0.14	0.06	0.03	0.00
	15	259410	0.68	0.24	-0.08	0.24	-0.24	1.27
	16	259413	0.61	0.09	-0.08	0.09	-0.06	0.00
	17	259411	0.51	0.43	0.06	-0.46	0.43	0.00
	18	259414	0.37	0.14	-0.16	-0.01	0.14	0.00
	20	259338	0.46	0.21	0.21	-0.01	-0.22	0.00
	21	259339	0.57	0.26	-0.10	0.26	-0.27	0.00
	23	259441	0.21	0.29	0.29	-0.20	-0.05	0.00
	25	259362	0.56	0.43	0.43	-0.18	-0.32	0.00
	26	259436	0.25	0.33	0.33	-0.17	-0.16	0.00
	27	259432	0.58	0.28	0.28	-0.19	-0.15	0.00
	28	259433	0.42	0.42	0.42	-0.31	-0.17	0.00
	29	259354	0.27	0.19	-0.17	-0.01	0.19	0.00
	30	259347	0.38	0.19	0.19	-0.15	-0.07	0.00
	31	259424	0.61	0.36	-0.21	-0.26	0.36	0.00
	32	259423	0.47	0.34	-0.04	-0.32	0.34	0.00
	33	259425	0.56	0.17	-0.15	0.17	-0.05	0.00
	34	259422	0.39	0.16	-0.16	0.16	-0.02	0.00
	35	259445	0.58	0.29	-0.15	0.29	-0.21	0.00
	36	259374	0.31	0.17	-0.03	-0.17	0.17	0.00
	37	259450	0.36	0.37	-0.35	-0.01	0.37	0.00
	38	259376	0.55	0.27	-0.13	-0.31	0.27	0.00
	40	259310	0.57	0.38	-0.18	0.38	-0.28	0.00
	41	259365	0.55	0.43	-0.16	0.43	-0.36	0.00
	42	259449	0.65	0.42	0.42	-0.22	-0.32	0.00
	43	259443	0.52	0.36	-0.21	0.36	-0.22	0.00
	45	259437	0.41	0.36	0.36	0.01	-0.41	0.00
	46	259360	0.43	0.43	0.43	-0.15	-0.32	0.00
	47	259435	0.16	0.08	0.03	-0.12	0.08	0.00
	59	259457	0.42	-0.15	-0.15	0.08	0.09	0.00
	60	259330	0.65	0.36	-0.15	0.36	-0.30	0.00
	61	259458	0.39	0.27	0.27	-0.34	0.05	0.00

Table A15. English Operational Items: Summer08 - Form 308

Form	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	62	259466	0.60	0.36	-0.37	-0.14	0.36	0.00
308	63	259395	0.47	0.31	0.06	0.31	-0.35	1.30
	64	259459	0.43	0.15	-0.02	-0.16	0.15	0.00
	65	259396	0.35	0.16	-0.05	-0.11	0.16	0.00
	66	259460	0.60	0.42	0.42	-0.20	-0.32	0.00
	67	259398	0.60	0.32	-0.32	0.32	-0.07	0.00
	69	259444	0.66	0.10	-0.08	0.10	-0.05	0.00
	70	259356	0.49	0.34	-0.23	-0.22	0.34	0.00

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A16. Government Operational Items: May08 - Target - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	2	258363	0.45	0.36	-0.20	-0.19	0.36	0.23
	4	258500	0.29	0.25	0.25	-0.07	-0.17	0.31
	5	258338	0.42	0.30	-0.13	0.30	-0.19	0.16
	6	258327	0.48	0.27	0.27	-0.09	-0.25	0.23
	11	258408	0.45	0.32	0.32	-0.25	-0.09	0.31
	12	258355	0.49	0.23	0.23	-0.16	-0.09	0.23
	20	258458	0.48	0.38	0.38	-0.25	-0.19	0.31
	21	258505	0.45	0.21	0.21	-0.09	-0.15	0.31
	22	258506	0.62	0.26	-0.11	-0.20	0.26	0.47
	25	258349	0.55	0.33	0.33	-0.24	-0.14	0.39
	26	258429	0.47	0.23	-0.09	-0.16	0.23	0.47
	27	258353	0.37	0.14	0.07	0.14	-0.22	0.31
	28	258396	0.46	0.27	0.27	-0.12	-0.16	0.55
	33	258410	0.47	0.30	-0.13	-0.19	0.30	0.63
	35	258386	0.47	0.50	0.50	-0.28	-0.25	0.55
	36	258350	0.36	0.27	0.27	-0.09	-0.16	0.63
	37	258378	0.49	0.26	-0.10	-0.16	0.26	0.70
	44	258503	0.38	0.28	-0.14	-0.11	0.28	0.63
	45	258440	0.61	0.32	-0.20	0.32	-0.16	0.70
	46	258400	0.51	0.33	-0.25	-0.11	0.33	0.78
	47	258421	0.35	0.24	0.24	-0.12	-0.08	0.70
	50	258446	0.39	0.23	-0.19	0.23	-0.03	0.70
	51	258344	0.40	0.33	0.33	-0.15	-0.17	0.78
	52	258432	0.47	0.20	-0.13	-0.05	0.20	0.86
	53	258428	0.51	0.26	-0.13	-0.14	0.26	0.63
	54	258360	0.43	0.22	-0.07	0.22	-0.13	0.78
	55	258343	0.49	0.33	-0.15	0.33	-0.19	0.63
	63	258438	0.55	0.34	0.34	-0.14	-0.24	0.70
	64	258718	0.66	0.44	0.44	-0.28	-0.23	0.70
	65	258424	0.36	0.17	0.03	0.17	-0.17	0.94
	66	258323	0.39	0.28	-0.13	0.28	-0.12	1.02
	67	258324	0.65	0.48	-0.25	-0.30	0.48	1.49
	68	258437	0.47	0.28	-0.07	-0.18	0.28	1.41
	69	258319	0.38	0.15	-0.07	0.15	-0.03	1.49
	72	258389	0.55	0.23	-0.07	0.23	-0.15	1.49
	73	258379	0.55	0.21	-0.05	-0.14	0.21	1.57
	75	258413	0.48	0.23	-0.10	0.23	-0.10	1.72
	76	258448	0.48	0.36	0.36	-0.21	-0.15	1.64
	77	258721	0.35	0.18	0.18	-0.07	-0.05	1.57
	84	258439	0.46	0.27	-0.17	0.27	-0.09	1.72
	85	258368	0.43	0.22	0.22	-0.15	-0.02	1.88
	86	258320	0.42	0.30	-0.03	0.30	-0.24	1.72

Table A16. Government Operational Items: May08 - Target - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	87	258436	0.59	0.43	0.43	-0.30	-0.16	1.72
108	88	258384	0.63	0.39	-0.21	0.39	-0.21	1.80
	89	258486	0.46	0.25	-0.09	0.25	-0.12	1.72
	90	258411	0.32	0.20	-0.11	-0.03	0.20	1.88
	92	258313	0.64	0.36	-0.22	0.36	-0.16	1.80
	95	258716	0.50	0.34	0.34	-0.12	-0.22	1.72
	96	258335	0.50	0.41	-0.16	-0.25	0.41	1.80
	99	258377	0.60	0.36	0.36	-0.19	-0.19	1.96

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A17. Government Operational Items: May08 - Target - Form 208

Form	Pos No	ItemID	P Val	R ITT	P BIS1	P BIS2	P BIS3	%Omits
208	1	258401	0.58	0.37	-0.23	-0.21	0.37	0.10
	2	258459	0.75	0.24	-0.20	0.24	-0.13	0.00
	3	258402	0.47	0.30	-0.23	-0.13	0.30	0.00
	4	258406	0.66	0.35	-0.25	0.35	-0.20	0.00
	6	258347	0.43	0.28	0.28	-0.22	-0.13	0.00
	10	258328	0.62	0.38	0.38	-0.31	-0.17	0.10
	11	258422	0.47	0.27	-0.12	-0.18	0.27	0.00
	13	258357	0.34	0.35	-0.19	0.35	-0.17	0.00
	21	258452	0.39	0.33	0.33	-0.20	-0.17	0.10
	22	258330	0.52	0.33	0.33	-0.22	-0.16	0.20
	26	258454	0.40	0.33	-0.19	-0.18	0.33	0.10
	27	258364	0.71	0.36	-0.18	0.36	-0.28	0.10
	28	258361	0.54	0.33	0.33	-0.26	-0.12	0.10
	29	258336	0.42	0.22	-0.07	-0.16	0.22	0.10
	32	258376	0.44	0.33	0.33	-0.24	-0.12	0.20
	33	258419	0.28	0.14	-0.07	0.14	-0.06	0.30
	34	258425	0.57	0.17	-0.15	0.17	-0.02	0.30
	35	258715	0.79	0.26	-0.19	0.26	-0.12	0.30
	36	258473	0.51	0.26	-0.15	-0.14	0.26	0.30
	44	258478	0.30	0.09	0.04	0.09	-0.11	0.30
	45	258501	0.52	0.28	-0.18	-0.14	0.28	0.30
	46	258450	0.55	0.36	0.36	-0.23	-0.18	0.30
	47	258498	0.49	0.37	0.37	-0.20	-0.21	0.30
	49	258388	0.31	0.17	-0.09	0.17	-0.06	0.30
	50	258351	0.34	0.33	0.33	-0.35	0.03	0.30
	51	258488	0.68	0.34	0.34	-0.22	-0.18	0.30
	52	258479	0.53	0.38	-0.18	0.38	-0.26	0.30
	53	258375	0.53	0.40	0.40	-0.25	-0.19	0.51
	54	258414	0.45	0.28	-0.09	0.28	-0.21	0.30
	55	258495	0.30	0.20	0.20	-0.07	-0.10	0.30
	56	258321	0.54	0.31	0.31	-0.15	-0.18	0.40
	63	258426	0.27	0.26	0.26	-0.14	-0.09	0.40
	64	258722	0.49	0.22	-0.12	0.22	-0.11	0.40
	65	258407	0.30	0.05	0.05	0.08	-0.13	0.51
	66	258412	0.57	0.39	0.39	-0.16	-0.28	1.01
	67	258369	0.48	0.36	-0.20	-0.19	0.36	0.51
	68	258483	0.49	0.36	0.36	-0.25	-0.17	0.40
	69	258719	0.64	0.39	0.39	-0.22	-0.24	0.40
	71	258345	0.23	0.14	-0.02	0.14	-0.09	0.51
	72	258390	0.63	0.29	-0.19	0.29	-0.14	0.61
	75	258329	0.33	0.23	0.23	-0.01	-0.22	0.61
	76	258409	0.60	0.13	-0.04	0.13	-0.08	0.61

Table A17. Government Operational Items: May08 - Target - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	77	258434	0.36	0.20	0.04	-0.20	0.20	0.61
208	84	258391	0.58	0.37	0.37	-0.22	-0.20	0.71
	86	258316	0.46	0.14	-0.05	0.14	-0.08	0.61
	87	258404	0.48	0.38	0.38	-0.22	-0.18	0.61
	91	258468	0.53	0.37	0.37	-0.28	-0.13	0.61
	92	258491	0.34	0.21	-0.01	0.21	-0.18	0.61
	95	258341	0.57	0.36	0.36	-0.21	-0.21	0.61
	96	258502	0.31	0.27	0.27	-0.14	-0.10	0.61

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A18. Government Operational Items: May08 - Linking - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
108	2	258363	0.79	0.45	-0.31	-0.29	0.45	0.00
	4	258500	0.62	0.41	0.41	-0.29	-0.25	0.00
	5	258338	0.77	0.41	-0.29	0.41	-0.27	0.09
	6	258327	0.58	0.13	0.13	-0.08	-0.12	0.09
	11	258408	0.80	0.45	0.45	-0.32	-0.27	0.09
	12	258355	0.72	0.33	0.33	-0.28	-0.14	0.09
	20	258458	0.77	0.44	0.44	-0.16	-0.39	0.09
	21	258505	0.68	0.34	0.34	-0.24	-0.21	0.09
	22	258506	0.79	0.21	-0.11	-0.20	0.21	0.18
	25	258349	0.79	0.36	0.36	-0.22	-0.24	0.18
	26	258429	0.74	0.40	-0.28	-0.24	0.40	0.09
	27	258353	0.53	0.32	-0.23	0.32	-0.17	0.09
	28	258396	0.70	0.46	0.46	-0.33	-0.25	0.09
	33	258410	0.76	0.44	-0.29	-0.28	0.44	0.09
	35	258386	0.91	0.47	0.47	-0.32	-0.30	0.26
	36	258350	0.74	0.35	0.35	-0.25	-0.18	0.18
	37	258378	0.77	0.47	-0.30	-0.30	0.47	0.18
	44	258503	0.71	0.43	-0.21	-0.32	0.43	0.26
	45	258440	0.83	0.36	-0.22	0.36	-0.23	0.44
	46	258400	0.72	0.36	-0.24	-0.24	0.36	0.26
	47	258421	0.65	0.51	0.51	-0.38	-0.22	0.26
	50	258446	0.66	0.52	-0.33	0.52	-0.31	0.26
	51	258344	0.69	0.54	0.54	-0.38	-0.30	0.35
	52	258432	0.66	0.43	-0.32	-0.19	0.43	0.35
	53	258428	0.76	0.37	-0.17	-0.26	0.37	0.44
	54	258360	0.69	0.40	-0.23	0.40	-0.25	0.53
	55	258343	0.81	0.46	-0.28	0.46	-0.31	0.35
	63	258438	0.84	0.39	0.39	-0.28	-0.20	0.35
	64	258718	0.94	0.43	0.43	-0.26	-0.28	0.35
	65	258424	0.58	0.50	-0.31	0.50	-0.28	0.35
	66	258323	0.68	0.50	-0.24	0.50	-0.36	0.53
	67	258324	0.94	0.41	-0.28	-0.23	0.41	0.35
	68	258437	0.78	0.47	-0.26	-0.33	0.47	0.35
	69	258319	0.58	0.51	-0.27	0.51	-0.33	0.35
	72	258389	0.80	0.37	-0.22	0.37	-0.26	0.35
	73	258379	0.70	0.33	-0.14	-0.30	0.33	0.35
	75	258413	0.67	0.37	-0.19	0.37	-0.25	0.35
	76	258448	0.80	0.55	0.55	-0.42	-0.26	0.35
	77	258721	0.52	0.35	0.35	-0.18	-0.21	0.35
	84	258439	0.72	0.42	-0.23	0.42	-0.30	0.35
	85	258368	0.61	0.38	0.38	-0.20	-0.24	0.35
	86	258320	0.79	0.42	-0.25	0.42	-0.29	0.35

Table A18. Government Operational Items: May08 - Linking - Form 108

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	87	258436	0.88	0.46	0.46	-0.35	-0.23	0.35
108	88	258384	0.87	0.43	-0.29	0.43	-0.25	0.35
	89	258486	0.67	0.34	-0.25	0.34	-0.16	0.35
	90	258411	0.61	0.50	-0.15	-0.42	0.50	0.35
	92	258313	0.87	0.37	-0.21	0.37	-0.26	0.53
	95	258716	0.80	0.41	0.41	-0.24	-0.29	0.44
	96	258335	0.77	0.38	-0.24	-0.22	0.38	0.44
	99	258377	0.89	0.42	0.42	-0.24	-0.30	0.62

