New York State Regents Examination in the Living Environment

2014 Field Test Analysis, Equating Procedure, and Scaling of Operational Test Forms

Technical Report

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by Pearson

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Section I: Introduction

PURPOSE

The purpose of this report is to document the psychometric properties of the New York State Regents Examination in the Living Environment. In addition, this report documents the procedures used to analyze the results of the field test and to equate and scale the operational test forms.

Section II: Field Test Analysis

In May 2014, prospective items for the New York State Regents Examination in the Living Environment were field tested. The results of this testing were used to evaluate item quality. Only items with acceptable statistical characteristics can be selected for use on operational tests.

Representative student samples for participation in this testing were selected to mirror the demographics of the student population that is expected to take the operational test. The Need/Resource Capacity Categories in Table 1 were used as variables in the sampling plan.

Table 1. Need/Resource Capacity Category Definitions

Need/Resource Capacity (N/RC) Category	Definition
High N/RC Districts: New York City	New York City
Large Cities	Buffalo, Rochester, Syracuse, Yonkers
Urban/Suburban	All districts at or above the 70th percentile on the index with at least 100 students per square mile or enrollment greater than 2500
Rural	All districts at or above the 70th percentile on the index with fewer than 50 students per square mile or enrollment of fewer than 2500
Average N/RC Districts	All districts between the 20th and 70th percentiles on the index
Low N/RC Districts	All districts below the 20th percentile on the index
Charter Schools	Each charter school is a district

FILE PROCESSING AND DATA CLEANUP

The Regents examinations utilize both multiple-choice (MC) and constructed-response (CR) item types in order to more fully assess student ability. Multiple field test (FT) forms were given during this administration to allow for a large number of items to be field tested without placing an undue burden on the students participating in the field test; each student only took a small subset of the items being field tested. The New York State Education Department (NYSED) handled all scanning of the MC responses and scoring of the CR responses along with the composition of the student data file in-house and with other external vendors. After all scoring and scanning activities had been completed and the student data file built, it was supplied to Pearson and contained student MC responses and CR scores. In addition, the NYSED also created and supplied a test map file that documented the items on each of the FT forms and a student data file layout that contained the position of every field within the student data file. Upon receipt of these files, Pearson staff checked the data, test map, and layout for consistency. Any anomalies were referred back to the NYSED for resolution. After these had been resolved and corrected as necessary, final processing of the data file then took place. This processing included the identification and deletion of invalid student test records through the application of a set of predefined exclusion rules[1]. The original student data file received from the NYSED contained 12,244 records; the final field test data file contained 12,209 records.

Within the final data file used in the field test analyses, MC responses were scored according to the item keys contained in the test map; correct responses received a score of 1 while incorrect responses received a score of 0. CR item scores were taken directly from the student data file, with the exception that out-of-range scores were assigned scores of 0. For Item Response Theory (IRT) calibrations, blanks (i.e., missing data; not omits) were also scored as 0.

In addition to the scored data, the final data file also contained the unscored student responses and scores. Unscored data was used to calculate the percentage of students who selected the various answer choices for the MC items or the percentage of students who received each achievable score point for the CR items. The frequency of students leaving items blank was also calculated. The scored data were used for all other analyses.

CLASSICAL ANALYSIS

Classical Test Theory assumes that any observed test score x is composed of both true score t and error score e. This assumption is expressed as follows:

$$x = t + e$$

[1] These exclusion rules flagged records without both an MC and a CR component, records with invalid or out-of-range form numbers, records without any responses, and duplicate records. These records were dropped prior to analysis.

All test scores are composed of both a true and an error component. For example, the choice of test items or administration conditions might influence student responses, making a student's observed score higher or lower than the student's true ability would warrant. This error component is random and uncorrelated with (i.e., unrelated to) the student's true score. Across an infinitely large number of administrations, the mean of the error scores would be zero. Thus, the best estimate of a student's true score for any test administration (or their expected score given their [unobservable] true level of ability or true score) is that student's observed score. This expectation is expressed as follows:

$$E(x) = t$$

Item difficulties, point-biserial correlations, reliability estimates, and various statistics related to rater agreement have been calculated and are summarized in the following section.

Item Difficulty

Item difficulty is typically defined as the average of scores for a given item. For MC items, this value (commonly referred to as a p-value) ranges from 0 to 1. For CR items, this value ranges from 0 to the maximum possible score. In order to place all item means on a common metric (ranging from 0 to 1), CR item means were divided by the maximum points possible for the item.

Item Discrimination

Item discrimination is defined as the correlation between a score on a given test question and the overall raw test score. These correlations are Pearson correlation coefficients. For MC items, it is also known as the point-biserial correlation.

Table 2 presents a summary of the classical item analysis for each of the field test forms. The first three columns from the left identify the form number, the number of students who took each form, and the number of items on each field test form, respectively. The remaining columns are divided into two sections (i.e., item difficulty and discrimination). Recall that for CR items, item means were divided by the maximum number of points possible in order to place them in the same metric as the MC items. Three items had difficulties that were greater than 0.90 and 13 items had correlations that were less than 0.25. In addition to the summary information provided in Table 2, further classical item statistics are provided in Appendix A.

Table 2. Classical Item Analysis Summary

Form	N-Count	No. of Items	Item Difficulty			Item Discrimination		
			<0.50	0.50 to 0.90	>0.90	<0.25	0.25 to 0.50	>0.50
871	694	26	13	13	0	1	19	6
872	688	26	11	14	1	0	18	8
873	674	26	5	21	0	0	16	10
874	685	26	10	16	0	0	18	8
875	657	25	7	17	1	2	14	9
876	671	26	11	15	0	1	16	9
877	681	26	14	12	0	1	17	8
878	683	26	9	17	0	1	18	7
879	675	26	9	17	0	2	15	9
880	691	26	18	8	0	3	16	7
881	661	26	14	12	0	0	23	3
882	679	25	11	14	0	1	16	8
883	680	25	12	13	0	0	18	7
884	679	26	14	11	1	0	22	4
885	688	23	14	9	0	0	17	6
886	658	26	11	15	0	0	24	2
887	694	23	9	14	0	1	15	7
888	671	17	4	13	0	0	12	5

For some forms, the item counts in the “Item Difficulty” and “Item Discrimination” columns may not sum to the value in the “No. of Items” column due to DNS (Do Not Score) items.

Test Reliability

Reliability is the consistency of the results obtained from a measurement with respect to time or between items or subjects that constitute a test. As such, test reliability can be estimated in a variety of ways. Internal consistency indices are a measure of how consistently examinees respond to items within a test. Two factors influence estimates of internal consistency: (1) test length and (2) homogeneity of the items. In general, the more items on the examination, the higher the reliability and the more similar the items, the higher the reliability.

Table 3 contains the internal consistency statistics for each of the field test forms under the heading “Test Reliability.” These statistics ranged from 0.75 to 0.87. It should be noted that operational tests generally are composed of more items and would be expected to have higher reliabilities than do these field test forms.

Scoring Reliability

One concern with CR items is the reliability of the scoring process (i.e., consistency of the score assignment). CR items must be read by scorers who assign scores based

on a comparison between the rubric and student responses. Consistency between scorers is a critical part of the reliability of the assessment. To track scorer consistency, approximately 10% of the test booklets are scored a second time (these are termed “second read scores”) and compared to the original set of scores (also known as “first read scores”).

As an overall measure of scoring reliability, the Pearson correlation coefficient between the first and second scores for all CR items with second read scores was computed for each form. This statistic is often used as an overall indicator of scoring reliability, and it generally ranges from 0 to 1. Table 3 contains these values in the column headed “Scoring Reliability.” They ranged from 0.71 to 0.93, indicating a moderate to high degree of reliability.

Table 3. Test and Scoring Reliability

Form Number	Test Reliability	Scoring Reliability
871	0.84	0.78
872	0.85	0.85
873	0.87	0.77
874	0.85	0.76
875	0.82	0.75
876	0.84	0.84
877	0.84	0.79
878	0.83	0.87
879	0.83	0.75
880	0.83	0.88
881	0.81	0.82
882	0.83	0.82
883	0.84	0.86
884	0.82	0.71
885	0.81	0.75
886	0.81	0.75
887	0.83	0.78
888	0.75	0.93

Inter-rater Agreement

For each CR item, the difference between the first and second reads was tracked and the number of times each possible difference between the scores occurred was tabulated. These values were then used to calculate the percentage of times each possible difference occurred. When examining inter-rater agreement statistics, it should be kept in mind that the maximum number of points per item varies, as shown in the “Score Points” column. Blank cells in the table indicate out-of-range differences (e.g., it is impossible for two raters to differ by more than one point in their scores on an item

with a maximum possible score of one; cells in the table other than −1, 0, and 1 would therefore be blanked out).

Appendix B contains the proportion of occurrence of these differences for each CR item. Although most items had a maximum point value of one, one item had a maximum point value of five. Appendix C contains additional summary information regarding the first and second reads, including the percentage of the first and second scores that were exact or adjacent matches. These were 94% for the five-point item. Nonadjacent scores were not possible for the remaining one-point items.

Constructed-Response Item Means and Standard Deviations

Appendix C also contains the mean and standard deviation of the first and second scores for each CR item. The largest difference between the item means for the first and second read scores was 0.2 and the largest difference between the standard deviations was 0.10.

Intraclass Correlation

In addition, Appendix C contains the intraclass correlations for the items. These correlations are calculated using a formulation given by Shrout and Fleiss (1979). Specifically, they described six different models based on various configurations of judges and targets (in this case, papers that are being scored). For this assessment, the purpose of the statistic is to describe the reliability of single ratings, and each paper is scored by two judges who are randomly assigned from the larger pool of judges, and who score multiple papers. This description fits their “Case 1.” Further, they distinguish between situations where the score assigned to the paper is that of a single rater versus that where the score is the mean of k raters. Since the students’ operational scores are those from single (i.e., the first) raters, the proper intraclass correlation in this instance is termed by Shrout and Fleiss as “ICC(1,1).” It will be referred to herein simply as the “intraclass correlation” (ICC).

While the ICC is a bona fide correlation coefficient, it differs from a regular correlation coefficient in that its value remains the same regardless of how the raters are ordered. A regular Pearson correlation coefficient would change values if, for example, half of the second raters were switched to the first position, while the ICC would maintain a consistent value. Because the papers were randomly assigned to the judges, ordering was arbitrary, and thus the ICC is a more appropriate measure of reliability than the Pearson correlation coefficient in this situation. The ICC ranges from zero (the scores given by the two judges are unrelated) to one (the scores from the two judges match perfectly); negative values are possible, but rare, and have essentially the same meaning as values of zero. It should also be noted that the ICC can be affected by low degrees of variance in the scores being related, similar to the way that regular Pearson correlation coefficients are affected. ICCs for items where almost every examinee achieved the same score point (e.g., an extremely easy dichotomous item where almost every examinee was able to answer it correctly) may have a low or negative ICC even though almost all ratings by the judges matched exactly.

McGraw and Wong (1996, Table 4, p. 35) state that the ICC can be interpreted as "the degree of absolute agreement among measurements made on randomly selected objects. It estimates the correlation of any two measurements." Since it is a correlation coefficient, its square indicates the percent of variance in the scores that is accounted for by the relationship between the two sets of scores (i.e., the two measurements). In this case, these scores are those of the pair of judges. ICC values greater than 0.60 indicate that at least 36% (0.60^2) of the variation in the scores given by the raters is accounted for by variations in the responses to the items that are being scored (e.g., variations in the ability being measured) rather than by variations caused by a combination of differences in the severity of the judges, interactions between judge severity and the items, and random error (e.g., variations exterior to the ability being measured). It is generally preferred that items have ICCs at this level or higher. There were 30 items with ICCs below 0.60. Consistent with other information provided in the table, these values indicate a high level of scoring reliability for most of the items in the field test with low to moderate levels for the rest.

Weighted Kappa

Weighted Kappa (Cohen, 1968) was also calculated for each item based on the first and second reads and is included in Appendix C as well. This statistic is an estimate of the agreement of the score classifications over and above that which would be expected to occur by chance. Similar to the ICC, its value can range between zero (the scores given by the judges agree as often as would be expected by chance) and one (scores given by the judges agree perfectly). In addition, negative values are possible, but rare, and have the same interpretation as zero values. One set of guidelines for the evaluation of this statistic is (Fleiss, 1981):

- $k > 0.75$ denotes excellent reproducibility
- $0.4 < k \leq 0.75$ denotes good reproducibility
- $0 < k \leq 0.4$ denotes marginal reproducibility

The results show good to excellent reproducibility between the first and second reads for all but seven items, and marginal reproducibility for those seven. The scoring reliability analyses offer strong evidence that the scoring of almost all of the CR items was performed in a reliable to highly reliable manner.

ITEM RESPONSE THEORY (IRT) AND THE CALIBRATION AND EQUATING OF THE FIELD TEST ITEMS

While classical test theory-based statistical measures are useful for assessing the suitability of items for operational use (i.e., use as part of an assessment used to measure student ability and thus having real-world consequences for students, teachers, schools, and administrators), their values are dependent on both the psychometric properties of the items and the ability distributions of the samples upon which they are based. In other words, classical test theory-based statistics are *sample-dependent statistics*.

In contrast, Item Response Theory (IRT) based statistics are not dependent on the sample over which they are estimated—they are invariant across different samples (Hambleton, Swaminathan, & Rogers, 1991; Lord, 1980). This invariance allows student ability to be estimated on a common metric even if different sets of items are used (as with different test forms over different test administrations).

The process of estimating IRT-based item parameters is referred to as "item calibration," and the placing of these parameters on a common metric or scale is termed "equating." While one reason for the field testing of items is to allow their suitability for use in the operational measurement of student ability to be assessed, the data resulting from field testing is also used to place items on the scale of the operational test (i.e., they are equated to the operational metric). Once items are on this common metric, any form composed of items from this pool can be scaled (the process through which scale score equivalents for each achievable raw score are derived) and the resulting scale scores will be directly comparable to those from other administrations, even though the underlying test forms are composed of different sets of items.

There are several variations of IRT that differ mainly in the way item behavior is modeled. The New York State Regents Examinations use the Rasch family of IRT statistics (Rasch, 1980; Masters, 1982) to calibrate, scale, and equate all subjects.

The most basic expression of the Rasch model is in the item characteristic curve. It conceptualizes the probability of a correct response to an item as a function of the ability level and the item's difficulty. The probability of a correct response is bounded by "1" (certainty of a correct response) and "0" (certainty of an incorrect response). The ability scale is theoretically unbounded. In practice, the ability scale ranges from approximately −4 to +4 logits. The relationship between examinee ability θ, item difficulty D_i, and probability of answering the item correctly P_i is shown in the equation below.

$$P_i(\theta) = \frac{\exp\,(\theta - D_i)}{1 + \exp\,(\theta - D_i)}$$

Examinee ability (θ) and item difficulty (D_i) are on the same scale. This is useful for certain purposes. An examinee with an ability level equal to the item difficulty will have a 50% chance of answering the item correctly; if his or her ability level is higher than the item difficulty, then the probability of answering the item correctly is commensurately higher, and the converse is also true.

The Rasch Partial Credit Model (PCM) (Masters, 1982) is a direct extension of the dichotomous one-parameter IRT model above. For an item involving *m* score categories, the general expression for the probability of achieving a score of *x* on the item is given by

$$P_x(\theta) = \frac{\exp[\sum_{k=0}^{x}(\theta - D_k)]}{\sum_{h=0}^{m}\exp[\sum_{k=0}^{h}(\theta - D_k)]}$$

where

$$D_0 \equiv 0.0$$

In the above equation, *Px* is the probability of achieving a score of *x* given an ability of θ; *m* is the number of achievable score points minus one (note that the subscript *k* runs from 0 to *m*); and D_k is the step parameter for step *k*. The steps are numbered from 0 to the number of achievable score points minus one, and step 0 (D_0) is defined as being equal to zero. Note that a four-point item, for example, usually has five achievable score points (0, 1, 2, 3, and 4), thus the step numbers usually mirror the achievable point values.

According to this model, the probability of an examinee scoring in a particular category (step) is the sum of the logit (log-odds) differences between θ and D_k of all the completed steps, divided by the sum of the differences of all the steps of an item. Thissen and Steinberg (1986) refer to this model as a divide-by-total model. The parameters estimated by this model are m_i −1 threshold (difficulty) estimates and represent the points on the ability continuum where the probability of the examinee achieving score m_i exceeds that of m_{i-1}. The mean of these threshold estimates is used as an overall summary of the polytomous item's difficulty.

If the number of achievable score points is one (i.e., the item is dichotomous), then the PCM reduces to the basic Rasch IRT model for dichotomous items. This means that dichotomous and polytomous items are being scaled using a common model and therefore can be calibrated, equated, and scaled together. It should be noted that the Rasch model assumes that all items have equal levels of discrimination and that there is no guessing on MC items. However, it is robust to violations of these assumptions, and items that violate these assumptions to a large degree are usually flagged for item-model misfit.

Item Calibration

When interpreting IRT item parameters, it is important to remember that they do not have an absolute scale—rather, their scale (in terms of mean and standard deviation) is purely arbitrary. It is conventional to set the mean of the item difficulties to zero when an assessment is scaled for the first time. Rasch IRT scales the theta measures in terms of *logits*, or "log-odds units." The length of a logit varies from test to test, but generally the standard deviation of the item difficulties of a test scaled for the first time will be somewhere in the area of 0.6–0.8. While the item difficulties are invariant with respect to one another, the absolute level of difficulty represented by their mean is dependent on the overall difficulty of the group of items with which it was tested. In addition, there is no basis for assuming that the difficulty values are normally distributed around their mean—their distribution again depends solely upon the intrinsic difficulties of the items themselves. Thus, if a particularly difficult set of items (relative to the set of items originally calibrated) was field tested, their overall mean would most probably be greater than zero, and their standard deviation would be considerably less than one. In addition, they would most probably not be normally distributed.

Rasch item difficulties generally range from −3.0 to 3.0, although very easy or difficult items can fall outside of this range. Items should not be discounted solely on the basis of their difficulty. A particular topic may require either a difficult or an easy item. Items are usually most useful if their difficulty is close to a cut score, as items provide the highest level of information at the ability level equal to their difficulty. Items with difficulties farther away from the cuts provide less information about students with abilities close to the cut scores (and, hence, and more susceptible to misclassification), but are still useful. In general, items should be selected for use based on their content, with their Rasch difficulty being only a secondary consideration.

Item Fit Evaluation

The INFIT statistic is used to assess how well items fit the Rasch model. Rasch theory models the probability of a student being able to answer an item correctly as a function of the student's level of ability and the item's difficulty, as stated previously. The Rasch model also assumes that items' discriminations do not differ, and that the items are not susceptible to guessing. If these assumptions do not hold (if, for example, an item has an extremely high or low level of discrimination), then the item's behavior will not be well modeled by Rasch IRT. Guidelines for interpretation of the INFIT statistic are taken from Linacre (2005) and can be found in Table 4 below.

Table 4. Criteria to Evaluate Mean-Square Fit Statistics

INFIT	Interpretation
>2.0	Distorts or degrades the measurement system
1.5–2.0	Unproductive for construction of measurement, but not degrading
0.5–1.5	Productive for measurement
<0.5	Unproductive for measurement, but not degrading. May produce misleadingly good reliabilities and separations

INFIT is an information-weighted fit statistic, which is more sensitive to unexpected behavior affecting responses to items near the person's measure (or ability) level. In general, values near 1.0 indicate little distortion of the measurement system, while values less than 1.0 indicate observations are too predictable (redundancy, model overfit). Values greater than 1.0 indicate unpredictability (unmodeled noise, model underfit).

Table 5 contains a summary of the analysis for each of the field test forms. The first column from the left lists the form numbers. The next two columns list the number of students who participated and the number of items on each field test form, respectively. The final columns show the frequency of items at three levels of difficulty (easier items with a Rasch difficulty <−2.0, moderate items with a Rasch difficulty between −2.0 and 2.0, and more difficult items with a Rasch difficulty >2.0), and frequencies of item misfits as classified in the preceding table. Most of the items (422 out of 450 total) fell within the moderate −2.0 to +2.0 difficulty range, and there were no items with an INFIT

statistic outside the range most productive for measurement. Item level results of the analysis can be found in Appendix D.

Table 5. Partial-Credit Model Item Analysis Summary

Form	N-Count	No. of Items	Rasch			INFIT			
			<−2.0	−2.0 to 2.0	>2.0	<0.5	0.5 to 1.5	1.5 to 2.0	>2.0
871	694	26	0	26	0	0	26	0	0
872	688	26	2	23	1	0	26	0	0
873	674	26	0	26	0	0	26	0	0
874	685	26	0	26	0	0	26	0	0
875	657	25	1	23	1	0	25	0	0
876	671	26	0	26	0	0	26	0	0
877	681	26	0	25	1	0	26	0	0
878	683	26	0	25	1	0	26	0	0
879	675	26	0	26	0	0	26	0	0
880	691	26	0	25	1	0	26	0	0
881	661	26	0	19	7	0	26	0	0
882	679	25	1	23	1	0	25	0	0
883	680	25	0	24	1	0	25	0	0
884	679	26	1	23	2	0	26	0	0
885	688	23	0	21	2	0	23	0	0
886	658	26	0	23	3	0	26	0	0
887	694	23	0	21	2	0	23	0	0
888	671	17	0	17	0	0	17	0	0

For some forms, the item counts in the “Rasch” and “INFIT” columns may not sum to the value in the “No. of Items” column due to DNS (Do Not Score) items.

DIFFERENTIAL ITEM FUNCTIONING

Differential Item Functioning (DIF) occurs when members of a particular group have a different probability of success than members of another group who have the same level of ability for reasons unrelated to the academic skill or construct being measured. For example, items testing English grammar skills may be more difficult for LEP students as opposed to non-LEP students, but such differences are likely due to the fact that the item measures an academic skill related to English language proficiency. Such items would not be considered to be functioning differentially.

The Mantel Chi-Square and Standardized Mean Difference

The Mantel χ^2 is a conditional mean comparison of the ordered response categories for reference and focal groups combined over values of the matching variable score. “Ordered” means that a response earning a score of “1” on an item is better than a

response earning a score of “0” or “2” is better than “1,” and so on. “Conditional,” on the other hand, refers to the comparison of members from the two groups who received the same score on the matching variable, that is, the total test score in our analysis.

Group	Item Score				Total
	y_1	y_2	…	y_T	
Reference	n_{R1k}	n_{R2k}	…	n_{Rtk}	n_{R+k}
Focal	n_{F1k}	n_{F2k}	…	n_{Ftk}	n_{F+k}
Total	n_{+1k}	n_{+2k}	…	n_{+tk}	n_{++k}

Figure 1. 2 × *t* Contingency Table at the kth of K Levels.

Figure 1 (from Zwick, Donoghue, & Grima, 1993) shows a 2 × *t* contingency table at the kth of K levels, where t represents the number of response categories and k represents the number of levels of the matching variable. The values $y_1, y_2, \ldots y_T$ represent the t scores that can be gained on the item. The values n_{Ftk} and n_{Rtk} represent the numbers of focal and reference groups who are at the kth level of the matching variable and gain an item score of y_t. The “+” indicates the total number over a particular index (Zwick et al., 1993). The Mantel statistic is defined as the following formula:

$$Mantel\chi^2 = \frac{\left(\sum_k F_k - \sum_k E(F_k)\right)^2}{\sum_k Var(F_k)}$$

in which F_k represents the sum of scores for the focal group at the kth level of the matching variable and is defined as follows:

$$F_k = \sum_t y_t n_{Ftk}$$

The expectation of F_k under the null hypothesis is

$$E(F_k) = \frac{n_{F+k}}{n_{++k}} \sum_t y_t n_{Ftk}$$

The variance of F_k under the null hypothesis is as follows:

$$Var(F_k) = \frac{n_{R+k} n_{F+k}}{n_{++k}^2 (n_{++k} - 1)} \left[(n_{++k} \sum_t y_t^2 n_{+tk}) - (\sum_t y_t n_{+tk})^2 \right]$$

Under *H0*, the Mantel statistic has a chi-square distribution with one degree of freedom. In DIF applications, rejecting *H0* suggests that the students of the reference and focal groups who are similar in overall test performance tend to differ in their mean performance on the item. For dichotomous items, the statistic is identical to the Mantel-Haenszel (MH) (1959) statistic without the continuity correction (Zwick et al., 1993).