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A19. Government Operational Items: May08 - Linking - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
208	1	258401	0.89	0.53	-0.32	-0.40	0.53	0.00
	2	258459	0.93	0.24	-0.16	0.24	-0.19	0.00
	3	258402	0.73	0.42	-0.33	-0.24	0.42	0.00
	4	258406	0.90	0.37	-0.14	0.37	-0.33	0.00
	6	258347	0.83	0.47	0.47	-0.20	-0.42	0.00
	10	258328	0.91	0.44	0.44	-0.28	-0.33	0.00
	11	258422	0.75	0.45	-0.27	-0.31	0.45	0.09
	13	258357	0.77	0.44	-0.33	0.44	-0.24	0.00
	21	258452	0.79	0.49	0.49	-0.42	-0.24	0.09
	22	258330	0.82	0.43	0.43	-0.32	-0.26	0.00
	26	258454	0.77	0.50	-0.27	-0.41	0.50	0.00
	27	258364	0.91	0.32	-0.19	0.32	-0.26	0.00
	28	258361	0.82	0.41	0.41	-0.33	-0.24	0.00
	29	258336	0.71	0.37	-0.26	-0.23	0.37	0.00
	32	258376	0.80	0.43	0.43	-0.30	-0.28	0.00
	33	258419	0.54	0.42	-0.24	0.42	-0.26	0.00
	34	258425	0.83	0.43	-0.37	0.43	-0.16	0.18
	35	258715	0.93	0.30	-0.24	0.30	-0.17	0.18
	36	258473	0.81	0.41	-0.25	-0.29	0.41	0.18
	44	258478	0.54	0.38	-0.39	0.38	-0.06	0.18
	45	258501	0.87	0.50	-0.35	-0.33	0.50	0.18
	46	258450	0.83	0.45	0.45	-0.33	-0.27	0.18
	47	258498	0.84	0.49	0.49	-0.32	-0.34	0.18
	49	258388	0.59	0.35	-0.15	0.35	-0.28	0.18
	50	258351	0.79	0.46	0.46	-0.34	-0.28	0.36
	51	258488	0.79	0.27	0.27	-0.27	-0.10	0.18
	52	258479	0.89	0.42	-0.20	0.42	-0.35	0.27
	53	258375	0.86	0.54	0.54	-0.36	-0.37	0.27
	54	258414	0.68	0.38	-0.23	0.38	-0.26	0.18
	55	258495	0.68	0.51	0.51	-0.32	-0.32	0.18
	56	258321	0.78	0.47	0.47	-0.23	-0.39	0.18
	63	258426	0.70	0.56	0.56	-0.46	-0.24	0.18
	64	258722	0.75	0.39	-0.28	0.39	-0.22	0.18
	65	258407	0.48	0.43	0.43	-0.25	-0.29	0.27
	66	258412	0.88	0.41	0.41	-0.29	-0.27	0.27
	67	258369	0.74	0.38	-0.28	-0.21	0.38	0.45
	68	258483	0.83	0.45	0.45	-0.27	-0.33	0.45
	69	258719	0.90	0.41	0.41	-0.30	-0.23	0.45
	71	258345	0.49	0.33	-0.22	0.33	-0.15	0.45
	72	258390	0.87	0.41	-0.24	0.41	-0.29	0.45
	75	258329	0.62	0.28	0.28	-0.11	-0.33	0.54
	76	258409	0.77	0.43	-0.26	0.43	-0.30	0.45

Table A19. Government Operational Items: May08 - Linking - Form 208

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	77	258434	0.60	0.42	-0.09	-0.43	0.42	0.45
208	84	258391	0.84	0.45	0.45	-0.26	-0.30	0.54
	86	258316	0.59	0.26	-0.10	0.26	-0.20	0.45
	87	258404	0.76	0.37	0.37	-0.20	-0.28	0.45
	91	258468	0.85	0.48	0.48	-0.37	-0.26	0.45
	92	258491	0.66	0.45	-0.28	0.45	-0.31	0.45
	95	258341	0.89	0.36	0.36	-0.24	-0.24	0.45
	96	258502	0.52	0.29	0.29	-0.21	-0.09	0.45

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Table A20. Government Operational Items: Summer08 - Form 308

Form	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
308	2	258363	0.39	0.26	-0.13	-0.17	0.26	0.00
	4	258500	0.33	0.36	0.36	-0.05	-0.32	0.00
	5	258338	0.39	0.46	-0.35	0.46	-0.14	0.00
	6	258327	0.45	0.33	0.33	-0.14	-0.29	0.00
	11	258408	0.63	0.07	0.07	-0.13	0.09	0.00
	12	258355	0.56	0.20	0.20	-0.11	-0.13	0.00
	14	258458	0.48	0.34	0.34	-0.26	-0.17	0.00
	15	258505	0.48	0.21	0.21	-0.01	-0.24	0.00
	16	258506	0.52	0.20	-0.03	-0.21	0.20	0.00
	19	258349	0.52	0.35	0.35	-0.36	-0.02	0.00
	20	258429	0.52	0.25	-0.10	-0.20	0.25	0.00
	21	258353	0.31	0.02	0.15	0.02	-0.20	0.00
	22	258396	0.50	0.17	0.17	-0.29	0.14	0.00
	27	258410	0.45	0.44	-0.02	-0.44	0.44	0.00
	29	258386	0.53	0.57	0.57	-0.40	-0.29	0.00
	30	258350	0.42	0.06	0.06	-0.04	-0.02	0.00
	31	258378	0.41	0.02	0.10	-0.13	0.02	0.00
	32	258503	0.45	0.17	-0.20	0.00	0.17	0.00
	33	258440	0.56	0.25	-0.14	0.25	-0.16	0.00
	34	258400	0.58	0.38	-0.31	-0.17	0.38	0.00
	35	258421	0.27	0.16	0.16	-0.02	-0.13	0.00
	38	258446	0.45	0.29	-0.28	0.29	-0.04	0.00
	39	258344	0.31	0.21	0.21	-0.24	0.06	0.00
	40	258432	0.50	0.16	-0.21	0.03	0.16	0.00
	41	258428	0.58	0.25	-0.11	-0.19	0.25	0.00
	42	258360	0.56	0.14	-0.06	0.14	-0.10	0.00
	43	258343	0.56	0.38	-0.14	0.38	-0.31	0.00
	45	258438	0.73	0.38	0.38	-0.35	-0.14	0.00
	46	258718	0.72	0.47	0.47	-0.22	-0.38	0.00
	47	258424	0.33	0.34	-0.16	0.34	-0.18	0.00
	48	258323	0.47	0.30	-0.23	0.30	-0.11	0.00
	49	258324	0.83	0.25	-0.19	-0.17	0.25	0.00
	50	258437	0.50	0.33	0.03	-0.37	0.33	0.00
	51	258319	0.41	0.16	-0.09	0.16	-0.08	0.00
	54	258389	0.58	0.11	-0.10	0.11	-0.03	0.00
	55	258379	0.50	0.26	-0.14	-0.16	0.26	0.00
	57	258413	0.50	0.19	-0.10	0.19	-0.12	0.00
	58	258448	0.47	0.39	0.39	-0.26	-0.19	0.00
	59	258721	0.38	0.17	0.17	-0.10	-0.08	0.00
	60	258439	0.53	0.25	-0.27	0.25	-0.02	0.00
	61	258368	0.39	0.19	0.19	0.01	-0.29	0.00
	62	258320	0.47	0.32	-0.20	0.32	-0.16	0.00

Table A20. Government Operational Items: Summer08 - Form 308

Form	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	63	258436	0.52	0.45	0.45	-0.36	-0.17	0.00
308	64	258384	0.64	0.31	-0.27	0.31	-0.10	0.00
	65	258486	0.52	0.36	-0.19	0.36	-0.23	0.00
	66	258411	0.31	0.37	-0.09	-0.27	0.37	0.00
	68	258313	0.67	0.32	-0.30	0.32	-0.08	0.00
	71	258716	0.41	0.32	0.32	-0.20	-0.14	0.00
	72	258335	0.53	0.32	-0.13	-0.24	0.32	0.00
	75	258377	0.58	0.48	0.48	-0.41	-0.22	0.00

Note: P_Val = P-Value, R_ITT = item-total correlation, P_BIS1 to P_BIS3 = option-total correlation, %Omits = percent of omitted responses.

Appendix B. Classical Item Statistics: Field Test Items

Table B1. Summary Statistics: Algebra Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
108	1204	1	258090	0.83	0.21	-0.12	-0.16	0.21	0.00%
	1204	2	258095	0.96	0.23	0.23	-0.11	-0.23	0.08%
	1204	3	258212	0.95	0.18	-0.09	-0.16	0.18	0.00%
	1204	4	258166	0.93	0.23	-0.19	0.23	-0.14	0.00%
	1204	5	258213	0.59	0.45	-0.34	-0.22	0.45	0.00%
	1204	6	258312	0.88	0.47	0.47	-0.41	-0.23	0.00%
	1204	7	258228	0.78	0.34	-0.21	-0.24	0.34	0.08%
	1204	8	258172	0.44	0.33	0.33	-0.22	-0.19	0.08%
	1204	9	258173	0.69	0.26	-0.14	0.26	-0.19	0.17%
	1204	10	258115	0.79	0.47	0.47	-0.36	-0.24	0.08%
	1204	11	258121	0.28	0.23	-0.05	-0.16	0.23	0.08%
	1204	12	261563	0.49	0.28	-0.13	-0.21	0.28	0.08%
	1204	13	258223	0.44	0.27	-0.12	0.27	-0.18	0.08%
	1204	22	258230	0.64	0.17	0.17	-0.15	-0.07	0.08%
	1204	23	258122	0.97	0.20	-0.13	0.20	-0.12	0.08%
	1204	24	258195	0.75	0.38	-0.27	-0.23	0.38	0.00%
	1204	25	258147	0.75	0.39	0.39	-0.32	-0.18	0.08%
	1204	26	258151	0.87	0.44	-0.26	-0.32	0.44	0.08%
	1204	27	258216	0.75	0.48	0.48	-0.28	-0.34	0.08%
	1204	28	261560	0.84	0.29	-0.23	0.29	-0.15	0.08%
	1204	29	258227	0.84	0.34	0.34	-0.23	-0.22	0.08%
	1204	30	258308	0.73	0.36	0.36	-0.19	-0.26	0.17%
	1204	31	258101	0.83	0.39	-0.24	0.39	-0.28	0.08%
	1204	32	258180	0.76	0.37	-0.25	-0.23	0.37	0.08%
	1204	33	258233	0.64	0.25	0.25	-0.18	-0.11	0.08%
	1204	34	258210	0.95	0.21	-0.16	0.21	-0.10	0.25%
	1204	35	258116	0.62	0.26	0.26	-0.20	-0.17	0.25%
	1204	36	258089	0.67	0.49	-0.28	0.49	-0.34	0.33%
	1204	37	258134	0.79	0.51	-0.47	0.51	-0.13	0.25%
	1204	38	258138	0.93	0.34	-0.17	-0.24	0.34	0.25%
	1204	39	258139	0.87	0.28	-0.09	0.28	-0.27	0.25%
	1204	40	258140	0.49	0.40	-0.22	-0.24	0.40	0.33%
	1204	41	261556	0.66	0.30	0.30	-0.13	-0.23	0.25%
	1204	42	258309	0.94	0.27	-0.19	-0.15	0.27	0.25%
	1204	43	258098	0.84	0.34	-0.17	-0.28	0.34	0.25%
	1204	44	258208	0.77	0.47	-0.30	-0.30	0.47	0.33%
	1204	45	258161	0.88	0.44	0.44	-0.37	-0.18	0.25%
	1204	46	258159	0.65	0.40	-0.25	-0.23	0.40	0.25%
	1204	55	258183	0.85	0.55	-0.22	-0.46	0.55	0.33%
	1204	56	258184	0.70	0.45	-0.17	0.45	-0.36	0.25%
	1204	57	258185	0.83	0.50	0.50	-0.41	-0.21	0.25%
	1204	58	258136	0.86	0.41	-0.20	0.41	-0.32	0.42%
	1204	59	258102	0.77	0.40	-0.21	0.40	-0.30	0.25%

Table B1. Summary Statistics: Algebra Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P Val	R ITT	P BIS1	P BIS2	P BIS3	Omit Rate
	1204	60	258226	0.59	0.41	-0.17	-0.30	0.41	0.25%
108	1204	61	258214	0.75	0.55	0.55	-0.40	-0.29	0.25%
	1204	62	258188	0.84	0.38	-0.25	0.38	-0.23	0.25%
	1204	63	258174	0.67	0.36	-0.19	-0.25	0.36	0.25%
	1204	64	258175	0.35	-0.03	0.18	-0.03	-0.18	0.33%
	1204	65	258221	0.56	0.24	-0.11	0.24	-0.22	0.33%
	1204	66	258104	0.56	0.33	-0.20	-0.17	0.33	0.58%
	1204	67	258187	0.82	0.40	-0.19	-0.29	0.40	0.50%
	1204	68	258154	0.79	0.43	-0.28	-0.24	0.43	0.58%
	1204	69	258113	0.81	0.42	-0.32	0.42	-0.19	0.50%
	1204	70	258092	0.92	0.44	0.44	-0.21	-0.32	0.50%
	1204	71	258177	0.38	0.09	-0.03	0.09	-0.03	0.50%
	1204	72	258198	0.68	0.47	-0.26	-0.30	0.47	0.50%
	1204	73	258167	0.88	0.42	-0.33	0.42	-0.17	0.50%
	1204	74	258169	0.75	0.51	-0.29	-0.33	0.51	0.66%
	1204	75	258119	0.66	0.37	0.37	-0.25	-0.22	0.50%
	1204	76	258160	0.61	0.42	0.42	-0.23	-0.25	0.50%
	1204	77	258241	0.80	0.44	-0.34	0.44	-0.19	0.50%
	1204	78	258130	0.69	0.37	0.37	-0.24	-0.21	0.58%
	1204	79	258131	0.29	0.16	0.16	-0.04	-0.10	0.50%
	1204	88	258128	0.89	0.32	-0.18	0.32	-0.20	0.58%
	1204	89	258509	0.57	0.36	0.36	-0.31	-0.14	0.66%
	1204	90	258231	0.87	0.43	-0.26	-0.27	0.43	0.75%
	1204	91	258111	0.76	0.39	-0.27	0.39	-0.22	0.66%
	1204	92	258096	0.38	0.36	0.36	-0.15	-0.25	0.66%
	1204	93	258125	0.60	0.20	-0.18	0.20	-0.11	0.66%
	1204	94	258144	0.54	0.48	0.48	-0.32	-0.24	0.66%
	1204	95	261558	0.70	0.44	-0.28	0.44	-0.24	0.66%
	1204	96	258149	0.73	0.43	0.43	-0.27	-0.25	0.75%
	1204	97	261562	0.72	0.42	0.42	-0.30	-0.20	0.66%
	1204	98	258220	0.57	0.46	-0.25	-0.28	0.46	0.75%
	1204	99	258135	0.76	0.43	-0.35	0.43	-0.15	0.75%
208	1303	1	258234	0.90	0.25	-0.12	-0.22	0.25	0.00%
	1303	2	258206	0.95	0.12	0.12	-0.11	-0.04	0.00%
	1303	3	258199	0.94	0.24	-0.22	0.24	-0.12	0.00%
	1303	4	258194	0.97	0.21	0.21	-0.17	-0.14	0.00%
	1303	5	258189	0.96	0.24	-0.19	0.24	-0.14	0.00%
	1303	6	258190	0.71	0.41	-0.30	-0.23	0.41	0.15%
	1303	7	258191	0.39	0.32	-0.16	0.32	-0.18	0.08%
	1303	8	258164	0.61	0.35	-0.21	-0.24	0.35	0.00%
	1303	9	258224	0.71	0.42	-0.19	0.42	-0.36	0.00%
	1303	10	258107	0.51	0.37	-0.20	-0.25	0.37	0.00%
	1303	11	258126	0.67	0.35	0.35	-0.22	-0.23	0.00%
	1303	12	258186	0.74	0.25	-0.13	0.25	-0.23	0.00%