A summary statistic to accompany the Mantel approach is the standardized mean difference (SMD) between the reference and focal groups proposed by Dorans and Schmitt (1991). This statistic compares the means of the reference and focal groups, adjusting for differences in the distribution of the reference and focal group members across the values of the matching variable. The SMD has the following form:

$$SMD = \sum_k p_{Fk} m_{Fk} - \sum_k p_{Fk} m_{Rk}$$

in which

$$p_{Fk} = \frac{n_{F+k}}{n_{F++}}$$

is the proportion of the focal group members who are at the kth level of the matching variable;

$$m_{Fk} = \frac{1}{n_{F+k} \sum_t y_t n_{Ftk}}$$

is the mean item score of the focal group members at the kth level; and m_{Rk} is the analogous value for the reference group. As can be seen from the equation above, the SMD is the difference between the unweighted item mean of the focal group and the weighted item mean of the reference group. The weights for the reference group are applied to make the weighted number of the reference-group students the same as in the focal group within the same level of ability. A negative SMD value implies that the focal group has a lower mean item score than the reference group, conditional on the matching variable.

Multiple-Choice Items

For the MC items, the MH odds ratio (converted to the ETS delta scale [D]) is used to classify items into one of three categories of DIF.

The Odds Ratio

The odds of a correct response (proportion passing divided by proportion failing) are *P/Q* or *P/(1−P)*. The *odds ratio* is the odds of a correct response of the reference group divided by the odds of a correct response of the focal group. For a given item, the odds ratio is defined as follows:

$$\alpha_{MH} = \frac{P_r/Q_r}{P_f/Q_f}$$

and the corresponding null hypothesis is that the odds of getting the item correct are equal for the two groups. Thus, the odds ratio is equal to 1:

$$\alpha_{MH} = \frac{P_r/Q_r}{P_f/Q_f} = 1$$

The Delta Scale

To make the odds ratio symmetrical around zero with its range being in the interval −∞ to +∞, the odds ratio is transformed into a log odds ratio according to this equation:

$$\beta_{MH} = \ln(\alpha_{MH})$$

This simple natural logarithm transformation of the odds ratio is symmetrical around zero. This DIF measure is a signed index; a positive value signifies DIF in favor of the reference group, a negative value indicates DIF in favor of the focal group, and zero has the interpretation of equal odds of success on the item. β_{MH} also has the advantage of a linear relationship to other interval scale metrics (Camilli & Shepard, 1994). β_{MH} is placed on the ETS delta scale (D) using the following equation:

$$D = -2.35\beta_{MH}$$

DIF Classification for MC Items

Table 6 depicts DIF classifications for MC items. Classification depends on the delta (D) value and the significance of its difference from zero ($p < 0.05$). The criteria are derived from those used by the National Assessment of Educational Progress (Allen, Carlson, & Zelenak, 1999) in the development of their assessments.

Table 6. DIF Classification for MC Items

Category	Description	Criterion
A	No DIF	D not significantly different from zero or $\lvert D\rvert < 1.0$
B	Moderate DIF	$1.0 \leq \lvert D\rvert < 1.5$ or not otherwise A or C
C	High DIF	D is significantly different from zero and $\lvert D\rvert \geq 1.5$

DIF Classification for CR Items

The SMD is divided by the total group item standard deviation to obtain an effect-size value for the SMD (ES_{SMD}). The value of ES_{SMD} and the significance of the Mantel χ^2 statistic ($p < 0.05$) are then used to determine the DIF category of the item as depicted in Table 7 below.

Table 7. DIF Classification for CR Items

Category	Description	Criterion
AA	No DIF	Non-significant Mantel χ2 or $\lvert ES_{SMD}\rvert \leq 0.17$
BB	Moderate DIF	Significant Mantel χ^2 and $0.17 < \lvert ES_{SMD}\rvert \leq 0.25$
CC	High DIF	Significant Mantel χ^2 and $0.25 < \lvert ES_{SMD}\rvert$

Reliable DIF results are dependent on the number of examinees in both the focal and reference groups. Clauser and Mazor (1998) state that a minimum of 200 to 250 examinees per group are sufficient to provide reliable results. Some testing organizations require as many as 300 to 400 examinees per group (Zwick, 2012) in some applications. For the field testing of the Regents examinations, the sample sizes were such that only comparisons based on gender (e.g., males vs. females) were

possible. Even for gender, sample sizes were only moderately large, and so the results should be interpreted with caution.

The DIF statistics for gender are shown in Appendix E. MC items in DIF categories “B” and “C” and CR items in categories “BB” and “CC” were flagged. These flags are shown in the “DIF Category” column (“A” and “AA” category items will have blank cells here). The “Favored Group” column indicates which gender is favored for items that are flagged.

Section III: Equating Procedure

Students particpating in the 2014 field test administration for the New York State Regents Examination in the Living Environment received one of 18 test forms (numbered 871–888). Form 888 was the anchor form for the equating and was an intact form that had been administered in the prior year. Because the form had been previously administered, its items had known parameters on the operational scale. The remaining test forms were composed of items that had not been administered to New York State students. Test forms were spiraled within classrooms, so that students had an equal chance of receiving any of the 18 forms, depending solely on their ordinal position within the classroom. In essence, students were randomly assigned to test forms, forming randomly equivalent groups taking each of the forms. Appendices A and D (with the classical and Rasch IRT item level statistics) may be consulted to determine the characteristics of the items (e.g., item type and maximum number of points possible) that made up each form.

RANDOMLY EQUIVALENT GROUP EQUATING DESIGN

The equating analyses were based on the assumption that the groups taking the different forms had equivalent ability distributions and means. Given the random assignment of forms to examinees, this was a reasonable assumption. The initial step in the analyses was to calibrate all forms, both the anchor form and the remaining field test forms. All forms were calibrated using Winsteps, version 3.60 (Linacre, 2005).

The anchor form calibration began with all anchor item difficulty parameters fixed to their known values from the previous year. Because it is possible for item parameters to “drift” (shift their difficulties relative to one another), a stability check was integrated into the analysis.

Winsteps provides an item level statistic, termed “displacement.” Linacre (2011, p. 545) describes this statistic as:

> …the size of the change in the parameter estimate that would be observed in the next estimation iteration if this parameter was free (unanchored) and all other parameter estimates were anchored at their current values. For a parameter (item or person) that is anchored in the main estimation, (the displacement value) indicates the size of

disagreement between an estimate based on the current data and the anchor value.

This statistic was used to identify items with difficulties that had shifted, relative to the difficulties of the other items on the form. After the intial calibration run, the Winsteps displacement values for all anchor form items were examined for absolute values greater than 0.30. If present, the item with the largest absolute displacement value was removed from anchored status, but remained on the test form. Its difficulty value was subsequently reestimated relative to the difficulties of the remaining anchored items. The Winsteps calibration was then rerun with the reduced anchor set, after which the displacement values were again checked for absolute values in excess of 0.30. If another was found, it was also removed from anchored status and the calibration rerun. This iterative procedure continued until all anchored items had displacements of 0.30 or less. One items were identified as having drifted for the 2014 analyses.

After a stable anchor item set had been identified, the mean of the ability estimates of the students who took the anchor form was computed[2]. This mean ability was then used as the target ability for the forms with the field test items. Because the groups taking the different forms were randomly equivalent and thus had the same mean ability, adjustment of the parameters of the field test items on any form to values that produced an ability distribution for students who had taken the form with a mean equal to the target ability from the anchor form would result in the parameters for the field test items on that form being equated to the scale of the anchor form, which was also the operational scale.

The equated mean ability estimate for Form 888 was 0.21. This value became the target mean ability estimate for the field test forms.

At this point in the analyses, the calibration of the anchor form was complete. The next step was the initial calibration of the field test forms. This was a “free” calibration, meaning that the item parameters were not constrained in any way. This initial calibration produced a set of Rasch difficulty parameters for the items on each form. Also produced as a part of the Winsteps calibration was a set of person ability estimates for each form.

The next step was the computation of an equating constant for each form. Under Rasch IRT, if all of the difficulty parameters on a form have a constant added to them, the ability estimates for examinees will also be changed from their previous values by the amount represented by that constant. Therefore, to adjust the item difficulty parameters such that the mean of the ability distribution is set equal to the target mean ability from the anchor form, an equating constant was calculated for each field test form by subtracting the field test form mean ability from the target mean ability. This value was then added to the Rasch difficulty parameter of all items on the field test form.

[2] Because under Rasch IRT the ability of students with extreme scores (either zero or perfect scores) cannot be exactly computed (they are equal to $-\infty$ and $+\infty$, respectively), they were excluded from this and all other analyses for both the anchor and other field test forms.

These adjusted values were then used as anchors for a second Winsteps calibration of the field test form. The mean of the person ability values from this second calibration was computed and compared to the target mean. If the anchored field test mean ability differed from the target mean ability by 0.005 or more, then an additional equating constant was computed using the difference between the mean ability from the field test form anchored run and the target mean ability, and another anchored run was completed. This process continued until all adjusted field test form mean abilities were within the 0.005 tolerance limit around the targeted mean ability. The final equating constant for any field test form was the sum of the constants from each anchored round for that form. At this point, with the adjusted mean abilities for the field test forms all equal (within the specified limits) to the target abilities, all of the adjusted field test item parameters and the anchor item parameters were on the common operational scale, and thus could be used in any subsequent operational administration. The initial mean abilities and final equating constants for the field test forms can be found in Table 8.

Table 8. Initial Mean Abilities and Equating Constants

Form Number	Mean Ability	Constant
871	0.16	0.06
872	0.35	−0.14
873	0.69	−0.46
874	0.18	0.03
875	0.47	−0.24
876	0.20	0.01
877	−0.11	0.32
878	0.14	0.07
879	0.38	−0.15
880	−0.32	0.51
881	−0.35	0.54
882	0.27	−0.06
883	0.10	0.11
884	−0.05	0.26
885	−0.25	0.44
886	−0.06	0.27
887	−0.09	0.29

Section IV: Scaling of Operational Test Forms

Operational test items were selected based on content coverage, content accuracy, and statistical quality. The sets of items on each operational test conformed to the coverage determined by content experts working from the learning standards established by the New York State Education Department and explicated in the test blueprint. Each item's classical and Rasch statistics were used to assess item quality. Items were selected to vary in difficulty to accurately measure students' abilities across the ability continuum. Appendix F contains the 2014 operational test maps for the January, June, and August administrations.

All Regents examinations have two cut scores, which are set at the scale scores of 65 and 85. One of the primary considerations during test construction was to select items so as to minimize changes in the raw scores corresponding to these two scale scores. Maintaining a consistent mean Rasch difficulty level from administration to administration facilitates this. For this assessment, the target value for the mean Rasch difficulty was set at −0.122. It should be noted that the raw scores corresponding to the scale score cut scores may still fluctuate even if the mean Rasch difficulty level is maintained at the target value due to differences in the distributions of the Rasch difficulty values amongst the items from administration to administration.

The relationship between raw and scale scores is explicated in the scoring tables for each administration. These tables can be found in Appendix G and cover the January, June, and August administrations. These tables are the end product of the following scaling procedure.

All Regents examinations are equated back to a base scale that is held constant from year to year. Specifically, they are equated to the base scale through the use of a calibrated item pool. The Rasch difficulties from the item's initial administration in a previous year's field test are used to equate the scale for the current administration to the base administration. For this examination, the base administration was the June 2004 administration. Scale scores from the 2014 administrations are on the same scale and can be directly compared to scale scores on all previous administrations back to and including the June 2004 administration.

When the base administration was concluded, the initial raw score-to-scale score relationship was established. Four raw scores were fixed at specific scale scores. Scale scores of 0 and 100 were fixed to correspond to the minimum and maximum possible raw scores. In addition, a standard setting had been held to determine the passing and passing with distinction cut scores in the raw score metric. The scale score points of 65 and 85 were set to correspond to those raw score cuts. A third degree polynomial is required in order to fit a line exactly to four arbitrary points (e.g., the raw scores corresponding to the four critical scale scores of 0, 65, 85, and 100). The general form of this best-fitting line is:

$$SS = m_3 * RS^3 + m_2 * RS^2 + m_1 * RS + m_0$$

where *SS* is the scaled score, *RS* is the raw score, and m_0 through m_3 are the transformation constants that convert the raw score into the scale score (please note that m_0 will always be equal to zero in this application since a raw score of zero corresponds to a scale score of zero). The above relationship and the values of m_1 to m_3 specific to this subject were then used to determine the scale scores corresponding to the remainder of the raw scores on the examination. This initial relationship between the raw and scale scores became the base scale.

The Rasch difficulty parameters for the items on the base form were used to derive a raw score-to-Rasch student ability (theta score) relationship. This allowed the relationship between the Rasch theta score and the scale score to be known, mediated through their common relationship with the raw scores.

In succeeding years, each test form was selected from the pool of items that had been tested in previous years' field tests, each of which had known Rasch item difficulty parameter(s). These known parameters were used to construct the relationship between the raw and Rasch theta scores for that particular form. Because the Rasch difficulty parameters are all on a common scale, the Rasch theta scores were also on a common scale with previously administered forms. The remaining step in the scaling process was to find the scale score equivalent for the Rasch theta score corresponding to each raw score point on the new form using the theta-to-scale score relationship established in the base year. This was done via linear interpolation.

This process results in a relationship between the raw scores on the form and the overall scale scores. The scale scores corresponding to each raw score are then rounded to the nearest integer for reporting on the conversion chart (posted at the close of each administration). The only exceptions are for the minimum and maximum raw scores and the raw scores that correspond to the scaled cut scores of 65 and 85.

The minimum (zero) and maximum possible raw scores are assigned scale scores of 0 and 100, respectively. In the event that there are raw scores less than the maximum with scale scores that round to 100, their scale scores are set equal to 99. A similar process is followed with the minimum score; if any raw scores other than zero have scale scores that round to zero, their scale scores are instead set equal to one.

With regard to the cuts, if two or more scale scores round to either 65 or 85, the lowest raw score's scale score is set equal to a 65 or 85 and the scale scores corresponding to the higher raw scores are set to 66 or 86 as appropriate. If no scale score rounds to either of these two critical cuts, then the raw score with the largest scale score that is less than the cut is set equal to the cut. The overarching principle when two raw scores both round to either scale score cut is that the lower of the raw scores is always assigned to be equal to the cut so that students are never penalized for this ambiguity.

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Appendix A: Classical Item Analysis

In the following table, “Max” is the maximum number of possible points. “N-Count” refers to the number of student records in the analysis. “Alpha” contains Cronbach’s Coefficient α (since this is a test [form] level statistic, it has the same value for all items within each form). For MC items, “B” represents the proportion of students who left the item blank, and “M1” through “M4” are the proportions of students who selected each of the four answer choices. For CR items, “B” represents the proportion of students who left the item blank, and “M0” through “M5” are the proportions of students who received scores of 0 through 5. “Mean” is the average of the scores received by the students. The final (right) column contains the Point-Biserial correlation for each item. There may be some instances of items with missing statistics; this occurs when an item was not scored.

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	871	MC	01	1	694	0.84	0.00		0.22	0.14	0.16	0.47		0.47	0.44
2014_LEnv	871	MC	02	1	694	0.84	0.00		0.73	0.08	0.09	0.10		0.73	0.39
2014_LEnv	871	MC	03	1	694	0.84	0.00		0.68	0.15	0.08	0.08		0.68	0.39
2014_LEnv	871	MC	04	1	694	0.84	0.01		0.06	0.05	0.17	0.71		0.71	0.46
2014_LEnv	871	MC	05	1	694	0.84	0.00		0.35	0.40	0.18	0.07		0.40	0.44
2014_LEnv	871	MC	06	1	694	0.84	0.00		0.14	0.34	0.40	0.12		0.34	0.43
2014_LEnv	871	MC	07	1	694	0.84	0.01		0.12	0.21	0.46	0.19		0.46	0.45
2014_LEnv	871	MC	08	1	694	0.84	0.01		0.10	0.18	0.53	0.17		0.53	0.44
2014_LEnv	871	MC	09	1	694	0.84	0.00		0.41	0.36	0.13	0.09		0.41	0.43
2014_LEnv	871	MC	10	1	694	0.84	0.01		0.70	0.10	0.15	0.04		0.70	0.35
2014_LEnv	871	MC	11	1	694	0.84	0.04		0.13	0.04	0.78	0.01		0.78	0.43
2014_LEnv	871	CR	41	1	694	0.84	0.01	0.20	0.79					0.79	0.36
2014_LEnv	871	CR	42	1	694	0.84	0.04	0.33	0.63					0.63	0.36
2014_LEnv	871	CR	43	1	694	0.84	0.04	0.44	0.52					0.52	0.40
2014_LEnv	871	MC	44	1	694	0.84	0.02		0.05	0.11	0.55	0.27		0.55	0.21
2014_LEnv	871	MC	45	1	694	0.84	0.03		0.30	0.26	0.28	0.12		0.28	0.44
2014_LEnv	871	CR	46	1	694	0.84	0.05	0.13	0.82					0.82	0.44

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	871	CR	47	1	694	0.84	0.15	0.46	0.39					0.39	0.53
2014_LEnv	871	CR	48	1	694	0.84	0.19	0.45	0.36					0.36	0.48
2014_LEnv	871	CR	49	1	694	0.84	0.14	0.27	0.59					0.59	0.45
2014_LEnv	871	CR	50	1	694	0.84	0.22	0.29	0.49					0.49	0.56
2014_LEnv	871	CR	51	1	694	0.84	0.34	0.19	0.47					0.47	0.58
2014_LEnv	871	CR	52	1	694	0.84	0.22	0.10	0.68					0.68	0.53
2014_LEnv	871	CR	53	1	694	0.84	0.26	0.36	0.38					0.38	0.51
2014_LEnv	871	CR	54	1	694	0.84	0.29	0.43	0.28					0.28	0.52
2014_LEnv	871	CR	55	1	694	0.84	0.33	0.43	0.25					0.25	0.49
2014_LEnv	872	MC	01	1	688	0.85	0.01		0.04	0.06	0.03	0.86		0.86	0.39
2014_LEnv	872	MC	02	1	688	0.85	0.01		0.05	0.60	0.13	0.20		0.60	0.38
2014_LEnv	872	MC	03	1	688	0.85	0.01		0.05	0.78	0.09	0.06		0.78	0.44
2014_LEnv	872	MC	04	1	688	0.85	0.01		0.08	0.67	0.06	0.19		0.67	0.45
2014_LEnv	872	MC	05	1	688	0.85	0.01		0.08	0.18	0.10	0.63		0.63	0.48
2014_LEnv	872	MC	06	1	688	0.85	0.01		0.92	0.02	0.03	0.02		0.92	0.43
2014_LEnv	872	MC	07	1	688	0.85	0.01		0.75	0.08	0.10	0.06		0.75	0.37
2014_LEnv	872	MC	08	1	688	0.85	0.01		0.64	0.15	0.15	0.05		0.64	0.51
2014_LEnv	872	MC	09	1	688	0.85	0.01		0.03	0.08	0.31	0.57		0.57	0.52
2014_LEnv	872	MC	10	1	688	0.85	0.01		0.27	0.54	0.06	0.12		0.54	0.51
2014_LEnv	872	MC	11	1	688	0.85	0.01		0.08	0.78	0.08	0.06		0.78	0.42
2014_LEnv	872	MC	12	1	688	0.85	0.01		0.18	0.11	0.27	0.43		0.43	0.39
2014_LEnv	872	CR	41	1	688	0.85	0.01	0.63	0.36					0.36	0.40
2014_LEnv	872	CR	42	1	688	0.85	0.02	0.30	0.68					0.68	0.39
2014_LEnv	872	MC	43	1	688	0.85	0.04		0.07	0.15	0.70	0.04		0.70	0.48
2014_LEnv	872	CR	44	1	688	0.85	0.09	0.24	0.67					0.67	0.50
2014_LEnv	872	CR	45	1	688	0.85	0.33	0.58	0.09					0.09	0.37
2014_LEnv	872	CR	46	1	688	0.85	0.29	0.23	0.48					0.48	0.50
2014_LEnv	872	CR	47	1	688	0.85	0.25	0.30	0.45					0.45	0.47

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	872	CR	48	1	688	0.85	0.17	0.10	0.73					0.73	0.57
2014_LEnv	872	CR	49	1	688	0.85	0.26	0.33	0.41					0.41	0.52
2014_LEnv	872	MC	50	1	688	0.85	0.19		0.21	0.43	0.05	0.12		0.43	0.52
2014_LEnv	872	CR	51	1	688	0.85	0.22	0.53	0.25					0.25	0.41
2014_LEnv	872	CR	52	1	688	0.85	0.32	0.26	0.43					0.43	0.57
2014_LEnv	872	CR	53	1	688	0.85	0.31	0.37	0.32					0.32	0.46
2014_LEnv	872	CR	54	1	688	0.85	0.35	0.18	0.46					0.46	0.54
2014_LEnv	873	MC	01	1	674	0.87	0.00		0.65	0.30	0.03	0.02		0.65	0.54
2014_LEnv	873	MC	02	1	674	0.87	0.00		0.09	0.07	0.70	0.14		0.70	0.48
2014_LEnv	873	MC	03	1	674	0.87	0.00		0.03	0.11	0.81	0.04		0.81	0.46
2014_LEnv	873	MC	04	1	674	0.87	0.01		0.76	0.05	0.11	0.07		0.76	0.40
2014_LEnv	873	MC	05	1	674	0.87	0.01		0.05	0.75	0.07	0.12		0.75	0.48
2014_LEnv	873	MC	06	1	674	0.87	0.01		0.20	0.15	0.09	0.56		0.56	0.45
2014_LEnv	873	MC	07	1	674	0.87	0.00		0.15	0.80	0.03	0.03		0.80	0.46
2014_LEnv	873	MC	08	1	674	0.87	0.01		0.09	0.62	0.18	0.09		0.62	0.48
2014_LEnv	873	MC	09	1	674	0.87	0.01		0.08	0.08	0.17	0.66		0.66	0.38
2014_LEnv	873	MC	10	1	674	0.87	0.01		0.02	0.85	0.07	0.06		0.85	0.43
2014_LEnv	873	CR	41	1	674	0.87	0.04	0.37	0.59					0.59	0.51
2014_LEnv	873	CR	42	1	674	0.87	0.07	0.30	0.63					0.63	0.61
2014_LEnv	873	MC	43	1	674	0.87	0.02		0.04	0.07	0.04	0.83		0.83	0.38
2014_LEnv	873	CR	44	1	674	0.87	0.03	0.19	0.78					0.78	0.36
2014_LEnv	873	MC	45	1	674	0.87	0.01		0.10	0.05	0.82	0.01		0.82	0.42
2014_LEnv	873	MC	46	1	674	0.87	0.02		0.09	0.06	0.79	0.04		0.79	0.42
2014_LEnv	873	CR	47	1	674	0.87	0.13	0.57	0.31					0.31	0.52
2014_LEnv	873	CR	48	1	674	0.87	0.15	0.54	0.31					0.31	0.57
2014_LEnv	873	CR	49	1	674	0.87	0.15	0.30	0.55					0.55	0.61
2014_LEnv	873	CR	50	1	674	0.87	0.16	0.22	0.62					0.62	0.59
2014_LEnv	873	CR	51	1	674	0.87	0.19	0.28	0.53					0.53	0.56