Table B1. Summary Statistics: Algebra Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P Val	R ITT	P BIS1	P BIS2	P BIS3	Omit Rate
	1303	13	258192	0.63	0.33	-0.31	0.33	-0.10	0.08%
	1303	22	258239	0.64	0.37	-0.28	0.37	-0.18	0.08%
208	1303	23	258123	0.88	0.48	0.48	-0.37	-0.28	0.00%
	1303	24	258124	0.73	0.50	-0.32	-0.33	0.50	0.00%
	1303	25	258168	0.76	0.29	-0.24	0.29	-0.15	0.00%
	1303	26	258200	0.49	0.33	0.33	-0.10	-0.34	0.00%
	1303	27	258179	0.46	0.20	-0.23	-0.06	0.20	0.15%
	1303	28	258235	0.87	0.28	-0.21	0.28	-0.17	0.08%
	1303	29	258202	0.86	0.45	-0.30	0.45	-0.32	0.00%
	1303	30	258105	0.53	0.30	0.30	-0.26	-0.13	0.00%
	1303	31	258106	0.42	0.24	0.24	-0.21	-0.12	0.08%
	1303	32	258236	0.73	0.45	-0.22	0.45	-0.36	0.00%
	1303	33	261559	0.54	0.30	0.30	-0.14	-0.22	0.23%
	1303	34	258211	0.59	0.18	-0.15	0.18	-0.10	0.00%
	1303	35	258209	0.86	0.20	-0.15	-0.16	0.20	0.00%
	1303	36	258182	0.91	0.34	-0.15	-0.31	0.34	0.00%
	1303	37	258193	0.95	0.29	-0.19	-0.21	0.29	0.08%
	1303	38	258155	0.93	0.13	-0.11	0.13	-0.07	0.08%
	1303	39	258219	0.73	0.36	0.36	-0.14	-0.32	0.00%
	1303	40	258238	0.65	0.61	-0.52	-0.22	0.61	0.00%
	1303	41	258141	0.78	0.48	0.48	-0.30	-0.33	0.00%
	1303	42	261561	0.89	0.30	0.30	-0.21	-0.21	0.00%
	1303	43	258207	0.78	0.43	-0.22	0.43	-0.34	0.00%
	1303	44	258132	0.64	0.33	-0.14	0.33	-0.26	0.00%
	1303	45	258158	0.71	0.37	-0.20	-0.27	0.37	0.15%
	1303	46	258145	0.80	0.44	-0.29	0.44	-0.32	0.00%
	1303	55	258117	0.65	0.32	-0.15	-0.26	0.32	0.00%
	1303	56	258229	0.85	0.31	-0.22	0.31	-0.20	0.08%
	1303	57	258197	0.78	0.35	-0.28	0.35	-0.19	0.00%
	1303	58	258097	0.70	0.46	0.46	-0.36	-0.24	0.00%
	1303	59	258310	0.88	0.36	-0.17	-0.31	0.36	0.00%
	1303	60	258109	0.62	0.41	0.41	-0.31	-0.19	0.00%
	1303	61	258110	0.62	0.30	-0.12	0.30	-0.28	0.00%
	1303	62	258103	0.44	0.38	0.38	-0.40	-0.02	0.08%
	1303	63	258108	0.50	0.18	-0.09	0.18	-0.12	0.08%
	1303	64	258196	0.74	0.25	-0.15	0.25	-0.20	0.08%
	1303	65	261564	0.80	0.43	0.43	-0.34	-0.22	0.08%
	1303	66	258217	0.83	0.25	-0.18	0.25	-0.18	0.00%
	1303	67	258153	0.58	0.38	0.38	-0.13	-0.31	0.38%
	1303	68	258181	0.95	0.31	-0.21	-0.18	0.31	0.38%
	1303	69	258240	0.85	0.32	-0.25	0.32	-0.14	0.46%
	1303	70	258204	0.98	0.20	-0.08	-0.11	0.20	0.54%
	1303	71	258157	0.53	0.44	0.44	-0.20	-0.30	0.38%
	1303	72	258120	0.79	0.50	-0.32	-0.32	0.50	0.38%

Table B1. Summary Statistics: Algebra Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P Val	R ITT	P BIS1	P BIS2	P BIS3	Omit Rate
	1303	73	258156	0.97	0.26	-0.14	0.26	-0.16	0.38%
	1303	74	258091	0.69	0.58	-0.34	0.58	-0.38	0.38%
	1303	75	258118	0.81	0.37	0.37	-0.28	-0.17	0.46%
208	1303	76	258242	0.58	0.17	-0.07	0.17	-0.11	0.38%
	1303	77	258225	0.76	0.31	-0.16	0.31	-0.23	0.38%
	1303	78	261557	0.66	0.33	0.33	-0.19	-0.21	0.38%
	1303	79	258114	0.74	0.45	-0.21	0.45	-0.35	0.38%
	1303	88	258163	0.82	0.32	-0.24	0.32	-0.18	0.46%
	1303	89	258152	0.74	0.39	0.39	-0.29	-0.19	0.38%
	1303	90	258133	0.70	0.36	0.36	-0.31	-0.16	0.46%
	1303	91	258311	0.74	0.55	-0.45	0.55	-0.22	0.46%
	1303	92	258178	0.82	0.31	-0.20	-0.19	0.31	0.46%
	1303	93	258100	0.77	0.36	-0.26	0.36	-0.20	0.38%
	1303	94	258112	0.48	0.49	-0.11	-0.43	0.49	0.54%
	1303	95	258171	0.77	0.42	-0.28	0.42	-0.25	0.46%
	1303	96	258142	0.75	0.39	-0.17	-0.30	0.39	0.54%
	1303	97	258150	0.54	0.28	0.28	-0.13	-0.20	0.46%
	1303	98	258146	0.30	0.23	-0.25	0.23	-0.04	0.61%
	1303	99	258137	0.34	0.18	-0.06	0.18	-0.17	0.46%

Note: Table entries in bold font were identified as having less than desirable statistics according to the flagging criteria described in Section 3.

Table B2. Summary Statistics: Biology Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
108	1518	1	258636	0.89	0.37	-0.31	0.37	-0.20	0.07%
	1518	2	258653	0.67	0.44	0.44	-0.27	-0.35	0.13%
	1518	3	258663	0.74	0.24	-0.23	0.24	-0.05	0.07%
	1518	4	258690	0.56	0.33	-0.09	-0.32	0.33	0.07%
	1518	5	258702	0.87	0.34	-0.29	0.34	-0.19	0.07%
	1518	6	258672	0.94	0.37	0.37	-0.23	-0.27	0.07%
	1518	7	258623	0.93	0.23	0.23	-0.18	-0.13	0.13%
	1518	8	261644	0.95	0.25	0.25	-0.20	-0.13	0.07%
	1518	9	261643	0.60	0.48	-0.35	0.48	-0.23	0.13%
	1518	18	258662	0.69	0.45	-0.21	-0.37	0.45	0.07%
	1518	19	258613	0.91	0.45	-0.27	-0.33	0.45	0.33%
	1518	20	258659	0.50	0.37	0.37	-0.31	-0.10	0.07%
	1518	21	258609	0.61	0.44	-0.32	0.44	-0.22	0.20%
	1518	22	258729	0.94	0.36	-0.20	0.36	-0.28	0.07%
	1518	23	258673	0.82	0.20	-0.14	-0.14	0.20	0.07%
	1518	24	258703	0.82	0.46	-0.27	0.46	-0.34	0.20%
	1518	25	258701	0.70	0.34	-0.24	0.34	-0.21	0.07%
	1518	26	258628	0.90	0.41	0.41	-0.25	-0.30	0.07%
	1518	27	258685	0.57	0.42	0.42	-0.07	-0.38	0.20%
	1518	28	261629	0.93	0.26	-0.15	0.26	-0.19	0.07%
	1518	29	258709	0.79	0.36	-0.22	-0.26	0.36	0.07%
	1518	30	261611	0.43	0.45	-0.27	-0.21	0.45	0.07%
	1518	31	258615	0.64	0.29	-0.15	0.29	-0.21	0.07%
	1518	32	258683	0.92	0.35	-0.26	0.35	-0.22	0.07%
	1518	33	258641	0.72	0.47	-0.35	0.47	-0.24	0.13%
	1518	34	258676	0.74	0.31	-0.18	0.31	-0.22	0.20%
	1518	35	258607	0.80	0.31	-0.10	0.31	-0.27	0.20%
	1518	36	258645	0.88	0.45	-0.27	-0.33	0.45	0.20%
	1518	37	258666	0.71	0.23	-0.19	0.23	-0.10	0.13%
	1518	38	258675	0.78	0.44	-0.21	0.44	-0.35	0.13%
	1518	39	261609	0.59	0.07	0.00	-0.20	0.07	0.20%
	1518	40	258665	0.48	0.39	0.39	-0.16	-0.29	0.26%
	1518	41	258682	0.69	0.29	-0.15	0.29	-0.20	0.13%
	1518	42	258648	0.85	0.45	-0.21	0.45	-0.37	0.20%
	1518	51	258668	0.66	0.45	-0.24	0.45	-0.35	0.33%
	1518	52	261613	0.96	0.29	-0.19	0.29	-0.18	0.40%
	1518	53	258614	0.75	0.47	-0.26	-0.34	0.47	0.33%
	1518	54	258680	0.75	0.38	-0.24	-0.24	0.38	0.26%
	1518	55	258681	0.52	0.32	-0.10	-0.24	0.32	0.33%
	1518	56	258642	0.71	0.35	-0.10	0.35	-0.37	0.20%
	1518	57	258711	0.33	0.14	-0.06	0.14	-0.07	0.20%
	1518	58	261623	0.82	0.28	-0.20	-0.21	0.28	0.33%
	1518	59	258649	0.51	0.44	0.44	-0.30	-0.31	0.20%

Table B2. Summary Statistics: Biology Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	1518	60	258621	0.92	0.34	0.34	-0.20	-0.25	0.26%
108	1518	61	258687	0.75	0.39	-0.20	0.39	-0.29	0.20%
	1518	62	258646	0.67	0.45	0.45	-0.17	-0.37	0.20%
	1518	63	261626	0.87	0.26	-0.15	-0.19	0.26	0.26%
	1518	64	258707	0.78	0.43	0.43	-0.33	-0.22	0.26%
	1518	65	258655	0.59	0.43	-0.27	-0.24	0.43	0.53%
	1518	66	258643	0.70	0.26	0.26	-0.18	-0.18	0.46%
	1518	67	258698	0.54	0.37	-0.26	-0.20	0.37	0.46%
	3138	68	258728	0.54	0.42	-0.16	-0.35	0.42	0.41%
	3138	69	258734	0.74	0.43	-0.25	-0.28	0.43	0.48%
	3138	70	258735	0.74	0.37	-0.21	0.37	-0.24	0.48%
	1518	71	258704	0.83	0.42	-0.31	0.42	-0.23	0.53%
	1518	72	258624	0.76	0.42	0.42	-0.38	-0.16	0.53%
	3138	73	258697	0.60	0.23	0.23	-0.18	-0.06	0.45%
	3138	74	258616	0.33	0.28	-0.22	0.28	-0.05	0.57%
	1518	83	258617	0.50	0.15	0.15	-0.15	-0.03	0.46%
	1518	84	258688	0.71	0.52	-0.37	-0.26	0.52	0.59%
	1518	85	258669	0.83	0.39	-0.20	-0.29	0.39	0.53%
	1518	86	261621	0.89	0.38	0.38	-0.23	-0.25	0.46%
	1518	87	258679	0.65	0.45	0.45	-0.27	-0.29	0.53%
	1518	88	261619	0.74	0.23	-0.14	0.23	-0.12	0.53%
	1518	89	261625	0.81	0.40	-0.21	-0.29	0.40	0.46%
	1518	90	258706	0.52	0.35	0.35	-0.16	-0.25	0.46%
	1518	91	258692	0.66	0.36	-0.19	-0.24	0.36	0.53%
	1518	92	258710	0.73	0.34	0.34	-0.19	-0.24	0.46%
	1518	93	258635	0.84	0.46	-0.28	-0.31	0.46	0.46%
	1518	94	261616	0.77	0.50	-0.38	-0.26	0.50	0.53%
	1518	95	258689	0.71	0.47	-0.37	0.47	-0.20	0.46%
208	1620	1	258627	0.92	0.28	-0.24	0.28	-0.14	0.00%
	1620	2	258733	0.49	0.14	0.14	-0.05	-0.15	0.00%
	1620	3	258691	0.62	0.31	0.31	-0.20	-0.25	0.00%
	1620	4	258684	0.51	0.11	-0.10	-0.01	0.11	0.00%
	1620	5	258644	0.69	0.37	0.37	-0.27	-0.20	0.00%
	1620	6	261620	0.63	0.35	0.35	-0.17	-0.31	0.00%
	1620	7	258634	0.68	0.32	-0.23	0.32	-0.19	0.00%
	1620	8	261645	0.54	0.32	-0.22	-0.15	0.32	0.25%
	1620	9	258619	0.64	0.41	0.41	-0.27	-0.21	0.37%
	1620	18	258700	0.89	0.42	-0.16	-0.37	0.42	0.25%
	1620	19	258618	0.64	0.43	-0.19	-0.32	0.43	0.37%
	1620	20	258620	0.81	0.45	0.45	-0.35	-0.22	0.19%
	1620	21	261627	0.86	0.26	-0.19	0.26	-0.13	0.19%
	1620	22	258639	0.59	0.26	0.26	-0.15	-0.15	0.19%
	1620	23	258667	0.76	0.46	0.46	-0.34	-0.23	0.25%
	1620	24	258732	0.66	0.22	0.22	-0.08	-0.19	0.19%