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	873	CR	52	1	674	0.87	0.21	0.16	0.63					0.63	0.61
2014_LEnv	873	CR	53	1	674	0.87	0.26	0.17	0.57					0.57	0.60
2014_LEnv	873	MC	54	1	674	0.87	0.25		0.23	0.09	0.25	0.17		0.23	0.37
2014_LEnv	873	MC	55	1	674	0.87	0.25		0.49	0.06	0.03	0.18		0.49	0.50
2014_LEnv	873	CR	56	1	674	0.87	0.32	0.35	0.33					0.33	0.50
2014_LEnv	874	MC	01	1	685	0.85	0.01		0.29	0.09	0.11	0.51		0.51	0.42
2014_LEnv	874	MC	02	1	685	0.85	0.01		0.72	0.07	0.15	0.05		0.72	0.41
2014_LEnv	874	MC	03	1	685	0.85	0.00		0.07	0.72	0.15	0.05		0.72	0.37
2014_LEnv	874	MC	04	1	685	0.85	0.01		0.46	0.25	0.21	0.07		0.46	0.45
2014_LEnv	874	MC	05	1	685	0.85	0.01		0.61	0.12	0.13	0.13		0.61	0.43
2014_LEnv	874	MC	06	1	685	0.85	0.01		0.05	0.54	0.18	0.23		0.54	0.40
2014_LEnv	874	MC	07	1	685	0.85	0.01		0.58	0.23	0.10	0.08		0.58	0.44
2014_LEnv	874	MC	08	1	685	0.85	0.00		0.04	0.40	0.17	0.38		0.40	0.47
2014_LEnv	874	MC	09	1	685	0.85	0.00		0.08	0.07	0.82	0.02		0.82	0.45
2014_LEnv	874	MC	10	1	685	0.85	0.01		0.67	0.07	0.12	0.13		0.67	0.43
2014_LEnv	874	MC	11	1	685	0.85	0.02		0.25	0.07	0.61	0.05		0.61	0.42
2014_LEnv	874	CR	41	1	685	0.85	0.01	0.18	0.82					0.82	0.34
2014_LEnv	874	CR	42	1	685	0.85	0.01	0.25	0.73					0.73	0.37
2014_LEnv	874	MC	43	1	685	0.85	0.02		0.01	0.02	0.62	0.33		0.62	0.39
2014_LEnv	874	MC	44	1	685	0.85	0.02		0.27	0.57	0.05	0.09		0.57	0.41
2014_LEnv	874	CR	45	1	685	0.85	0.10	0.46	0.44					0.44	0.38
2014_LEnv	874	CR	46	1	685	0.85	0.12	0.58	0.30					0.30	0.57
2014_LEnv	874	CR	47	1	685	0.85	0.22	0.40	0.38					0.38	0.54
2014_LEnv	874	CR	48	1	685	0.85	0.21	0.30	0.49					0.49	0.51
2014_LEnv	874	CR	49	1	685	0.85	0.21	0.16	0.64					0.64	0.60
2014_LEnv	874	CR	50	1	685	0.85	0.36	0.42	0.22					0.22	0.55
2014_LEnv	874	CR	51	1	685	0.85	0.29	0.21	0.51					0.51	0.57
2014_LEnv	874	MC	52	1	685	0.85	0.25		0.02	0.61	0.09	0.02		0.61	0.46

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	874	CR	53	1	685	0.85	0.35	0.37	0.28					0.28	0.57
2014_LEnv	874	MC	54	1	685	0.85	0.32		0.30	0.09	0.26	0.04		0.26	0.37
2014_LEnv	874	CR	55	1	685	0.85	0.43	0.32	0.25					0.25	0.59
2014_LEnv	875	MC	01	1	657	0.82	0.01		0.14	0.19	0.08	0.58		0.58	0.54
2014_LEnv	875	MC	02	1	657	0.82	0.00		0.11	0.75	0.03	0.11		0.75	0.43
2014_LEnv	875	MC	03	1	657	0.82	0.00		0.62	0.08	0.14	0.15		0.62	0.44
2014_LEnv	875	MC	04	1	657	0.82	0.00		0.18	0.68	0.09	0.04		0.68	0.41
2014_LEnv	875	MC	05	1	657	0.82	0.00		0.01	0.95	0.02	0.02		0.95	0.33
2014_LEnv	875	MC	06	1	657	0.82	0.01		0.07	0.07	0.18	0.67		0.67	0.37
2014_LEnv	875	MC	07	1	657	0.82	0.01		0.06	0.07	0.11	0.74		0.74	0.55
2014_LEnv	875	MC	08	1	657	0.82	0.01		0.10	0.05	0.81	0.03		0.81	0.51
2014_LEnv	875	MC	09	1	657	0.82	0.01		0.06	0.16	0.11	0.66		0.66	0.39
2014_LEnv	875	MC	10	1	657	0.82	0.01		0.23	0.10	0.55	0.12		0.55	0.46
2014_LEnv	875	MC	11	1	657	0.82	0.01		0.12	0.26	0.30	0.30		0.30	0.22
2014_LEnv	875	MC	12	1	657	0.82	0.02		0.16	0.27	0.16	0.39		0.39	0.43
2014_LEnv	875	CR	41	1	657	0.82	0.01	0.15	0.84					0.84	0.42
2014_LEnv	875	CR	42	1	657	0.82	0.02	0.28	0.71					0.71	0.38
2014_LEnv	875	CR	43	1	657	0.82	0.02	0.17	0.81					0.81	0.37
2014_LEnv	875	MC	44	1	657	0.82	0.03		0.37	0.14	0.26	0.19		0.26	0.32
2014_LEnv	875	MC	45	1	657	0.82	0.04		0.23	0.53	0.09	0.11		0.53	0.15
2014_LEnv	875	CR	46	1	657	0.82	0.10	0.28	0.61					0.61	0.51
2014_LEnv	875	CR	47	1	657	0.82	0.15	0.32	0.54					0.54	0.54
2014_LEnv	875	CR	48	1	657	0.82	0.20	0.39	0.40					0.40	0.59
2014_LEnv	875	CR	49	1	657	0.82	0.26	0.29	0.45					0.45	0.59
2014_LEnv	875	CR	50	1	657	0.82	0.34	0.14	0.52					0.52	0.56
2014_LEnv	875	CR	51	1	657	0.82	0.29	0.19	0.51					0.51	0.54
2014_LEnv	875	CR	52	1	657	0.82	0.28	0.54	0.18					0.18	0.45
2014_LEnv	875	CR	53	1	657	0.82	0.28	0.36	0.36					0.36	0.44

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	876	MC	01	1	671	0.84	0.00		0.12	0.76	0.09	0.03		0.76	0.40
2014_LEnv	876	MC	02	1	671	0.84	0.00		0.13	0.58	0.07	0.22		0.58	0.46
2014_LEnv	876	MC	03	1	671	0.84	0.00		0.07	0.13	0.21	0.59		0.59	0.35
2014_LEnv	876	MC	04	1	671	0.84	0.00		0.09	0.82	0.04	0.05		0.82	0.52
2014_LEnv	876	MC	05	1	671	0.84	0.00		0.35	0.41	0.16	0.09		0.41	0.12
2014_LEnv	876	MC	06	1	671	0.84	0.00		0.14	0.70	0.13	0.03		0.70	0.34
2014_LEnv	876	MC	07	1	671	0.84	0.00		0.05	0.40	0.09	0.45		0.40	0.31
2014_LEnv	876	MC	08	1	671	0.84	0.00		0.04	0.04	0.33	0.59		0.59	0.48
2014_LEnv	876	MC	09	1	671	0.84	0.00		0.12	0.03	0.06	0.79		0.79	0.33
2014_LEnv	876	MC	10	1	671	0.84	0.01		0.22	0.58	0.11	0.08		0.58	0.43
2014_LEnv	876	MC	11	1	671	0.84	0.08		0.54	0.11	0.06	0.21		0.54	0.48
2014_LEnv	876	CR	41	1	671	0.84	0.06	0.64	0.30					0.30	0.28
2014_LEnv	876	CR	42	1	671	0.84	0.14	0.30	0.55					0.55	0.44
2014_LEnv	876	CR	43	1	671	0.84	0.03	0.18	0.79					0.79	0.32
2014_LEnv	876	CR	44	1	671	0.84	0.05	0.38	0.58					0.58	0.54
2014_LEnv	876	MC	45	1	671	0.84	0.04		0.25	0.09	0.59	0.02		0.59	0.49
2014_LEnv	876	CR	46	1	671	0.84	0.13	0.41	0.46					0.46	0.54
2014_LEnv	876	CR	47	1	671	0.84	0.11	0.25	0.64					0.64	0.52
2014_LEnv	876	CR	48	1	671	0.84	0.17	0.34	0.49					0.49	0.55
2014_LEnv	876	CR	49	1	671	0.84	0.23	0.41	0.36					0.36	0.53
2014_LEnv	876	CR	50	1	671	0.84	0.24	0.56	0.21					0.21	0.41
2014_LEnv	876	CR	51	1	671	0.84	0.25	0.26	0.49					0.49	0.49
2014_LEnv	876	CR	52	1	671	0.84	0.29	0.10	0.61					0.61	0.56
2014_LEnv	876	CR	53	1	671	0.84	0.31	0.25	0.44					0.44	0.61
2014_LEnv	876	CR	54	1	671	0.84	0.32	0.42	0.27					0.27	0.46
2014_LEnv	876	MC	55	1	671	0.84	0.28		0.12	0.14	0.41	0.06		0.41	0.58
2014_LEnv	877	MC	01	1	681	0.84	0.01		0.19	0.05	0.73	0.03		0.73	0.32
2014_LEnv	877	MC	02	1	681	0.84	0.01		0.26	0.04	0.02	0.67		0.67	0.36

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	877	MC	03	1	681	0.84	0.01		0.09	0.30	0.06	0.53		0.53	0.38
2014_LEnv	877	MC	04	1	681	0.84	0.01		0.10	0.15	0.29	0.45		0.45	0.48
2014_LEnv	877	MC	05	1	681	0.84	0.01		0.04	0.10	0.79	0.06		0.79	0.36
2014_LEnv	877	MC	06	1	681	0.84	0.02		0.32	0.20	0.41	0.06		0.41	0.41
2014_LEnv	877	MC	07	1	681	0.84	0.01		0.06	0.75	0.10	0.07		0.75	0.47
2014_LEnv	877	MC	08	1	681	0.84	0.01		0.10	0.25	0.56	0.09		0.25	0.16
2014_LEnv	877	MC	09	1	681	0.84	0.01		0.05	0.14	0.39	0.41		0.41	0.44
2014_LEnv	877	MC	10	1	681	0.84	0.02		0.38	0.17	0.20	0.23		0.38	0.33
2014_LEnv	877	MC	11	1	681	0.84	0.02		0.08	0.53	0.12	0.25		0.53	0.52
2014_LEnv	877	MC	12	1	681	0.84	0.03		0.10	0.10	0.71	0.06		0.71	0.45
2014_LEnv	877	CR	41	1	681	0.84	0.01	0.19	0.80					0.80	0.37
2014_LEnv	877	CR	42	1	681	0.84	0.02	0.22	0.75					0.75	0.40
2014_LEnv	877	MC	43	1	681	0.84	0.04		0.56	0.28	0.04	0.08		0.56	0.47
2014_LEnv	877	CR	44	1	681	0.84	0.14	0.78	0.08					0.08	0.35
2014_LEnv	877	CR	45	1	681	0.84	0.23	0.45	0.32					0.32	0.56
2014_LEnv	877	CR	46	1	681	0.84	0.21	0.09	0.70					0.70	0.54
2014_LEnv	877	CR	47	1	681	0.84	0.24	0.19	0.57					0.57	0.52
2014_LEnv	877	CR	48	1	681	0.84	0.22	0.54	0.24					0.24	0.47
2014_LEnv	877	CR	49	1	681	0.84	0.26	0.43	0.31					0.31	0.49
2014_LEnv	877	CR	50	1	681	0.84	0.26	0.42	0.31					0.31	0.62
2014_LEnv	877	CR	51	1	681	0.84	0.31	0.36	0.33					0.33	0.52
2014_LEnv	877	CR	52	1	681	0.84	0.42	0.38	0.20					0.20	0.51
2014_LEnv	877	CR	53	1	681	0.84	0.43	0.28	0.28					0.28	0.56
2014_LEnv	877	CR	54	1	681	0.84	0.42	0.16	0.42					0.42	0.50
2014_LEnv	878	MC	01	1	683	0.83	0.00		0.09	0.06	0.07	0.78		0.78	0.48
2014_LEnv	878	MC	02	1	683	0.83	0.01		0.09	0.83	0.05	0.02		0.83	0.44
2014_LEnv	878	MC	03	1	683	0.83	0.01		0.07	0.50	0.15	0.26		0.50	0.24
2014_LEnv	878	MC	04	1	683	0.83	0.01		0.13	0.04	0.56	0.26		0.56	0.46