Table B2. Summary Statistics: Biology Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	1620	25	258727	0.77	0.32	-0.19	0.32	-0.21	0.25%
	1620	26	258622	0.79	0.41	0.41	-0.32	-0.21	0.19%
208	1620	27	258695	0.63	0.39	-0.11	0.39	-0.34	0.19%
	1620	28	258631	0.90	0.30	0.30	-0.15	-0.23	0.19%
	1620	29	258686	0.84	0.46	-0.26	-0.33	0.46	0.19%
	1620	30	258708	0.38	0.17	0.01	0.17	-0.18	0.25%
	1620	31	261615	0.82	0.00	0.04	0.00	-0.07	0.19%
	1620	32	258699	0.23	0.18	-0.29	0.18	0.03	0.19%
	1620	33	261607	0.80	0.31	-0.19	0.31	-0.19	0.31%
	1620	34	261624	0.77	0.42	-0.27	-0.25	0.42	0.31%
	1620	35	258612	0.84	0.38	-0.20	0.38	-0.28	0.31%
	1620	36	261610	0.80	0.46	-0.25	-0.32	0.46	0.49%
	1620	37	258714	0.68	0.51	0.51	-0.32	-0.29	0.31%
	1620	38	258694	0.77	0.36	0.36	-0.21	-0.24	0.31%
	1620	39	258725	0.89	0.38	-0.17	0.38	-0.29	0.37%
	1620	40	258664	0.86	0.43	-0.23	0.43	-0.32	0.43%
	1620	41	258638	0.44	0.35	-0.19	-0.23	0.35	0.31%
	1620	42	258661	0.74	0.27	-0.20	0.27	-0.12	0.31%
	1620	51	258632	0.64	0.49	0.49	-0.26	-0.32	0.37%
	1620	52	258656	0.13	0.12	0.12	0.04	-0.17	0.31%
	1620	53	258610	0.71	0.48	0.48	-0.26	-0.34	0.43%
	1620	54	258629	0.66	0.52	-0.14	0.52	-0.45	0.49%
	1620	55	258650	0.70	0.27	-0.11	-0.26	0.27	0.43%
	1620	56	258671	0.89	0.45	-0.23	-0.34	0.45	0.37%
	1620	57	261614	0.89	0.37	0.37	-0.21	-0.24	0.37%
	1620	58	261622	0.91	0.13	-0.04	0.13	-0.08	0.43%
	1620	59	258696	0.63	0.35	-0.19	0.35	-0.28	0.37%
	1620	60	258705	0.60	0.49	-0.24	-0.33	0.49	0.37%
	1620	61	258630	0.57	0.48	-0.25	-0.30	0.48	0.49%
	1620	62	258678	0.89	0.41	-0.20	0.41	-0.30	0.43%
	1620	63	261642	0.64	0.36	0.36	-0.29	-0.11	0.37%
	1620	64	258654	0.71	0.28	-0.24	-0.15	0.28	0.37%
	1620	65	258670	0.48	0.25	-0.09	-0.18	0.25	0.37%
	1620	66	258660	0.72	0.44	-0.21	-0.33	0.44	0.37%
	1620	67	258637	0.85	0.47	-0.35	0.47	-0.25	0.37%
	1620	71	258640	0.77	0.38	-0.33	0.38	-0.11	0.43%
	1620	72	258674	0.68	0.38	-0.22	-0.24	0.38	0.43%
	1620	83	258611	0.93	0.38	-0.27	0.38	-0.19	0.49%
	1620	84	261640	0.73	0.52	-0.25	-0.38	0.52	0.49%
	1620	85	258677	0.71	0.35	-0.31	0.35	-0.07	0.56%
	1620	86	261617	0.57	0.24	0.24	-0.17	-0.17	0.43%
	1620	87	258726	0.69	0.39	0.39	-0.23	-0.25	0.49%
	1620	88	258730	0.75	0.54	0.54	-0.37	-0.31	0.49%
	1620	89	258647	0.41	0.27	0.07	-0.32	0.27	0.37%

Table B2. Summary Statistics: Biology Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	1620	90	258651	0.86	0.46	0.46	-0.32	-0.27	0.37%
	1620	91	258657	0.46	0.43	-0.11	-0.33	0.43	0.49%
	1620	92	258712	0.72	0.45	-0.17	-0.35	0.45	0.56%
208	1620	93	258731	0.62	0.45	-0.17	-0.37	0.45	0.37%
	1620	94	261608	0.82	0.49	-0.33	-0.29	0.49	0.37%
	1620	95	258693	0.69	0.39	0.39	-0.30	-0.15	0.37%

Note: Table entries in bold font were identified as having less than desirable statistics according to the flagging criteria described in Section 3.

Table B3. Summary Statistics: English Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
108	923	1	259429	0.81	0.38	0.38	-0.22	-0.30	0.00%
	923	2	259428	0.97	0.24	-0.20	-0.16	0.24	0.00%
	923	3	259426	0.90	0.37	0.37	-0.24	-0.28	0.00%
	923	4	259349	0.92	0.32	-0.24	0.32	-0.22	0.11%
	923	5	259427	0.81	0.41	-0.29	0.41	-0.27	0.00%
	923	6	259464	0.30	0.08	0.08	-0.23	0.04	0.11%
	1940	7	259323	0.74	0.40	0.40	-0.30	-0.22	0.00%
	1940	8	259379	0.94	0.24	0.24	-0.18	-0.17	0.00%
	923	9	259453	0.53	0.31	-0.22	-0.20	0.31	0.00%
	923	10	259382	0.87	0.40	-0.28	0.40	-0.26	0.00%
	923	11	259452	0.73	0.25	-0.08	0.25	-0.22	0.00%
	923	12	259465	0.59	0.31	0.31	-0.20	-0.18	0.00%
	1940	19	259407	0.31	0.27	-0.21	0.27	-0.08	0.00%
	1940	20	259335	0.50	0.30	-0.15	-0.23	0.30	0.05%
	1940	21	259410	0.85	0.33	-0.29	0.33	-0.15	0.05%
	1940	22	259413	0.62	0.36	-0.29	0.36	-0.23	0.00%
	1940	23	259411	0.68	0.40	-0.24	-0.28	0.40	0.05%
	1940	24	259414	0.55	0.28	-0.14	-0.19	0.28	0.05%
	923	25	259412	0.78	0.32	0.32	-0.29	-0.20	0.00%
	1940	26	259338	0.54	0.28	0.28	-0.12	-0.29	0.05%
	1940	27	259339	0.90	0.39	-0.32	0.39	-0.23	0.00%
	1940	28	259340	0.94	0.37	-0.23	-0.29	0.37	0.00%
	923	29	259441	0.60	0.35	0.35	-0.19	-0.24	0.00%
	923	30	259440	0.62	0.28	-0.15	-0.20	0.28	0.00%
	923	31	259362	0.88	0.48	0.48	-0.41	-0.24	0.00%
	923	32	259436	0.63	0.34	0.34	-0.27	-0.18	0.22%
	923	33	259432	0.85	0.27	0.27	-0.13	-0.22	0.11%
	923	34	259433	0.87	0.31	0.31	-0.22	-0.20	0.11%
	923	35	259354	0.62	0.36	-0.17	-0.26	0.36	0.22%
	923	42	259347	0.75	0.40	0.40	-0.19	-0.32	0.22%
	923	43	259424	0.86	0.36	-0.22	-0.26	0.36	0.11%
	923	44	259423	0.71	0.26	-0.23	-0.14	0.26	0.43%
	923	45	259425	0.66	0.35	-0.29	0.35	-0.16	0.33%
	923	46	259422	0.72	0.45	-0.32	0.45	-0.25	0.54%
	923	47	259445	0.86	0.39	-0.34	0.39	-0.19	0.11%
	923	48	259374	0.64	0.44	-0.34	-0.22	0.44	0.22%
	923	49	259450	0.76	0.50	-0.28	-0.37	0.50	0.11%
	923	50	259376	0.84	0.45	-0.33	-0.28	0.45	0.33%
	923	51	259377	0.78	0.31	0.31	-0.29	-0.11	0.11%
	923	52	259310	0.86	0.44	-0.28	0.44	-0.30	0.54%
	923	53	259365	0.84	0.32	-0.18	0.32	-0.28	0.43%
	923	54	259449	0.83	0.28	0.28	-0.20	-0.21	0.33%
	923	61	259443	0.74	0.28	-0.21	0.28	-0.14	0.22%

Table B3. Summary Statistics: English Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	923	62	259442	0.55	0.28	0.28	-0.23	-0.09	0.33%
108	1940	63	259437	0.75	0.40	0.40	-0.24	-0.29	0.21%
	923	64	259360	0.76	0.44	0.44	-0.36	-0.19	0.22%
	923	65	259435	0.46	0.44	-0.35	-0.13	0.44	0.11%
	1940	66	259332	0.69	0.26	-0.22	0.26	-0.10	0.21%
	1940	67	259403	0.46	0.27	-0.15	-0.16	0.27	0.15%
	1940	68	259401	0.61	0.24	0.24	-0.09	-0.22	0.26%
	1940	69	259402	0.71	0.48	-0.40	-0.23	0.48	0.15%
	1940	70	259399	0.87	0.38	-0.21	-0.28	0.38	0.21%
	1940	71	259400	0.80	0.46	-0.35	-0.27	0.46	0.31%
	1940	72	259404	0.77	0.27	0.27	-0.11	-0.24	0.31%
	1940	73	259461	0.91	0.38	-0.26	-0.25	0.38	0.15%
	1940	74	259446	0.84	0.41	-0.27	-0.26	0.41	0.26%
	1940	75	259447	0.70	0.30	-0.23	0.30	-0.13	0.31%
	1940	76	259448	0.80	0.45	-0.28	-0.30	0.45	0.21%
	923	83	259457	0.57	0.28	0.28	-0.27	-0.04	0.11%
	923	84	259330	0.82	0.42	-0.30	0.42	-0.26	0.33%
	923	85	259458	0.61	0.44	0.44	-0.33	-0.20	0.33%
	923	86	259466	0.81	0.52	-0.23	-0.44	0.52	0.11%
	923	87	259395	0.73	0.45	-0.23	0.45	-0.34	0.11%
	923	88	259459	0.70	0.38	-0.26	-0.22	0.38	0.22%
	923	89	259396	0.57	0.42	-0.25	-0.24	0.42	0.22%
	923	90	259460	0.83	0.36	0.36	-0.29	-0.19	0.22%
	923	91	259398	0.71	0.40	-0.29	0.40	-0.22	0.22%
	923	92	259397	0.76	0.44	-0.27	-0.29	0.44	0.22%
	1940	93	259444	0.79	0.34	-0.20	0.34	-0.24	0.26%
	1940	94	259356	0.72	0.36	-0.21	-0.26	0.36	0.21%
208	1017	1	259343	0.88	0.29	-0.27	-0.11	0.29	0.00%
	1017	2	259415	0.82	0.37	0.37	-0.27	-0.27	0.00%
	1017	3	259418	0.93	0.25	-0.12	-0.22	0.25	0.00%
	1017	4	259417	0.67	0.32	0.32	-0.28	-0.10	0.00%
	1017	5	259416	0.93	0.23	-0.13	0.23	-0.22	0.10%
	1017	8	259312	0.89	0.37	0.37	-0.27	-0.24	0.10%
	1017	9	259368	0.63	0.34	0.34	-0.24	-0.21	0.00%
	1017	10	259371	0.93	0.31	-0.18	-0.26	0.31	0.00%
	1017	11	259367	0.88	0.29	-0.20	0.29	-0.22	0.00%
	1017	12	259370	0.73	0.33	-0.23	0.33	-0.25	0.00%
	1017	28	259318	0.80	0.36	0.36	-0.35	-0.10	0.00%
	1017	29	259316	0.87	0.39	0.39	-0.16	-0.35	0.20%
	1017	30	259319	0.43	0.25	-0.16	-0.16	0.25	0.00%
	1017	31	259320	0.88	0.28	-0.17	0.28	-0.21	0.10%
	1017	32	259321	0.90	0.39	0.39	-0.32	-0.21	0.00%
	1017	33	259351	0.71	0.36	-0.11	0.36	-0.31	0.20%
	1017	34	259430	0.86	0.23	-0.16	0.23	-0.14	0.20%

Table B3. Summary Statistics: English Field Test Items - Linking Sample

Form	N	Pos No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	1017	35	259431	0.91	0.35	0.35	-0.19	-0.26	0.20%
	1017	42	259419	0.80	0.34	-0.19	0.34	-0.27	0.20%
208	1017	43	259420	0.76	0.38	-0.27	0.38	-0.21	0.20%
	1017	44	259421	0.81	0.31	0.31	-0.21	-0.18	0.49%
	1017	45	259463	0.69	0.43	0.43	-0.22	-0.32	0.39%
	1017	46	259345	0.80	0.46	-0.30	-0.30	0.46	0.29%
	1017	47	259462	0.39	0.07	0.07	-0.11	0.06	0.39%
	1017	48	259325	0.81	0.49	-0.34	0.49	-0.29	0.29%
	1017	49	259385	0.76	0.45	-0.20	-0.36	0.45	0.29%
	1017	50	259390	0.86	0.35	-0.20	-0.24	0.35	0.20%
	1017	51	259383	0.70	0.40	-0.33	0.40	-0.16	0.29%
	1017	52	259386	0.70	0.50	-0.33	-0.29	0.50	0.20%
	1017	53	259388	0.69	0.29	0.29	-0.08	-0.30	0.20%
	1017	54	259389	0.77	0.44	-0.32	0.44	-0.24	0.20%
	1017	61	259438	0.67	0.31	-0.12	0.31	-0.25	0.29%
	1017	62	259439	0.58	0.25	-0.20	0.25	-0.12	0.20%
	1017	64	259358	0.80	0.44	-0.24	-0.32	0.44	0.29%
	1017	65	259434	0.71	0.36	-0.32	0.36	-0.10	0.29%
	1017	74	259406	0.69	0.26	-0.07	0.26	-0.33	0.20%
	1017	75	259405	0.34	0.29	0.29	-0.15	-0.15	0.29%
	1017	85	259391	0.71	0.41	-0.26	0.41	-0.25	0.39%
	1017	86	259454	0.59	0.24	0.24	-0.17	-0.09	0.39%
	1017	87	259455	0.76	0.43	-0.27	-0.28	0.43	0.29%
	1017	88	259327	0.57	0.43	-0.28	-0.24	0.43	0.29%
	1017	89	259392	0.70	0.47	-0.29	-0.30	0.47	0.29%
	1017	90	259394	0.90	0.48	0.48	-0.39	-0.23	0.29%
	1017	91	259456	0.50	0.25	-0.25	0.25	-0.03	0.29%
	1017	92	259393	0.84	0.51	0.51	-0.31	-0.35	0.39%

Note 1: Table entries in bold font were identified as having less than desirable statistics according to the flagging criteria described in Section 3.

Note 2: Some field test items appeared on both Form 108 and Form 208; statistics for these items are shown in Form 108 of the table, for both forms combined.

Table B4. Summary Statistics: Government Field Test Items - Linking Sample

Form	N	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
108	1132	1	258381	0.99	0.20	0.20	-0.10	-0.17	0.00%
	1132	2	258363	0.79	0.45	-0.31	-0.29	0.45	0.00%
	1132	3	258481	0.98	0.26	-0.18	0.26	-0.19	0.00%
	1132	4	258500	0.63	0.41	0.41	-0.27	-0.26	0.00%
	1132	5	258338	0.77	0.40	-0.29	0.40	-0.27	0.00%
	1132	6	258327	0.58	0.12	0.12	-0.06	-0.13	0.09%
	1132	7	258507	0.78	0.41	-0.36	0.41	-0.16	0.09%
	1132	8	258373	0.69	0.54	-0.34	-0.34	0.54	0.09%
	1132	9	258416	0.56	0.44	-0.05	0.44	-0.49	0.09%
	1132	10	258497	0.57	0.37	-0.14	-0.28	0.37	0.09%
	1132	11	258408	0.80	0.45	0.45	-0.32	-0.26	0.09%
	1132	12	258355	0.72	0.32	0.32	-0.29	-0.13	0.09%
	1132	13	258467	0.94	0.23	-0.14	0.23	-0.18	0.09%
	1132	20	258458	0.77	0.44	0.44	-0.16	-0.39	0.09%
	1132	21	258505	0.68	0.33	0.33	-0.22	-0.21	0.09%
	1132	22	258506	0.79	0.21	-0.10	-0.21	0.21	0.18%
	1132	23	258449	0.74	0.44	-0.31	0.44	-0.27	0.09%
	1132	24	258405	0.95	0.35	-0.26	-0.21	0.35	0.09%
	1132	25	258349	0.79	0.35	0.35	-0.22	-0.23	0.09%
	1132	26	258429	0.74	0.41	-0.28	-0.24	0.41	0.09%
	1132	27	258353	0.53	0.31	-0.21	0.31	-0.18	0.09%
	1132	28	258396	0.70	0.45	0.45	-0.32	-0.25	0.09%
	1132	29	258476	0.95	0.42	-0.32	0.42	-0.24	0.09%
	1132	30	258367	0.90	0.31	-0.21	-0.23	0.31	0.09%
	1132	31	258382	0.81	0.49	-0.36	-0.28	0.49	0.09%
	1132	32	258463	0.67	0.41	0.41	-0.23	-0.28	0.09%
	1132	33	258410	0.76	0.44	-0.29	-0.29	0.44	0.09%
	1132	34	258331	0.97	0.24	0.24	-0.20	-0.07	0.18%
	1132	35	258386	0.91	0.48	0.48	-0.31	-0.32	0.27%
	1132	36	258350	0.74	0.35	0.35	-0.26	-0.18	0.18%
	1132	37	258378	0.77	0.46	-0.29	-0.29	0.46	0.18%
	1132	44	258503	0.71	0.43	-0.20	-0.31	0.43	0.27%
	1132	45	258440	0.83	0.36	-0.21	0.36	-0.24	0.35%
	1132	46	258400	0.73	0.34	-0.22	-0.23	0.34	0.27%
	1132	47	258421	0.65	0.51	0.51	-0.39	-0.22	0.27%
	1132	48	258423	0.60	0.58	0.58	-0.28	-0.42	0.27%
	1132	49	258387	0.42	0.18	0.18	-0.22	-0.01	0.35%
	1132	50	258446	0.66	0.51	-0.32	0.51	-0.30	0.27%
	1132	51	258344	0.69	0.54	0.54	-0.36	-0.31	0.35%
	1132	52	258432	0.66	0.42	-0.31	-0.18	0.42	0.35%
	1132	53	258428	0.76	0.36	-0.16	-0.27	0.36	0.44%
	1132	54	258360	0.69	0.40	-0.23	0.40	-0.25	0.53%
	1132	55	258343	0.81	0.46	-0.28	0.46	-0.31	0.35%
	1132	56	258374	0.73	0.52	0.52	-0.27	-0.37	0.35%
	1132	63	258438	0.84	0.39	0.39	-0.29	-0.19	0.35%

Table B4. Summary Statistics: Government Field Test Items - Linking Sample

Form	N	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	1132	64	258718	0.94	0.43	0.43	-0.25	-0.29	0.35%
108	1132	65	258424	0.58	0.48	-0.29	0.48	-0.28	0.35%
	1132	66	258323	0.68	0.49	-0.23	0.49	-0.36	0.53%
	1132	67	258324	0.94	0.41	-0.28	-0.23	0.41	0.35%
	1132	68	258437	0.78	0.48	-0.26	-0.34	0.48	0.35%
	1132	69	258319	0.58	0.51	-0.27	0.51	-0.32	0.35%
	1132	70	258318	0.74	0.50	0.50	-0.33	-0.30	0.35%
	1132	71	258493	0.84	0.32	-0.15	0.32	-0.23	0.35%
	1132	72	258389	0.80	0.36	-0.22	0.36	-0.25	0.35%
	1132	73	258379	0.70	0.31	-0.12	-0.30	0.31	0.35%
	1132	74	258356	0.72	0.39	0.39	-0.30	-0.20	0.35%
	1132	75	258413	0.67	0.34	-0.17	0.34	-0.24	0.35%
	1132	76	258448	0.80	0.56	0.56	-0.43	-0.26	0.35%
	1132	77	258721	0.52	0.34	0.34	-0.16	-0.20	0.35%
	1132	84	258439	0.72	0.42	-0.24	0.42	-0.28	0.35%
	1132	85	258368	0.61	0.36	0.36	-0.19	-0.23	0.35%
	1132	86	258320	0.79	0.41	-0.25	0.41	-0.29	0.35%
	1132	87	258436	0.89	0.47	0.47	-0.37	-0.21	0.35%
	1132	88	258384	0.87	0.44	-0.30	0.44	-0.25	0.35%
	1132	89	258486	0.67	0.33	-0.24	0.33	-0.15	0.35%
	1132	90	258411	0.61	0.49	-0.14	-0.41	0.49	0.35%
	1132	91	258723	0.80	0.42	0.42	-0.22	-0.31	0.35%
	1132	92	258313	0.87	0.36	-0.21	0.36	-0.24	0.53%
	1132	93	258470	0.94	0.37	-0.23	0.37	-0.23	0.35%
	1132	94	258420	0.87	0.45	0.45	-0.31	-0.26	0.53%
	1132	95	258716	0.80	0.42	0.42	-0.25	-0.29	0.44%
	1132	96	258335	0.77	0.37	-0.23	-0.22	0.37	0.44%
	1132	97	258472	0.69	0.44	-0.26	-0.27	0.44	0.44%
	1132	98	258314	0.95	0.39	-0.20	0.39	-0.29	0.53%
	1132	99	258377	0.89	0.44	0.44	-0.25	-0.30	0.62%
208	1110	1	258401	0.89	0.52	-0.32	-0.39	0.52	0.00%
	1110	2	258459	0.93	0.24	-0.15	0.24	-0.19	0.00%
	1110	3	258402	0.73	0.41	-0.32	-0.23	0.41	0.00%
	1110	4	258406	0.90	0.36	-0.15	0.36	-0.32	0.00%
	1110	5	258362	0.94	0.23	0.23	-0.19	-0.15	0.00%
	1110	6	258347	0.83	0.45	0.45	-0.20	-0.40	0.00%
	1110	7	258333	0.52	0.38	-0.21	0.38	-0.27	0.00%
	1110	8	258371	0.64	0.29	0.29	-0.25	-0.11	0.00%
	1110	9	258475	0.51	0.37	-0.36	0.37	-0.12	0.00%
	1110	10	258328	0.91	0.43	0.43	-0.27	-0.32	0.00%
	1110	11	258422	0.75	0.44	-0.27	-0.31	0.44	0.09%
	1110	12	258383	0.94	0.38	-0.25	0.38	-0.28	0.00%
	1110	13	258357	0.77	0.43	-0.32	0.43	-0.24	0.00%
	1110	20	258352	0.91	0.45	0.45	-0.33	-0.28	0.00%
	1110	21	258452	0.79	0.47	0.47	-0.41	-0.23	0.09%
	1110	22	258330	0.83	0.42	0.42	-0.31	-0.26	0.00%

Table B4. Summary Statistics: Government Field Test Items - Linking Sample

Form	N	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	1110	23	261646	0.47	0.23	-0.13	-0.14	0.23	0.00%
	1110	24	258474	0.71	0.48	-0.36	0.48	-0.26	0.00%
208	1110	25	258385	0.76	0.48	-0.41	-0.22	0.48	0.00%
	1110	26	258454	0.77	0.49	-0.28	-0.40	0.49	0.00%
	1110	27	258364	0.91	0.31	-0.18	0.31	-0.26	0.00%
	1110	28	258361	0.82	0.40	0.40	-0.32	-0.23	0.00%
	1110	29	258336	0.71	0.37	-0.26	-0.22	0.37	0.00%
	1110	30	258415	0.87	0.37	0.37	-0.30	-0.22	0.00%
	1110	31	258717	0.76	0.42	-0.22	0.42	-0.33	0.00%
	1110	32	258376	0.80	0.43	0.43	-0.30	-0.28	0.00%
	1110	33	258419	0.54	0.40	-0.24	0.40	-0.24	0.00%
	1110	34	258425	0.83	0.43	-0.38	0.43	-0.16	0.18%
	1110	35	258715	0.93	0.29	-0.23	0.29	-0.16	0.18%
	1110	36	258473	0.81	0.40	-0.24	-0.29	0.40	0.18%
	1110	37	258461	0.83	0.49	-0.40	-0.24	0.49	0.18%
	1110	44	258478	0.54	0.37	-0.39	0.37	-0.06	0.18%
	1110	45	258501	0.87	0.50	-0.34	-0.33	0.50	0.18%
	1110	46	258450	0.83	0.45	0.45	-0.33	-0.27	0.18%
	1110	47	258498	0.84	0.49	0.49	-0.32	-0.34	0.18%
	1110	48	258460	0.65	0.39	0.39	-0.20	-0.28	0.18%
	1110	49	258388	0.59	0.33	-0.13	0.33	-0.27	0.18%
	1110	50	258351	0.79	0.44	0.44	-0.34	-0.27	0.36%
	1110	51	258488	0.79	0.26	0.26	-0.28	-0.09	0.18%
	1110	52	258479	0.89	0.41	-0.20	0.41	-0.34	0.27%
	1110	53	258375	0.86	0.54	0.54	-0.36	-0.37	0.27%
	1110	54	258414	0.68	0.38	-0.23	0.38	-0.26	0.18%
	1110	55	258495	0.68	0.50	0.50	-0.32	-0.32	0.18%
	1110	56	258321	0.78	0.46	0.46	-0.23	-0.39	0.18%
	1110	63	258426	0.70	0.56	0.56	-0.46	-0.25	0.18%
	1110	64	258722	0.75	0.39	-0.28	0.39	-0.23	0.18%
	1110	65	258407	0.48	0.43	0.43	-0.24	-0.29	0.27%
	1110	66	258412	0.88	0.40	0.40	-0.28	-0.27	0.27%
	1110	67	258369	0.74	0.38	-0.27	-0.20	0.38	0.45%
	1110	68	258483	0.83	0.45	0.45	-0.26	-0.32	0.45%
	1110	69	258719	0.90	0.40	0.40	-0.29	-0.23	0.45%
	1110	70	258427	0.62	0.46	-0.21	-0.33	0.46	0.45%
	1110	71	258345	0.49	0.33	-0.22	0.33	-0.15	0.45%
	1110	72	258390	0.87	0.39	-0.24	0.39	-0.27	0.45%
	1110	73	258337	0.93	0.42	-0.31	0.42	-0.22	0.45%
	1110	74	258457	0.90	0.43	0.43	-0.26	-0.29	0.45%
	1110	75	258329	0.62	0.28	0.28	-0.11	-0.32	0.54%
	1110	76	258409	0.77	0.42	-0.25	0.42	-0.30	0.45%
	1110	77	258434	0.60	0.42	-0.09	-0.42	0.42	0.45%
	1110	84	258391	0.84	0.45	0.45	-0.27	-0.30	0.54%
	1110	85	258441	0.96	0.33	0.33	-0.23	-0.18	0.45%
	1110	86	258316	0.59	0.25	-0.09	0.25	-0.20	0.45%

Table B4. Summary Statistics: Government Field Test Items - Linking Sample

Form	N	Pos_No	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	Omit_Rate
	1110	87	258404	0.76	0.37	0.37	-0.19	-0.29	0.45%
	1110	88	258720	0.79	0.46	-0.27	-0.32	0.46	0.45%
	1110	89	258354	0.76	0.49	-0.38	0.49	-0.26	0.45%
208	1110	90	258366	0.76	0.52	-0.30	-0.35	0.52	0.45%
	1110	91	258468	0.85	0.48	0.48	-0.36	-0.26	0.45%
	1110	92	258491	0.66	0.44	-0.28	0.44	-0.30	0.45%
	1110	93	258445	0.69	0.51	-0.35	-0.27	0.51	0.45%
	1110	94	258465	0.59	0.44	0.44	-0.34	-0.18	0.45%
	1110	95	258341	0.89	0.36	0.36	-0.23	-0.23	0.45%
	1110	96	258502	0.52	0.28	0.28	-0.20	-0.09	0.45%
	1110	97	258451	0.67	0.38	-0.28	0.38	-0.21	0.54%
	1110	98	258417	0.83	0.45	-0.36	-0.22	0.45	0.54%
	1110	99	258444	0.89	0.45	-0.20	-0.36	0.45	0.45%

Note: Table entries in bold font were identified as having less than desirable statistics according to the flagging criteria described in Section 3.

Appendix C. Comparison of Equating Methods

Table C1. Scale Score Summary Statistics by Equating Method and Group: Algebra

Algebra Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi-percentile	HSA ¹	Stocking and Lord	Linear Equi-percentile	HSA ²
Scale Score	Mean	421.77	426.53	426.25	360.06	367.00	426.60
	SD	35.24	33.91	28.23	49.37	49.43	37.44
	Min	240	240	240	240	240	240
	Max	650	650	522	468	471	650
	N	2,412	2,412	2,412	2,716	2,716	75,843
Proficiency Level Percentages	Basic	32.88	26.16	25.87	90.13	86.34	30.04
	Proficient	50.79	53.81	55.27	9.54	13.29	43.81
	Advanced	16.33	20.02	18.86	0.33	0.37	26.15
Equating Constants	Additive	421.58	426.37				
	Multiplicative	28.09	26.63				

Note 1: Linking sample students' performance on the Algebra HSA.

Note 2: All HSA students' performance on the Algebra HSA.

Table C2. Scale Score Summary Statistics by Equating Method and Group: Biology

Biology Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi- percentile	HSA ¹	Stocking and Lord	Linear Equi- percentile	HSA ²
Scale Score	Mean	421.25	421.03	420.89	360.23	361.69	418.82
	SD	37.75	36.76	30.30	47.99	47.72	35.28
	Min	240	240	240	240	240	240
	Max	650	650	531	461	459	560
	N	3,055	3,055	3,055	2,007	2,007	60,692
Proficiency Level Percentages	Basic	23.50	22.88	23.14	84.01	83.56	27.95
	Proficient	59.02	60.72	61.37	15.89	16.34	54.44
	Advanced	17.48	16.40	15.48	0.10	0.10	17.61
Equating Constants	Additive	420.95	420.76				
	Multiplicative	30.82	29.67				

Note 1: Linking sample students' performance on the Biology HSA.

Note 2: All HSA students' performance on the Biology HSA.

Table C3. Scale Score Summary Statistics by Equating Method and Group: English

English Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi-percentile	HSA ¹	Stocking and Lord	Linear Equi-percentile	HSA ²
Scale Score	Mean	408.52	412.82	412.26	353.60	358.47	408.23
	SD	39.19	38.70	31.03	42.19	42.74	34.81
	Min	240	240	240	240	240	240
	Max	650	650	650	440	444	650
	N	1,864	1,864	1,864	2,524	2,524	63,474
Proficiency Level Percentages	Basic	31.76	26.61	27.04	89.50	85.78	33.64
	Proficient	43.72	43.94	46.62	10.30	13.83	40.39
	Advanced	24.52	29.45	26.34	0.20	0.40	25.97
Equating Constants	Additive	408.19	412.55				
	Multiplicative	28.26	27.75				

Note 1: Linking sample students' performance on the English HSA.

Note 2: All HSA students' performance on the English HSA.