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	878	MC	05	1	683	0.83	0.01		0.20	0.50	0.10	0.19		0.50	0.34
2014_LEnv	878	MC	06	1	683	0.83	0.00		0.49	0.37	0.09	0.04		0.37	0.29
2014_LEnv	878	MC	07	1	683	0.83	0.01		0.04	0.72	0.20	0.04		0.72	0.39
2014_LEnv	878	MC	08	1	683	0.83	0.00		0.82	0.04	0.07	0.06		0.82	0.48
2014_LEnv	878	MC	09	1	683	0.83	0.01		0.13	0.06	0.14	0.66		0.66	0.49
2014_LEnv	878	MC	10	1	683	0.83	0.01		0.24	0.13	0.56	0.06		0.56	0.36
2014_LEnv	878	MC	11	1	683	0.83	0.02		0.13	0.11	0.45	0.30		0.30	0.28
2014_LEnv	878	MC	12	1	683	0.83	0.03		0.12	0.07	0.76	0.01		0.76	0.35
2014_LEnv	878	CR	41	1	683	0.83	0.08	0.42	0.50					0.50	0.53
2014_LEnv	878	CR	42	1	683	0.83	0.08	0.35	0.57					0.57	0.53
2014_LEnv	878	MC	43	1	683	0.83	0.02		0.66	0.09	0.20	0.03		0.66	0.28
2014_LEnv	878	CR	44	1	683	0.83	0.22	0.42	0.36					0.36	0.48
2014_LEnv	878	CR	45	1	683	0.83	0.16	0.37	0.48					0.48	0.51
2014_LEnv	878	CR	46	1	683	0.83	0.26	0.24	0.50					0.50	0.53
2014_LEnv	878	CR	47	1	683	0.83	0.14	0.58	0.28					0.28	0.46
2014_LEnv	878	CR	48	1	683	0.83	0.27	0.59	0.14					0.14	0.43
2014_LEnv	878	CR	49	1	683	0.83	0.27	0.35	0.38					0.38	0.55
2014_LEnv	878	CR	50	1	683	0.83	0.27	0.40	0.34					0.34	0.48
2014_LEnv	878	MC	51	1	683	0.83	0.24		0.06	0.56	0.06	0.07		0.56	0.49
2014_LEnv	878	CR	52	1	683	0.83	0.30	0.17	0.53					0.53	0.49
2014_LEnv	878	MC	53	1	683	0.83	0.28		0.54	0.10	0.02	0.06		0.54	0.52
2014_LEnv	878	CR	54	1	683	0.83	0.34	0.20	0.46					0.46	0.55
2014_LEnv	879	MC	01	1	675	0.83	0.00		0.05	0.04	0.24	0.67		0.67	0.43
2014_LEnv	879	MC	02	1	675	0.83	0.01		0.68	0.07	0.09	0.14		0.68	0.40
2014_LEnv	879	MC	03	1	675	0.83	0.01		0.09	0.04	0.80	0.06		0.80	0.43
2014_LEnv	879	MC	04	1	675	0.83	0.00		0.31	0.28	0.15	0.27		0.27	0.37
2014_LEnv	879	MC	05	1	675	0.83	0.00		0.09	0.37	0.49	0.05		0.49	0.37
2014_LEnv	879	MC	06	1	675	0.83	0.00		0.57	0.17	0.10	0.16		0.57	0.41

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	879	MC	07	1	675	0.83	0.00		0.05	0.82	0.07	0.06		0.82	0.42
2014_LEnv	879	MC	08	1	675	0.83	0.00		0.74	0.05	0.18	0.03		0.74	0.26
2014_LEnv	879	MC	09	1	675	0.83	0.01		0.15	0.05	0.56	0.23		0.23	0.23
2014_LEnv	879	MC	10	1	675	0.83	0.01		0.17	0.29	0.03	0.50		0.50	0.37
2014_LEnv	879	MC	11	1	675	0.83	0.02		0.47	0.15	0.27	0.09		0.27	0.21
2014_LEnv	879	CR	41	1	675	0.83	0.11	0.67	0.21					0.21	0.49
2014_LEnv	879	CR	42	1	675	0.83	0.13	0.48	0.40					0.40	0.45
2014_LEnv	879	CR	43	1	675	0.83	0.06	0.47	0.47					0.47	0.46
2014_LEnv	879	CR	44	1	675	0.83	0.05	0.23	0.72					0.72	0.36
2014_LEnv	879	CR	45	1	675	0.83	0.11	0.39	0.50					0.50	0.53
2014_LEnv	879	CR	46	1	675	0.83	0.06	0.09	0.84					0.84	0.49
2014_LEnv	879	MC	47	1	675	0.83	0.04		0.13	0.08	0.74	0.02		0.74	0.51
2014_LEnv	879	MC	48	1	675	0.83	0.04		0.06	0.01	0.82	0.07		0.82	0.53
2014_LEnv	879	MC	49	1	675	0.83	0.08		0.06	0.67	0.09	0.09		0.67	0.52
2014_LEnv	879	CR	50	1	675	0.83	0.14	0.34	0.53					0.53	0.53
2014_LEnv	879	CR	51	1	675	0.83	0.16	0.08	0.75					0.75	0.53
2014_LEnv	879	CR	52	1	675	0.83	0.18	0.15	0.67					0.67	0.54
2014_LEnv	879	CR	53	1	675	0.83	0.21	0.16	0.63					0.63	0.55
2014_LEnv	879	CR	54	1	675	0.83	0.26	0.45	0.29					0.29	0.42
2014_LEnv	879	MC	55	1	675	0.83	0.24		0.04	0.05	0.19	0.47		0.47	0.56
2014_LEnv	880	MC	01	1	691	0.83	0.01		0.18	0.05	0.71	0.05		0.18	0.14
2014_LEnv	880	MC	02	1	691	0.83	0.01		0.10	0.34	0.07	0.48		0.48	0.33
2014_LEnv	880	MC	03	1	691	0.83	0.01		0.44	0.15	0.35	0.05		0.35	0.15
2014_LEnv	880	MC	04	1	691	0.83	0.01		0.30	0.32	0.09	0.28		0.32	0.32
2014_LEnv	880	MC	05	1	691	0.83	0.01		0.07	0.19	0.37	0.37		0.37	0.46
2014_LEnv	880	MC	06	1	691	0.83	0.00		0.71	0.09	0.06	0.13		0.71	0.48
2014_LEnv	880	MC	07	1	691	0.83	0.01		0.22	0.12	0.15	0.51		0.51	0.49
2014_LEnv	880	MC	08	1	691	0.83	0.01		0.10	0.48	0.10	0.30		0.48	0.46

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	880	MC	09	1	691	0.83	0.01		0.21	0.61	0.06	0.11		0.61	0.47
2014_LEnv	880	MC	10	1	691	0.83	0.01		0.08	0.18	0.09	0.63		0.63	0.47
2014_LEnv	880	MC	11	1	691	0.83	0.01		0.05	0.41	0.09	0.44		0.44	0.23
2014_LEnv	880	MC	41	1	691	0.83	0.01		0.04	0.06	0.85	0.04		0.85	0.38
2014_LEnv	880	CR	42	1	691	0.83	0.03	0.26	0.71					0.71	0.44
2014_LEnv	880	CR	43	1	691	0.83	0.07	0.46	0.47					0.47	0.49
2014_LEnv	880	CR	44	1	691	0.83	0.18	0.43	0.39					0.39	0.57
2014_LEnv	880	CR	45	1	691	0.83	0.17	0.41	0.42					0.42	0.59
2014_LEnv	880	MC	46	1	691	0.83	0.05		0.16	0.62	0.09	0.07		0.62	0.36
2014_LEnv	880	CR	47	1	691	0.83	0.20	0.47	0.33					0.33	0.46
2014_LEnv	880	CR	48	1	691	0.83	0.20	0.47	0.34					0.34	0.53
2014_LEnv	880	CR	49	1	691	0.83	0.24	0.48	0.28					0.28	0.49
2014_LEnv	880	CR	50	1	691	0.83	0.24	0.25	0.51					0.51	0.53
2014_LEnv	880	CR	51	1	691	0.83	0.25	0.29	0.47					0.47	0.53
2014_LEnv	880	CR	52	1	691	0.83	0.35	0.52	0.13					0.13	0.42
2014_LEnv	880	CR	53	1	691	0.83	0.36	0.33	0.31					0.31	0.48
2014_LEnv	880	CR	54	1	691	0.83	0.35	0.44	0.21					0.21	0.53
2014_LEnv	880	CR	55	1	691	0.83	0.36	0.34	0.30					0.30	0.54
2014_LEnv	881	MC	01	1	661	0.81	0.01		0.42	0.35	0.15	0.07		0.42	0.34
2014_LEnv	881	MC	02	1	661	0.81	0.01		0.74	0.02	0.19	0.04		0.74	0.43
2014_LEnv	881	MC	03	1	661	0.81	0.01		0.76	0.07	0.08	0.08		0.76	0.48
2014_LEnv	881	MC	04	1	661	0.81	0.01		0.06	0.71	0.17	0.05		0.71	0.51
2014_LEnv	881	MC	05	1	661	0.81	0.00		0.77	0.09	0.07	0.07		0.77	0.54
2014_LEnv	881	MC	06	1	661	0.81	0.01		0.54	0.13	0.12	0.20		0.54	0.30
2014_LEnv	881	MC	07	1	661	0.81	0.01		0.05	0.07	0.81	0.06		0.81	0.48
2014_LEnv	881	MC	08	1	661	0.81	0.01		0.08	0.10	0.11	0.70		0.70	0.50
2014_LEnv	881	MC	09	1	661	0.81	0.00		0.11	0.74	0.10	0.05		0.74	0.49
2014_LEnv	881	MC	10	1	661	0.81	0.02		0.21	0.19	0.30	0.28		0.28	0.31

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	881	MC	11	1	661	0.81	0.05		0.17	0.08	0.48	0.22		0.48	0.36
2014_LEnv	881	CR	41	1	661	0.81	0.04	0.51	0.45					0.45	0.47
2014_LEnv	881	MC	42	1	661	0.81	0.01		0.69	0.16	0.05	0.07		0.69	0.31
2014_LEnv	881	MC	43	1	661	0.81	0.02		0.14	0.04	0.73	0.07		0.73	0.40
2014_LEnv	881	CR	44	1	661	0.81	0.26	0.70	0.04					0.04	0.26
2014_LEnv	881	CR	45	1	661	0.81	0.09	0.22	0.69					0.69	0.45
2014_LEnv	881	CR	46	1	661	0.81	0.14	0.74	0.12					0.12	0.37
2014_LEnv	881	CR	47	1	661	0.81	0.16	0.47	0.37					0.37	0.42
2014_LEnv	881	CR	48	1	661	0.81	0.17	0.69	0.14					0.14	0.46
2014_LEnv	881	CR	49	1	661	0.81	0.30	0.58	0.12					0.12	0.43
2014_LEnv	881	CR	50	1	661	0.81	0.24	0.53	0.24					0.24	0.46
2014_LEnv	881	CR	51	1	661	0.81	0.27	0.14	0.59					0.59	0.48
2014_LEnv	881	CR	52	1	661	0.81	0.31	0.48	0.21					0.21	0.31
2014_LEnv	881	CR	53	1	661	0.81	0.38	0.44	0.18					0.18	0.52
2014_LEnv	881	CR	54	1	661	0.81	0.38	0.44	0.18					0.18	0.46
2014_LEnv	881	CR	55	1	661	0.81	0.46	0.39	0.15					0.15	0.46
2014_LEnv	882	MC	01	1	679	0.83	0.01		0.11	0.74	0.11	0.04		0.74	0.43
2014_LEnv	882	MC	02	1	679	0.83	0.01		0.05	0.15	0.08	0.72		0.72	0.52
2014_LEnv	882	MC	03	1	679	0.83	0.01		0.80	0.08	0.03	0.07		0.80	0.47
2014_LEnv	882	MC	04	1	679	0.83	0.00		0.06	0.21	0.64	0.08		0.64	0.35
2014_LEnv	882	MC	05	1	679	0.83	0.00		0.06	0.75	0.15	0.04		0.75	0.41
2014_LEnv	882	MC	06	1	679	0.83	0.01		0.10	0.21	0.17	0.51		0.51	0.44
2014_LEnv	882	MC	07	1	679	0.83	0.01		0.60	0.20	0.14	0.05		0.60	0.44
2014_LEnv	882	MC	08	1	679	0.83	0.00		0.14	0.69	0.12	0.04		0.69	0.41
2014_LEnv	882	MC	09	1	679	0.83	0.00		0.07	0.24	0.45	0.23		0.45	0.39
2014_LEnv	882	MC	10	1	679	0.83	0.01		0.76	0.06	0.08	0.09		0.76	0.42
2014_LEnv	882	MC	11	1	679	0.83	0.03		0.03	0.02	0.90	0.02		0.90	0.33
2014_LEnv	882	MC	41	1	679	0.83	0.01		0.48	0.43	0.07	0.01		0.48	0.31