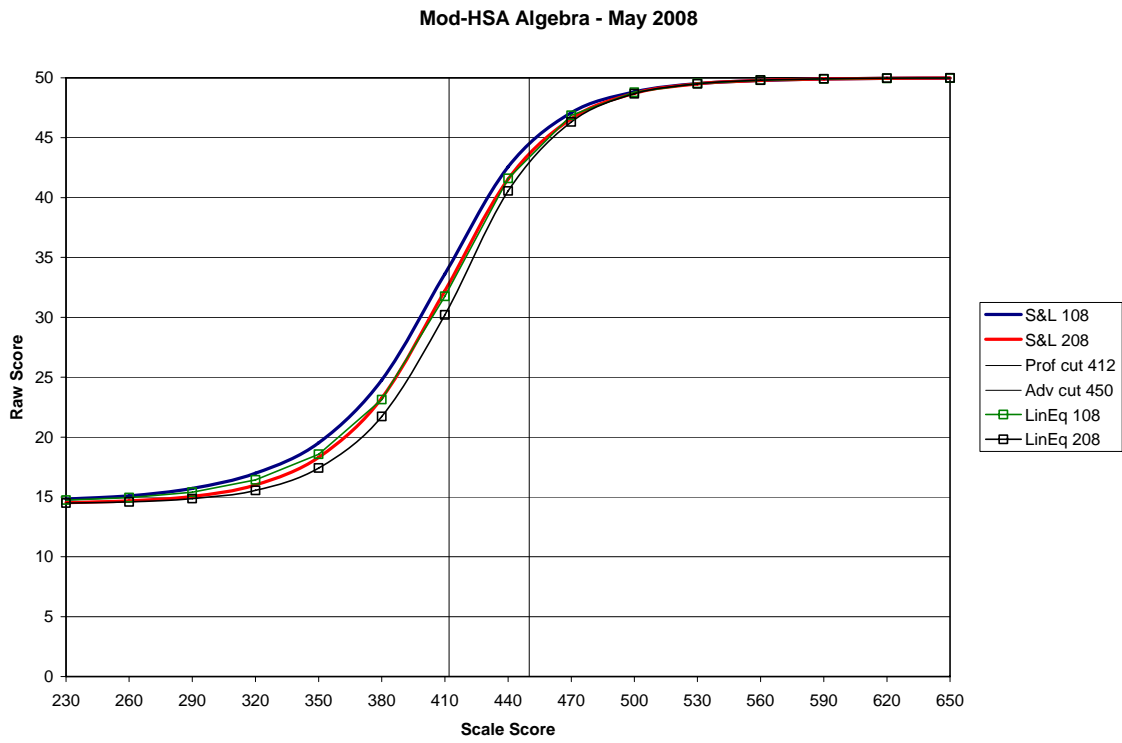
Table C4. Scale Score Summary Statistics by Equating Method and Group: Government

Government Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi-percentile	HSA ¹	Stocking and Lord	Linear Equi-percentile	HSA ²
Scale Score	Mean	424.71	433.02	430.17	357.38	361.92	422.67
	SD	49.55	50.46	35.65	49.24	51.71	40.86
	Min	240	240	249	240	240	240
	Max	650	650	566	486	499	650
	N	2,132	2,132	2,132	2,261	2,261	64,376
Proficiency Level Percentages	Fail	20.17	15.81	15.71	82.26	74.83	23.33
	Pass	79.83	84.19	84.29	17.74	25.17	76.67
Equating Constants	Additive	423.06	431.79				
	Multiplicative	31.90	34.16				

Note 1: Linking sample students' performance on the Government HSA.

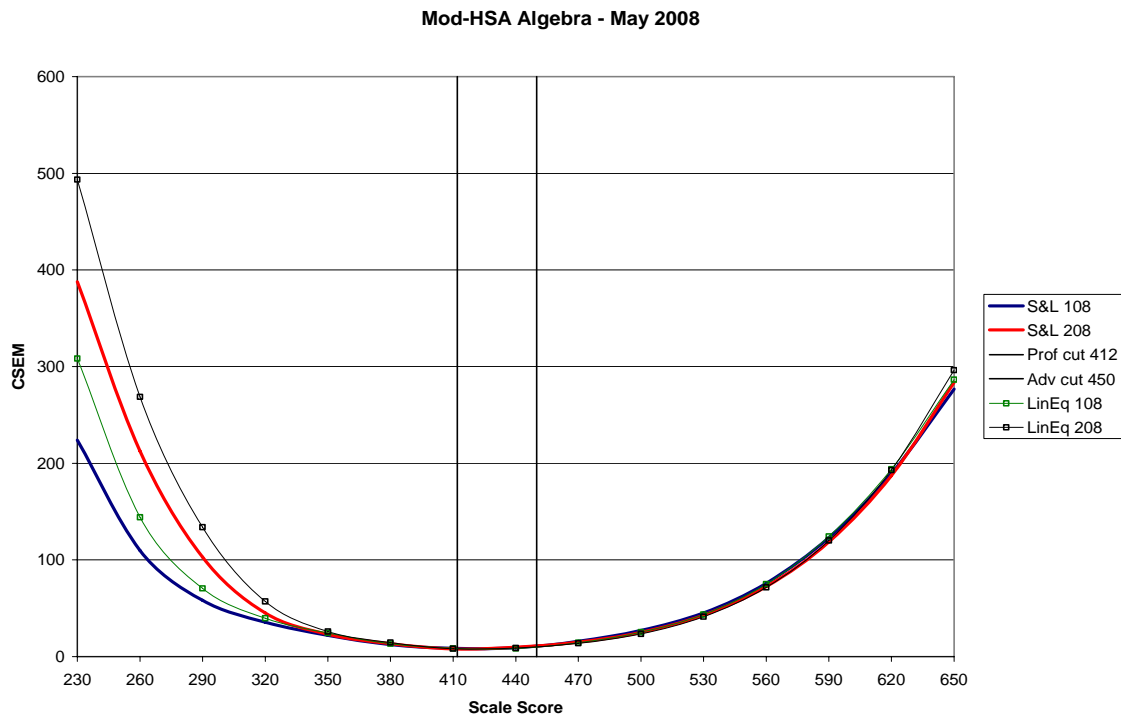
Note 2: All HSA students' performance on the Government HSA.

Figure C.1 TCCs for Each Equating Method and Form – Mod-HSA Algebra



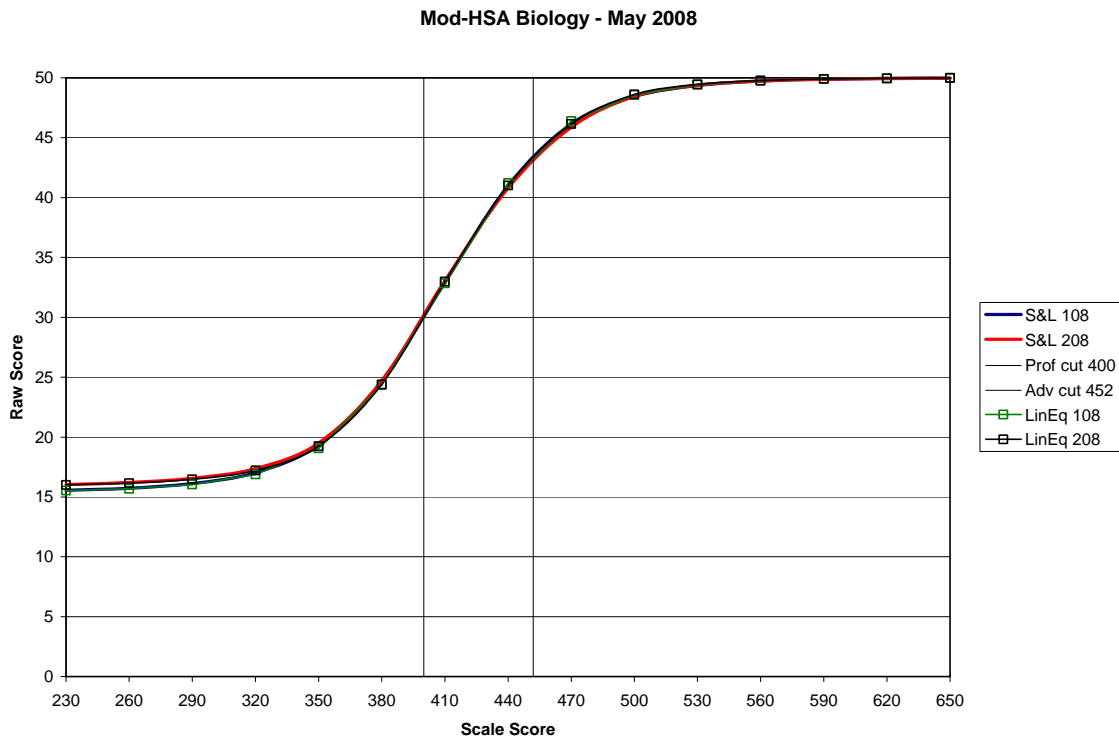
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.2 CSEMs for Each Equating Method and Form – Mod-HSA Algebra



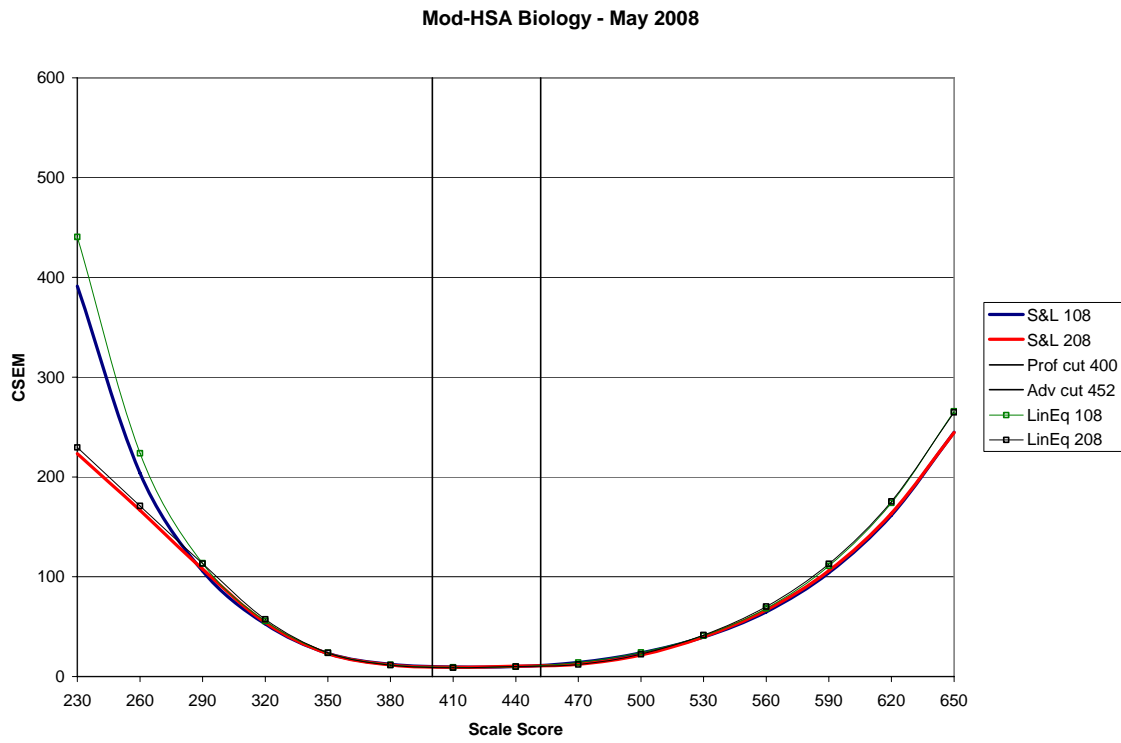
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.3 TCCs for Each Equating Method and Form – Mod-HSA Biology



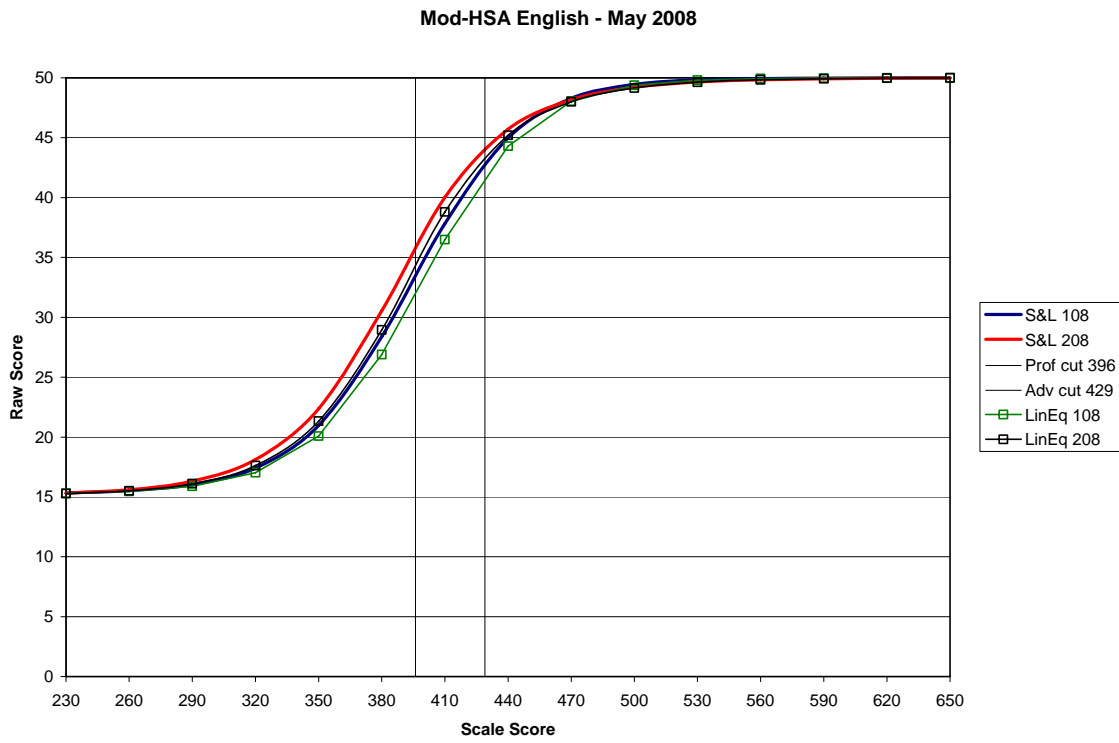
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.4 CSEMs for Each Equating Method and Form – Mod-HSA Biology