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	882	CR	42	1	679	0.83	0.09	0.53	0.38					0.38	0.50
2014_LEnv	882	CR	43	1	679	0.83	0.17	0.48	0.35					0.35	0.57
2014_LEnv	882	CR	44	1	679	0.83	0.05	0.35	0.61					0.61	0.51
2014_LEnv	882	MC	45	1	679	0.83	0.03		0.25	0.62	0.06	0.03		0.62	0.23
2014_LEnv	882	CR	46	1	679	0.83	0.07	0.47	0.45					0.45	0.53
2014_LEnv	882	CR	47	1	679	0.83	0.17	0.53	0.30					0.30	0.36
2014_LEnv	882	CR	48	1	679	0.83	0.16	0.42	0.41					0.41	0.44
2014_LEnv	882	CR	49	1	679	0.83	0.20	0.41	0.39					0.39	0.52
2014_LEnv	882	CR	50	1	679	0.83	0.18	0.19	0.63					0.63	0.53
2014_LEnv	882	CR	51	1	679	0.83	0.25	0.59	0.17					0.17	0.38
2014_LEnv	882	CR	52	1	679	0.83	0.27	0.22	0.52					0.52	0.53
2014_LEnv	882	CR	53	1	679	0.83	0.32	0.28	0.40					0.40	0.51
2014_LEnv	882	CR	54	1	679	0.83	0.29	0.36	0.35					0.35	0.49
2014_LEnv	883	MC	01	1	680	0.84	0.00		0.10	0.50	0.10	0.29		0.50	0.39
2014_LEnv	883	MC	02	1	680	0.84	0.00		0.05	0.05	0.85	0.05		0.85	0.42
2014_LEnv	883	MC	03	1	680	0.84	0.01		0.13	0.15	0.63	0.09		0.63	0.36
2014_LEnv	883	MC	04	1	680	0.84	0.00		0.03	0.04	0.80	0.13		0.80	0.53
2014_LEnv	883	MC	05	1	680	0.84	0.00		0.16	0.14	0.62	0.07		0.62	0.43
2014_LEnv	883	MC	06	1	680	0.84	0.01		0.49	0.18	0.27	0.06		0.49	0.42
2014_LEnv	883	MC	07	1	680	0.84	0.00		0.06	0.18	0.05	0.71		0.71	0.49
2014_LEnv	883	MC	08	1	680	0.84	0.00		0.04	0.36	0.08	0.52		0.36	0.27
2014_LEnv	883	MC	09	1	680	0.84	0.01		0.84	0.03	0.06	0.06		0.84	0.53
2014_LEnv	883	CR	41	1	680	0.84	0.06	0.75	0.19					0.19	0.34
2014_LEnv	883	MC	42	1	680	0.84	0.00		0.83	0.11	0.01	0.02		0.83	0.37
2014_LEnv	883	CR	43	1	680	0.84	0.11	0.72	0.18					0.18	0.38
2014_LEnv	883	CR	44	1	680	0.84	0.09	0.53	0.38					0.38	0.42
2014_LEnv	883	MC	45	1	680	0.84	0.04		0.05	0.02	0.15	0.74		0.74	0.52
2014_LEnv	883	CR	46	1	680	0.84	0.06	0.24	0.70					0.70	0.41

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	883	CR	47	1	680	0.84	0.07	0.24	0.69					0.69	0.48
2014_LEnv	883	CR	48	1	680	0.84	0.10	0.25	0.64					0.64	0.58
2014_LEnv	883	CR	49	1	680	0.84	0.16	0.45	0.39					0.39	0.58
2014_LEnv	883	MC	50	1	680	0.84	0.12		0.04	0.46	0.07	0.30		0.46	0.49
2014_LEnv	883	MC	51	1	680	0.84	0.14		0.26	0.32	0.23	0.04		0.23	0.31
2014_LEnv	883	CR	52	1	680	0.84	0.30	0.41	0.29					0.29	0.50
2014_LEnv	883	CR	53	1	680	0.84	0.26	0.45	0.29					0.29	0.46
2014_LEnv	883	CR	54	1	680	0.84	0.27	0.14	0.59					0.59	0.57
2014_LEnv	883	CR	55	1	680	0.84	0.32	0.40	0.28					0.28	0.48
2014_LEnv	883	CR	56	1	680	0.84	0.36	0.39	0.25					0.25	0.52
2014_LEnv	884	MC	01	1	679	0.82	0.00		0.78	0.10	0.04	0.08		0.78	0.40
2014_LEnv	884	MC	02	1	679	0.82	0.01		0.23	0.04	0.12	0.60		0.60	0.45
2014_LEnv	884	MC	03	1	679	0.82	0.01		0.04	0.11	0.74	0.11		0.74	0.41
2014_LEnv	884	MC	04	1	679	0.82	0.01		0.28	0.51	0.17	0.03		0.51	0.32
2014_LEnv	884	MC	05	1	679	0.82	0.01		0.14	0.05	0.73	0.07		0.73	0.44
2014_LEnv	884	MC	06	1	679	0.82	0.01		0.30	0.26	0.11	0.32		0.30	0.40
2014_LEnv	884	MC	07	1	679	0.82	0.01		0.04	0.10	0.71	0.14		0.71	0.38
2014_LEnv	884	MC	08	1	679	0.82	0.00		0.11	0.24	0.55	0.10		0.55	0.28
2014_LEnv	884	MC	09	1	679	0.82	0.01		0.16	0.20	0.44	0.19		0.44	0.32
2014_LEnv	884	MC	10	1	679	0.82	0.01		0.04	0.82	0.06	0.06		0.82	0.40
2014_LEnv	884	MC	41	1	679	0.82	0.01		0.31	0.16	0.43	0.09		0.43	0.34
2014_LEnv	884	CR	42	1	679	0.82	0.10	0.62	0.28					0.28	0.46
2014_LEnv	884	CR	43	1	679	0.82	0.01	0.13	0.87					0.87	0.32
2014_LEnv	884	MC	44	1	679	0.82	0.01		0.01	0.02	0.02	0.94		0.94	0.29
2014_LEnv	884	CR	45	1	679	0.82	0.32	0.44	0.23					0.23	0.50
2014_LEnv	884	CR	46	1	679	0.82	0.29	0.49	0.22					0.22	0.45
2014_LEnv	884	CR	47	1	679	0.82	0.16	0.36	0.48					0.48	0.48
2014_LEnv	884	CR	48	1	679	0.82	0.18	0.28	0.54					0.54	0.49

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	884	CR	49	1	679	0.82	0.26	0.34	0.40					0.40	0.49
2014_LEnv	884	CR	50	1	679	0.82	0.30	0.40	0.30					0.30	0.54
2014_LEnv	884	CR	51	1	679	0.82	0.33	0.15	0.52					0.52	0.60
2014_LEnv	884	CR	52	1	679	0.82	0.38	0.27	0.35					0.35	0.52
2014_LEnv	884	CR	53	1	679	0.82	0.41	0.23	0.36					0.36	0.49
2014_LEnv	884	CR	54	1	679	0.82	0.44	0.28	0.28					0.28	0.54
2014_LEnv	884	CR	55	1	679	0.82	0.50	0.36	0.14					0.14	0.43
2014_LEnv	884	CR	56	1	679	0.82	0.51	0.36	0.13					0.13	0.38
2014_LEnv	885	MC	01	1	688	0.81	0.01		0.13	0.17	0.57	0.13		0.57	0.41
2014_LEnv	885	MC	02	1	688	0.81	0.00		0.08	0.66	0.09	0.16		0.66	0.39
2014_LEnv	885	MC	03	1	688	0.81	0.00		0.05	0.08	0.73	0.14		0.73	0.37
2014_LEnv	885	MC	04	1	688	0.81	0.01		0.11	0.35	0.08	0.45		0.45	0.49
2014_LEnv	885	MC	05	1	688	0.81	0.01		0.47	0.42	0.04	0.05		0.47	0.42
2014_LEnv	885	MC	06	1	688	0.81	0.01		0.38	0.06	0.49	0.06		0.49	0.46
2014_LEnv	885	MC	07	1	688	0.81	0.00		0.13	0.17	0.04	0.65		0.65	0.42
2014_LEnv	885	MC	08	1	688	0.81	0.01		0.18	0.30	0.25	0.27		0.27	0.39
2014_LEnv	885	MC	09	1	688	0.81	0.01		0.09	0.81	0.06	0.03		0.81	0.34
2014_LEnv	885	MC	41	1	688	0.81	0.00		0.17	0.18	0.58	0.07		0.58	0.36
2014_LEnv	885	CR	42	1	688	0.81	0.02	0.22	0.76					0.76	0.30
2014_LEnv	885	CR	43	1	688	0.81	0.08	0.39	0.53					0.53	0.40
2014_LEnv	885	MC	44	1	688	0.81	0.02		0.22	0.04	0.70	0.02		0.70	0.30
2014_LEnv	885	MC	45	1	688	0.81	0.05		0.25	0.39	0.20	0.10		0.39	0.39
2014_LEnv	885	CR	46	1	688	0.81	0.34	0.52	0.14					0.14	0.49
2014_LEnv	885	CR	47	1	688	0.81	0.24	0.55	0.20					0.20	0.36
2014_LEnv	885	CR	48	1	688	0.81	0.25	0.57	0.17					0.17	0.44
2014_LEnv	885	CR	49	1	688	0.81	0.32	0.37	0.31					0.31	0.53
2014_LEnv	885	CR	50	1	688	0.81	0.32	0.30	0.38					0.38	0.58
2014_LEnv	885	CR	51	1	688	0.81	0.49	0.33	0.19					0.19	0.53

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	885	CR	52	1	688	0.81	0.50	0.23	0.27					0.27	0.61
2014_LEnv	885	CR	53	1	688	0.81	0.51	0.11	0.38					0.38	0.59
2014_LEnv	885	CR	54	1	688	0.81	0.38	0.29	0.32					0.32	0.53
2014_LEnv	886	MC	01	1	658	0.81	0.01		0.05	0.12	0.75	0.07		0.75	0.45
2014_LEnv	886	MC	02	1	658	0.81	0.01		0.68	0.20	0.09	0.02		0.68	0.38
2014_LEnv	886	MC	03	1	658	0.81	0.00		0.61	0.05	0.25	0.09		0.61	0.46
2014_LEnv	886	MC	04	1	658	0.81	0.01		0.14	0.77	0.04	0.04		0.77	0.49
2014_LEnv	886	MC	05	1	658	0.81	0.00		0.02	0.12	0.03	0.82		0.82	0.27
2014_LEnv	886	MC	06	1	658	0.81	0.01		0.17	0.26	0.44	0.12		0.44	0.30
2014_LEnv	886	MC	07	1	658	0.81	0.01		0.10	0.19	0.61	0.10		0.61	0.44
2014_LEnv	886	MC	08	1	658	0.81	0.01		0.19	0.08	0.58	0.14		0.58	0.39
2014_LEnv	886	MC	09	1	658	0.81	0.01		0.11	0.71	0.09	0.09		0.71	0.40
2014_LEnv	886	MC	10	1	658	0.81	0.01		0.56	0.20	0.18	0.05		0.56	0.28
2014_LEnv	886	MC	11	1	658	0.81	0.02		0.21	0.06	0.30	0.41		0.30	0.26
2014_LEnv	886	CR	41	1	658	0.81	0.05	0.49	0.46					0.46	0.41
2014_LEnv	886	MC	42	1	658	0.81	0.00		0.82	0.04	0.07	0.06		0.82	0.36
2014_LEnv	886	MC	43	1	658	0.81	0.01		0.14	0.66	0.13	0.07		0.66	0.49
2014_LEnv	886	CR	44	1	658	0.81	0.07	0.62	0.31					0.31	0.37
2014_LEnv	886	MC	45	1	658	0.81	0.03		0.53	0.10	0.06	0.28		0.53	0.49
2014_LEnv	886	CR	46	1	658	0.81	0.07	0.42	0.51					0.51	0.42
2014_LEnv	886	CR	47	1	658	0.81	0.12	0.25	0.63					0.63	0.49
2014_LEnv	886	CR	48	1	658	0.81	0.20	0.41	0.39					0.39	0.56
2014_LEnv	886	CR	49	1	658	0.81	0.34	0.48	0.18					0.18	0.47
2014_LEnv	886	CR	50	1	658	0.81	0.35	0.57	0.08					0.08	0.28
2014_LEnv	886	CR	51	1	658	0.81	0.36	0.46	0.18					0.18	0.33
2014_LEnv	886	CR	52	1	658	0.81	0.36	0.15	0.50					0.50	0.60
2014_LEnv	886	CR	53	1	658	0.81	0.41	0.36	0.23					0.23	0.44
2014_LEnv	886	CR	54	1	658	0.81	0.50	0.33	0.17					0.17	0.43