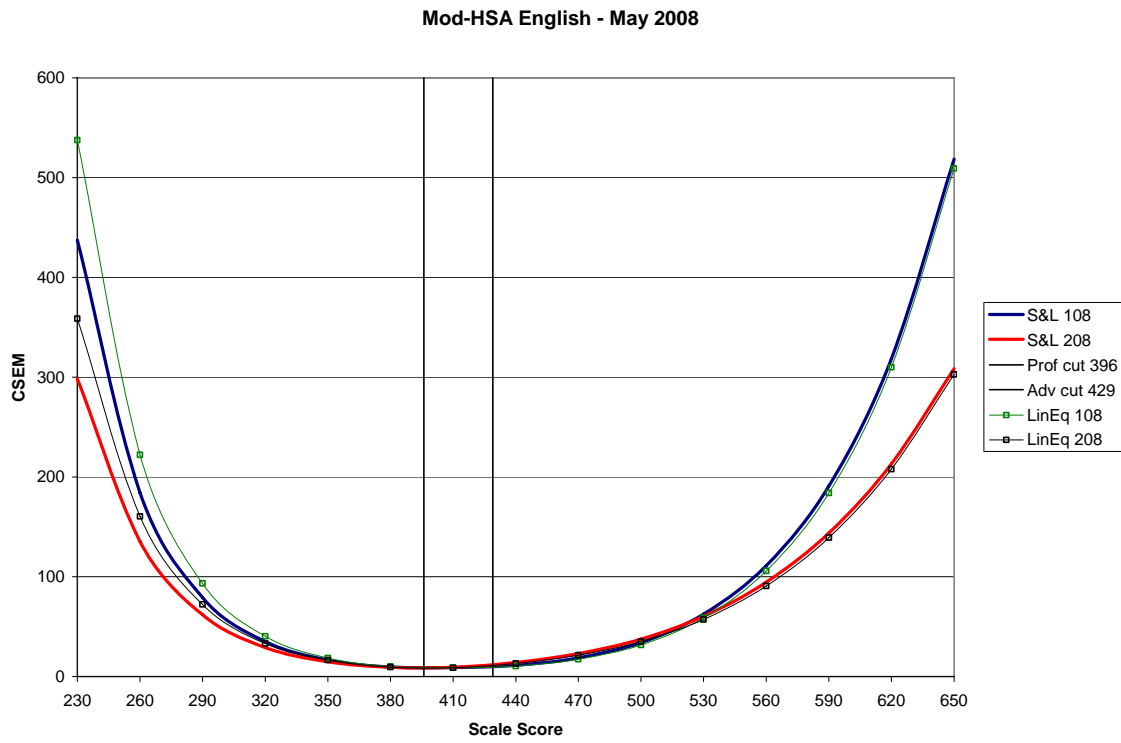
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.5 TCCs for Each Equating Method and Form – Mod-HSA English



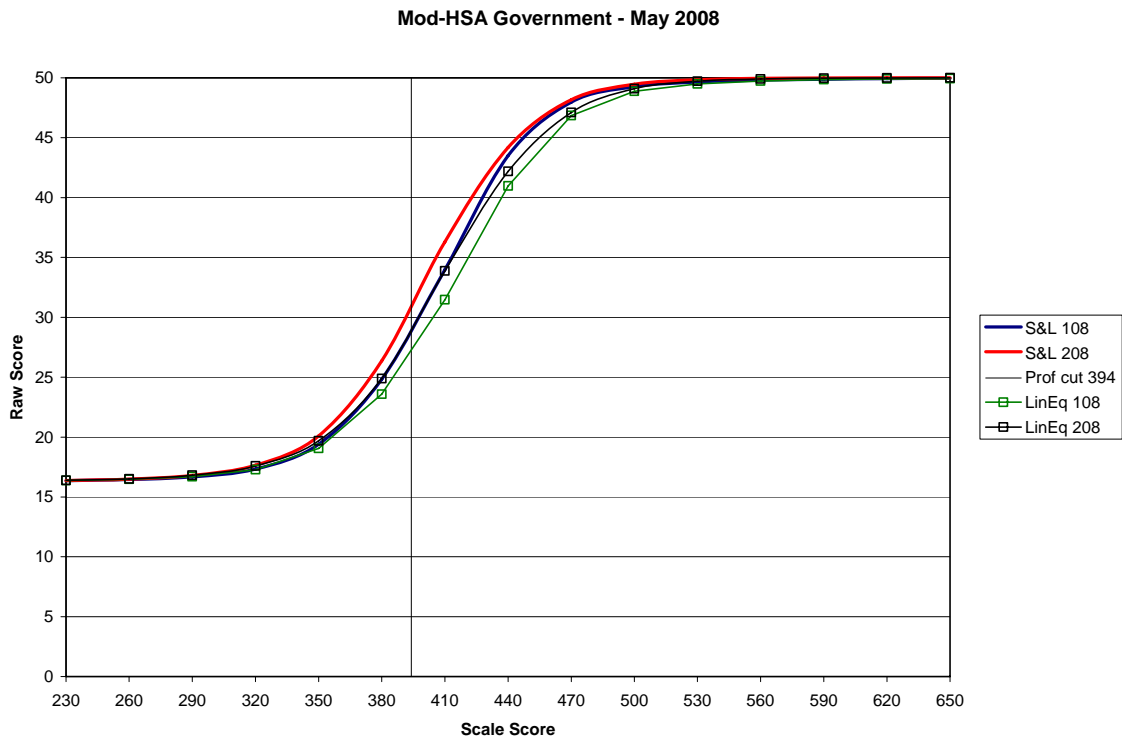
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.6 CSEMs for Each Equating Method and Form – Mod-HSA English



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

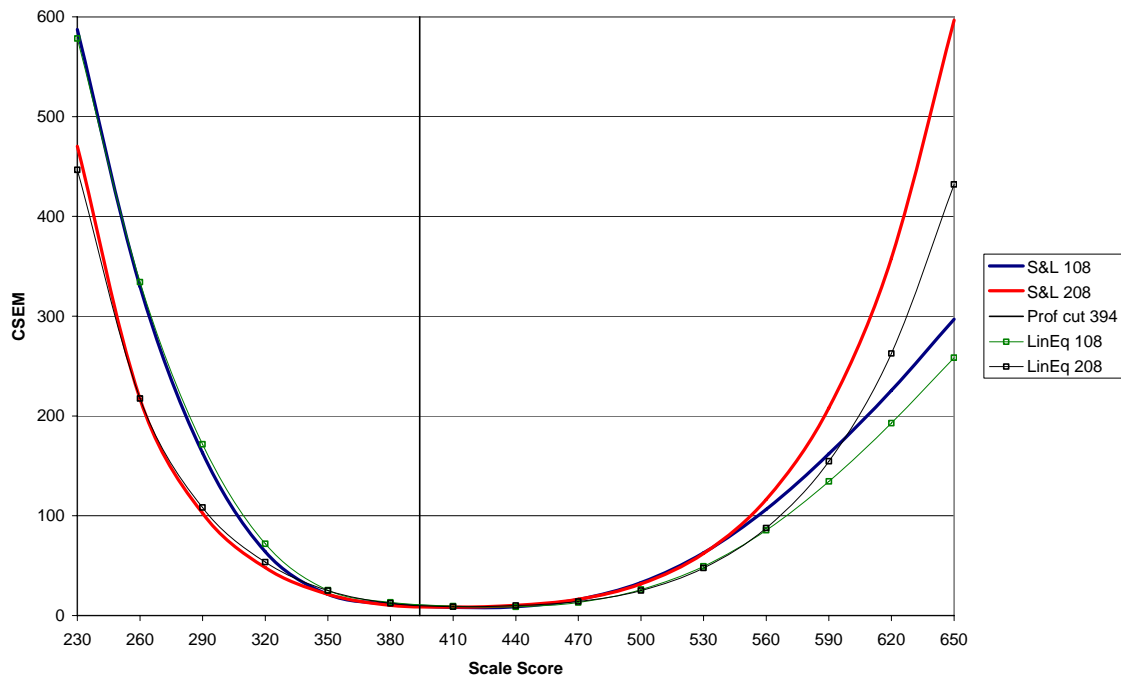
Figure C.7 TCCs for Each Equating Method and Form – Mod-HSA Government



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.8 CSEMs for Each Equating Method and Form – Mod-HSA Government

Mod-HSA Government - May 2008



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Appendix D. Histograms of Scale Score Distributions

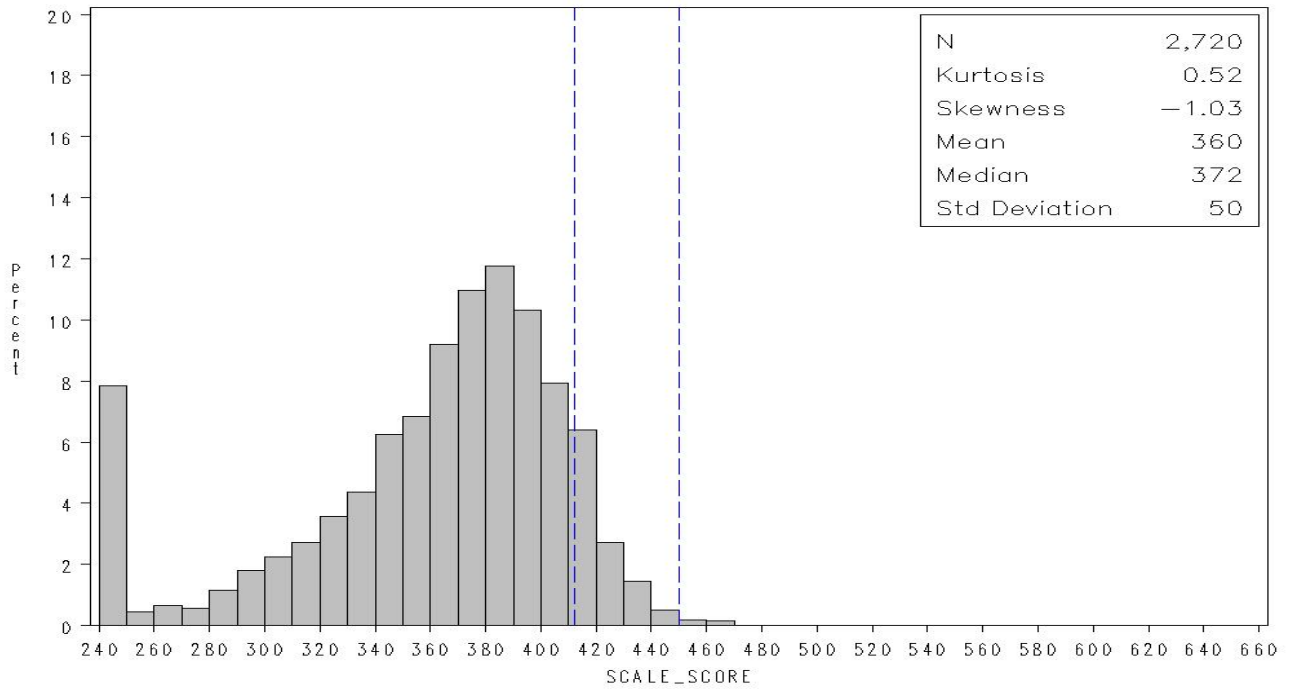


Figure D.1 Scale Score Distribution of the Algebra Target Population

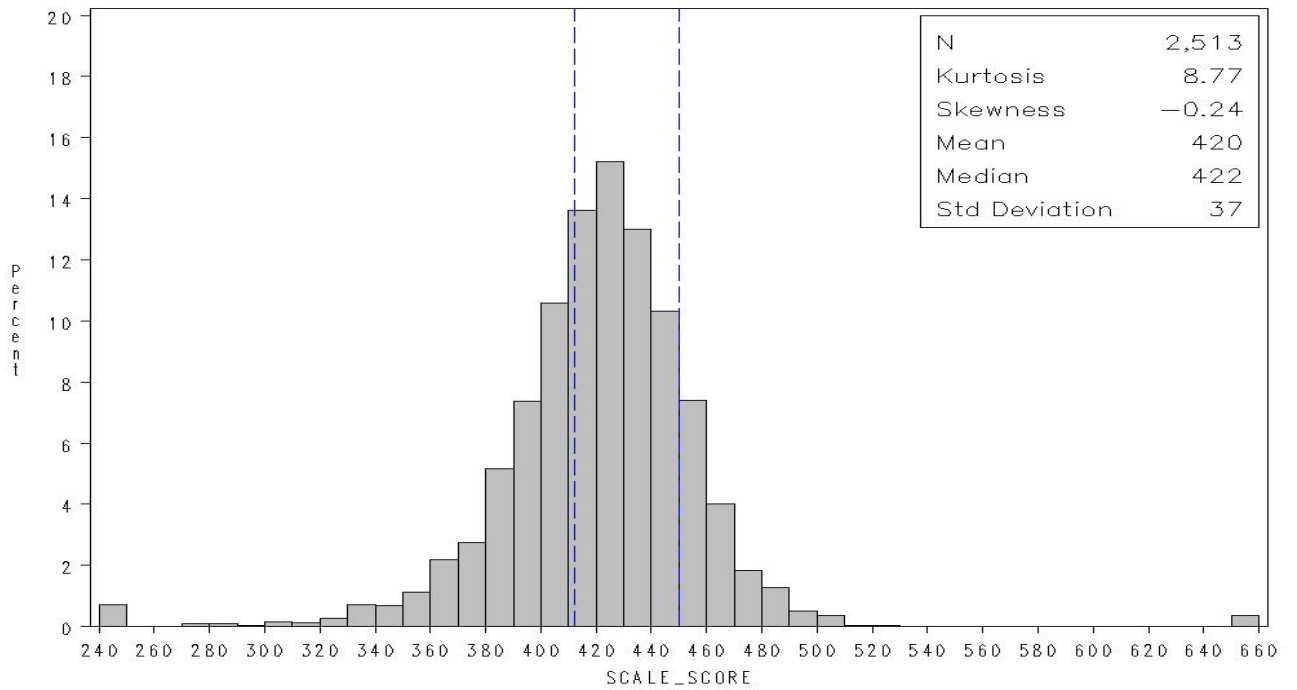


Figure D.2 Scale Score Distribution of the Algebra Linking Sample

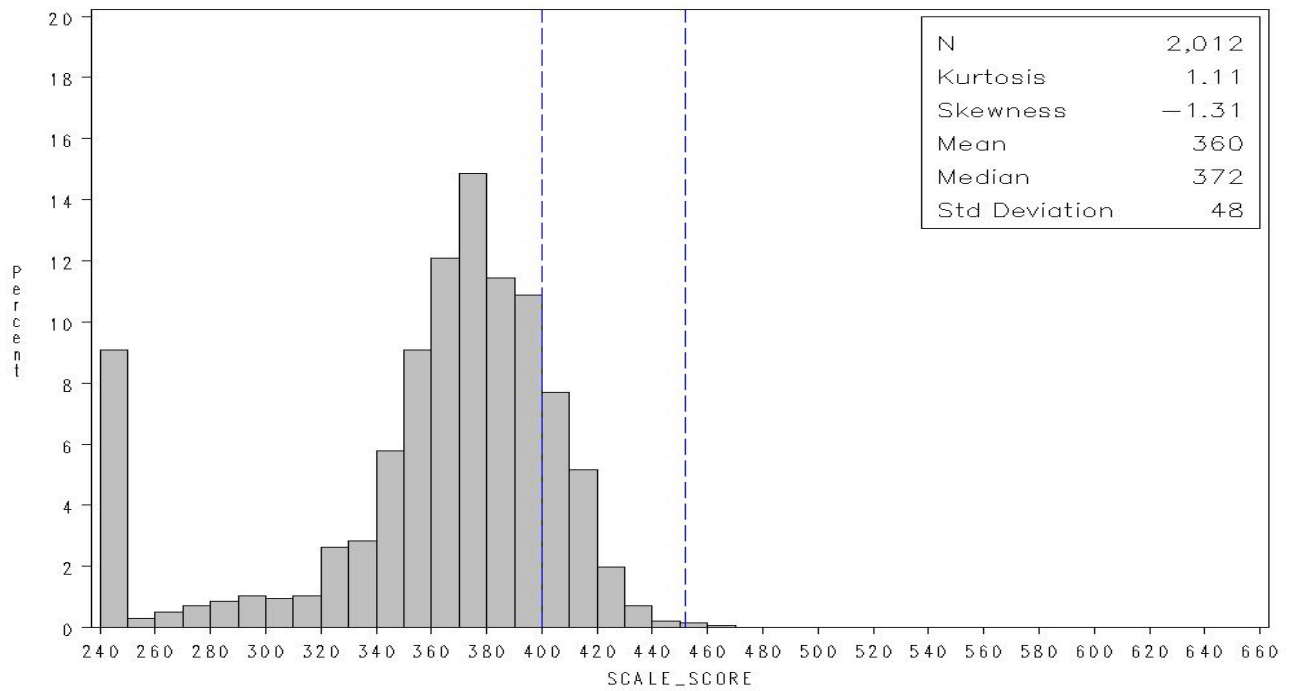


Figure D.3 Scale Score Distribution of the Biology Target Population

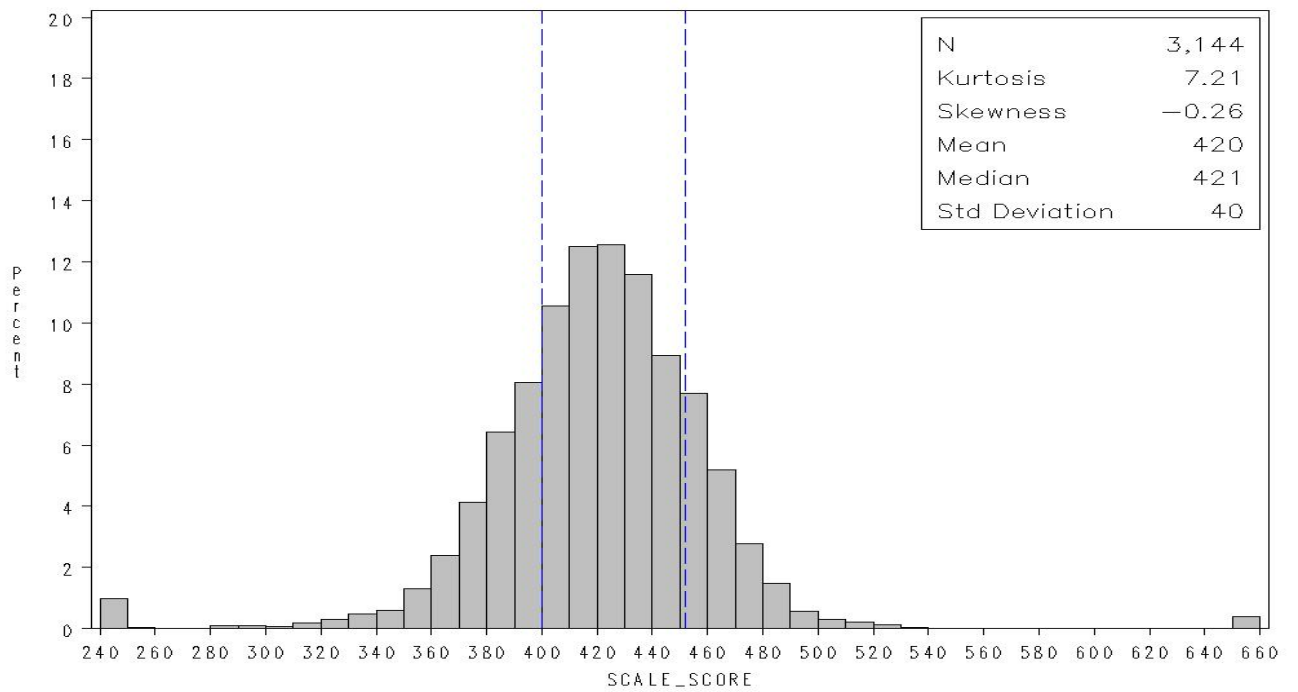


Figure D.4 Scale Score Distribution of the Biology Linking Sample

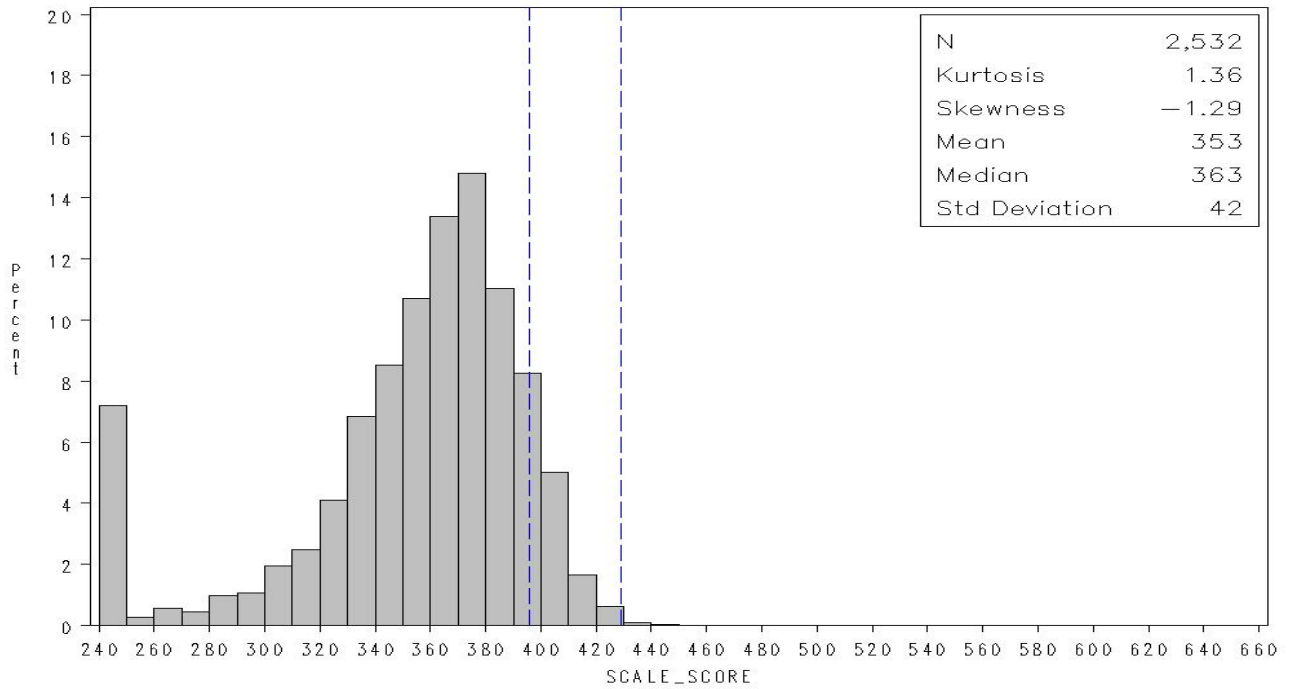


Figure D.5 Scale Score Distribution of the English Target Population

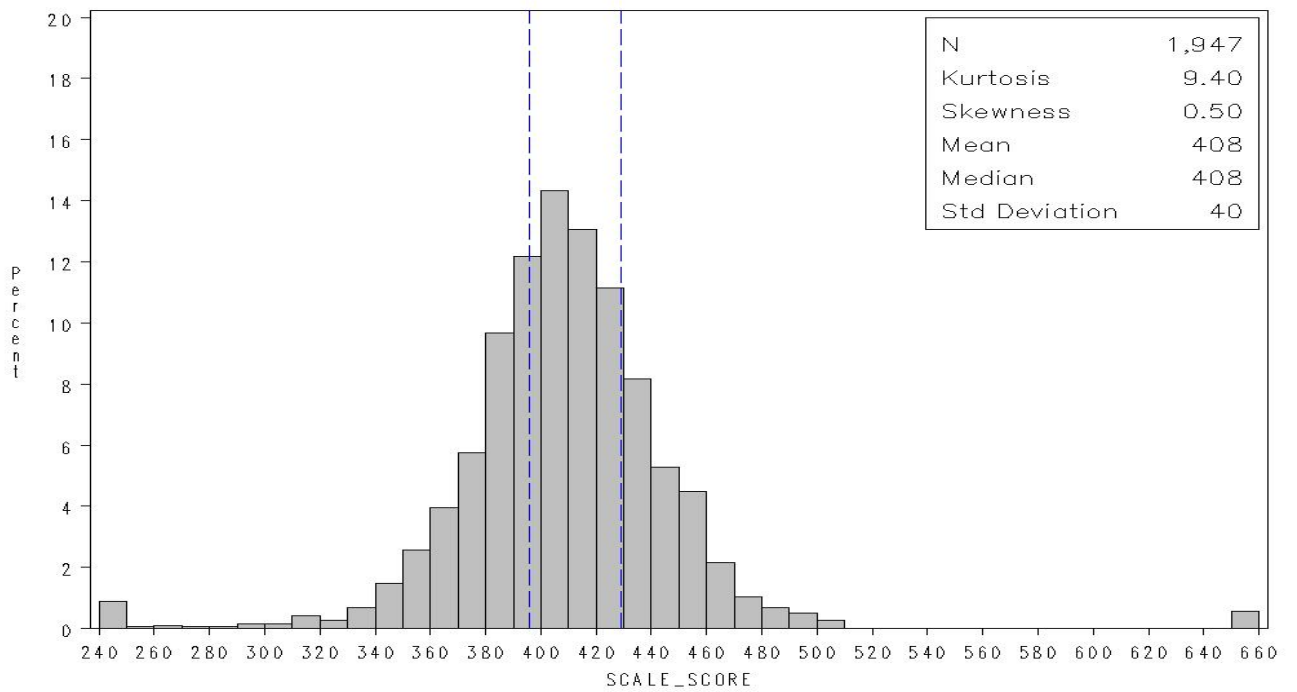


Figure D.6 Scale Score Distribution of the English Linking Sample

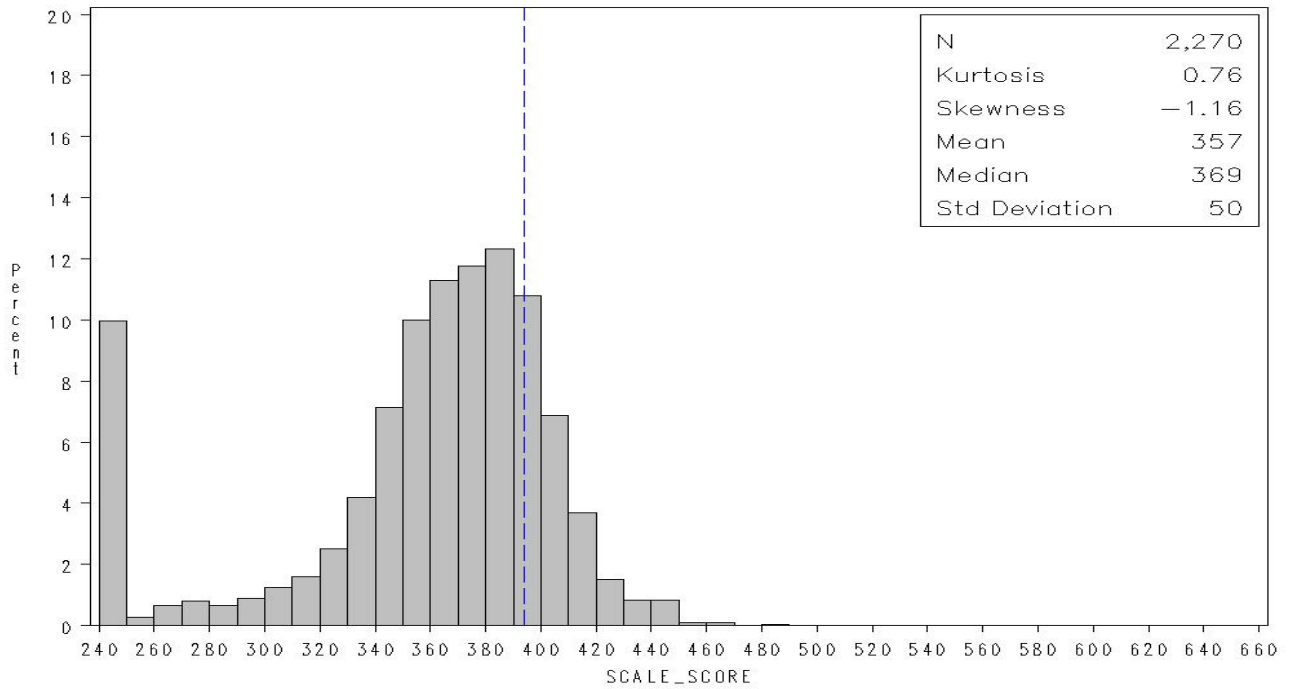


Figure D.7 Scale Score Distribution of the Government Target Population

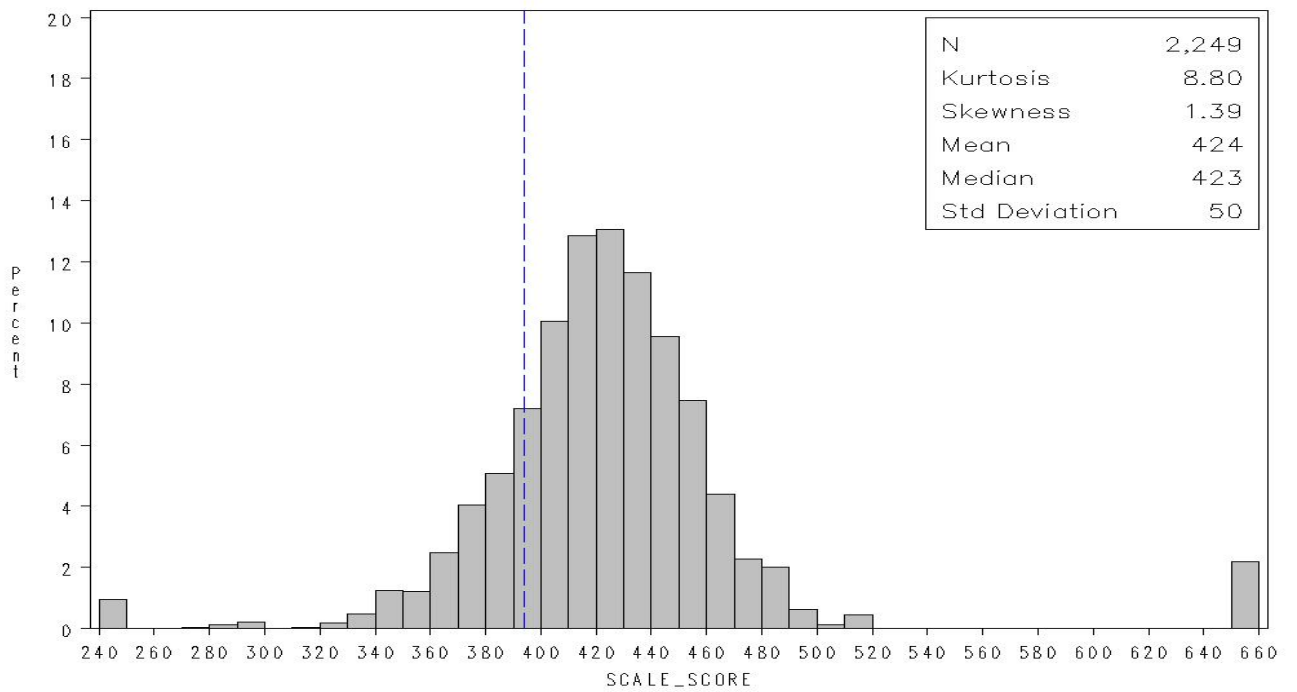


Figure D.8 Scale Score Distribution of the Government Linking Sample