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	886	CR	55	1	658	0.81	0.41	0.22	0.37					0.37	0.47
2014_LEnv	887	MC	01	1	694	0.83	0.00		0.16	0.54	0.18	0.12		0.54	0.53
2014_LEnv	887	MC	02	1	694	0.83	0.01		0.22	0.51	0.10	0.16		0.51	0.20
2014_LEnv	887	MC	03	1	694	0.83	0.00		0.09	0.14	0.23	0.53		0.53	0.42
2014_LEnv	887	MC	04	1	694	0.83	0.00		0.06	0.12	0.08	0.73		0.73	0.41
2014_LEnv	887	MC	05	1	694	0.83	0.01		0.09	0.12	0.47	0.31		0.31	0.46
2014_LEnv	887	MC	06	1	694	0.83	0.00		0.22	0.14	0.53	0.10		0.53	0.36
2014_LEnv	887	MC	07	1	694	0.83	0.01		0.11	0.19	0.34	0.36		0.36	0.34
2014_LEnv	887	MC	08	1	694	0.83	0.01		0.16	0.13	0.67	0.03		0.67	0.38
2014_LEnv	887	MC	09	1	694	0.83	0.01		0.14	0.05	0.73	0.07		0.73	0.47
2014_LEnv	887	MC	10	1	694	0.83	0.01		0.11	0.07	0.12	0.68		0.68	0.40
2014_LEnv	887	MC	41	1	694	0.83	0.02		0.14	0.68	0.10	0.05		0.68	0.41
2014_LEnv	887	CR	42	1	694	0.83	0.07	0.66	0.28					0.28	0.45
2014_LEnv	887	CR	43	1	694	0.83	0.08	0.51	0.41					0.41	0.47
2014_LEnv	887	CR	44	1	694	0.83	0.12	0.63	0.25					0.25	0.47
2014_LEnv	887	CR	45	1	694	0.83	0.12	0.21	0.67					0.67	0.53
2014_LEnv	887	CR	46	1	694	0.83	0.19	0.56	0.25					0.25	0.47
2014_LEnv	887	CR	47	1	694	0.83	0.13	0.22	0.66					0.66	0.61
2014_LEnv	887	CR	48	1	694	0.83	0.18	0.25	0.57					0.57	0.58
2014_LEnv	887	CR	49	1	694	0.83	0.19	0.09	0.71					0.71	0.55
2014_LEnv	887	CR	50	1	694	0.83	0.26	0.59	0.15					0.15	0.43
2014_LEnv	887	CR	51	1	694	0.83	0.30	0.44	0.27					0.27	0.56
2014_LEnv	887	CR	52	1	694	0.83	0.32	0.18	0.51					0.51	0.57
2014_LEnv	887	CR	53	1	694	0.83	0.37	0.47	0.17					0.17	0.45
2014_LEnv	888	MC	01	1	671	0.75	0.01		0.04	0.31	0.60	0.04		0.60	0.39
2014_LEnv	888	MC	02	1	671	0.75	0.00		0.08	0.04	0.72	0.15		0.72	0.45
2014_LEnv	888	MC	03	1	671	0.75	0.01		0.32	0.56	0.03	0.08		0.56	0.35
2014_LEnv	888	MC	04	1	671	0.75	0.00		0.08	0.62	0.11	0.19		0.62	0.45

Test	Form	Type	Item	Max	N-Count	Alpha	B	M0	M1	M2	M3	M4	M5	Mean	Point-Biserial
2014_LEnv	888	MC	05	1	671	0.75	0.01		0.13	0.32	0.26	0.29		0.32	0.32
2014_LEnv	888	MC	06	1	671	0.75	0.01		0.11	0.07	0.59	0.22		0.59	0.36
2014_LEnv	888	MC	07	1	671	0.75	0.00		0.54	0.05	0.18	0.22		0.54	0.52
2014_LEnv	888	MC	08	1	671	0.75	0.01		0.57	0.08	0.17	0.17		0.57	0.34
2014_LEnv	888	MC	09	1	671	0.75	0.01		0.08	0.04	0.18	0.68		0.68	0.36
2014_LEnv	888	CR	41	1	671	0.75	0.01	0.35	0.64					0.64	0.46
2014_LEnv	888	CR	42	1	671	0.75	0.03	0.47	0.50					0.50	0.51
2014_LEnv	888	CR	43	1	671	0.75	0.24	0.37	0.39					0.39	0.69
2014_LEnv	888	CR	44	1	671	0.75	0.26	0.34	0.40					0.40	0.68
2014_LEnv	888	MC	45	1	671	0.75	0.02		0.23	0.01	0.01	0.73		0.73	0.29
2014_LEnv	888	CR	46	1	671	0.75	0.11	0.27	0.62					0.62	0.50
2014_LEnv	888	MC	47	1	671	0.75	0.07		0.03	0.02	0.84	0.03		0.84	0.43
2014_LEnv	888	CR	48	5	671	0.75	0.30	0.24	0.11	0.10	0.07	0.06	0.11	1.33	0.80

Appendix B: Inter-rater Consistency – Point Differences Between First and Second Reads

The first three columns from the left contain the form ID, item sequence number, and number of score points for each item. The remaining columns contain the percentage of times each possible difference between the first and second raters' scores occurred. Blank cells indicate out-of-range differences (e.g., differences greater than the maximum possible given the point value of that particular item).

Form	Item	Score Points	Difference (First Read Minus Second Read)										
			−5	−4	−3	−2	−1	0	1	2	3	4	5
871	41	1					0%	100%	0%				
871	42	1					15%	80%	5%				
871	43	1					5%	87%	8%				
871	46	1					5%	95%	0%				
871	47	1					3%	97%	0%				
871	48	1					2%	98%	0%				
871	49	1					10%	85%	5%				
871	50	1					9%	80%	11%				
871	51	1					4%	88%	8%				
871	52	1					7%	85%	8%				
871	53	1					3%	87%	10%				
871	54	1					11%	82%	7%				
871	55	1					0%	100%	0%				
872	41	1					6%	91%	3%				
872	42	1					3%	89%	8%				
872	44	1					0%	92%	8%				
872	45	1					2%	98%	0%				
872	46	1					0%	98%	2%				
872	47	1					2%	90%	8%				
872	48	1					3%	97%	0%				
872	49	1					6%	89%	5%				
872	51	1					2%	95%	3%				
872	52	1					2%	95%	3%				
872	53	1					8%	87%	5%				
872	54	1					7%	90%	3%				
873	41	1					5%	93%	2%				
873	42	1					3%	92%	5%				
873	44	1					2%	97%	2%				
873	47	1					21%	75%	4%				
873	48	1					2%	98%	0%				

Form	Item	Score Points	Difference (First Read Minus Second Read)										
			−5	−4	−3	−2	−1	0	1	2	3	4	5
873	49	1					24%	72%	4%				
873	50	1					11%	87%	2%				
873	51	1					13%	81%	6%				
873	52	1					4%	94%	2%				
873	53	1					2%	98%	0%				
873	56	1					2%	88%	10%				
874	41	1					4%	89%	7%				
874	42	1					14%	78%	8%				
874	45	1					6%	84%	10%				
874	46	1					10%	83%	7%				
874	47	1					6%	86%	8%				
874	48	1					4%	95%	1%				
874	49	1					3%	96%	1%				
874	50	1					4%	91%	4%				
874	51	1					7%	89%	4%				
874	53	1					7%	86%	7%				
874	55	1					4%	96%	0%				
875	41	1					3%	90%	7%				
875	42	1					7%	88%	5%				
875	43	1					3%	93%	3%				
875	46	1					4%	96%	0%				
875	47	1					7%	84%	9%				
875	48	1					7%	93%	0%				
875	49	1					17%	77%	6%				
875	50	1					11%	89%	0%				
875	51	1					10%	84%	6%				
875	52	1					11%	80%	9%				
875	53	1					2%	98%	0%				
876	41	1					5%	91%	4%				
876	42	1					2%	91%	8%				
876	43	1					2%	98%	0%				
876	44	1					0%	100%	0%				
876	46	1					0%	92%	8%				
876	47	1					7%	90%	3%				
876	48	1					4%	84%	12%				
876	49	1					0%	91%	9%				
876	50	1					4%	96%	0%				
876	51	1					6%	83%	11%				

Form	Item	Score Points	Difference (First Read Minus Second Read)										
			−5	−4	−3	−2	−1	0	1	2	3	4	5
876	52	1					2%	96%	2%				
876	53	1					0%	96%	4%				
876	54	1					6%	88%	6%				
877	41	1					2%	92%	7%				
877	42	1					5%	92%	3%				
877	44	1					2%	98%	0%				
877	45	1					0%	95%	5%				
877	46	1					7%	89%	4%				
877	47	1					7%	93%	0%				
877	48	1					0%	92%	8%				
877	49	1					22%	63%	15%				
877	50	1					3%	88%	8%				
877	51	1					13%	81%	6%				
877	52	1					2%	98%	0%				
877	53	1					5%	91%	4%				
877	54	1					5%	91%	4%				
878	41	1					0%	97%	3%				
878	42	1					1%	97%	1%				
878	44	1					1%	94%	4%				
878	45	1					11%	83%	7%				
878	46	1					9%	85%	6%				
878	47	1					3%	92%	5%				
878	48	1					0%	100%	0%				
878	49	1					3%	96%	1%				
878	50	1					4%	92%	5%				
878	52	1					2%	96%	1%				
878	54	1					5%	95%	0%				
879	41	1					5%	90%	5%				
879	42	1					3%	91%	5%				
879	43	1					5%	92%	3%				
879	44	1					13%	75%	13%				
879	45	1					7%	89%	5%				
879	46	1					2%	98%	0%				
879	50	1					15%	77%	8%				
879	51	1					2%	94%	5%				
879	52	1					3%	89%	8%				
879	53	1					10%	79%	11%				
879	54	1					0%	97%	3%				

Form	Item	Score Points	Difference (First Read Minus Second Read)										
			−5	−4	−3	−2	−1	0	1	2	3	4	5
880	42	1					2%	95%	3%				
880	43	1					2%	90%	8%				
880	44	1					0%	100%	0%				
880	45	1					0%	100%	0%				
880	47	1					0%	95%	5%				
880	48	1					0%	98%	2%				
880	49	1					2%	94%	4%				
880	50	1					2%	97%	2%				
880	51	1					5%	87%	8%				
880	52	1					4%	94%	2%				
880	53	1					7%	85%	7%				
880	54	1					4%	94%	2%				
880	55	1					6%	92%	2%				
881	41	1					7%	92%	2%				
881	44	1					2%	98%	0%				
881	45	1					2%	89%	9%				
881	46	1					4%	93%	4%				
881	47	1					11%	81%	7%				
881	48	1					4%	94%	2%				
881	49	1					0%	93%	7%				
881	50	1					4%	96%	0%				
881	51	1					4%	91%	6%				
881	52	1					2%	91%	7%				
881	53	1					0%	91%	9%				
881	54	1					2%	94%	4%				
881	55	1					0%	93%	7%				
882	42	1					1%	94%	4%				
882	43	1					0%	97%	3%				
882	44	1					6%	89%	6%				
882	46	1					12%	81%	7%				
882	47	1					1%	97%	1%				
882	48	1					5%	85%	10%				
882	49	1					4%	86%	10%				
882	50	1					5%	85%	10%				
882	51	1					0%	100%	0%				
882	52	1					4%	90%	5%				
882	53	1					1%	92%	7%				
882	54	1					3%	96%	1%				

Form	Item	Score Points	Difference (First Read Minus Second Read)										
			−5	−4	−3	−2	−1	0	1	2	3	4	5
883	41	1					2%	97%	2%				
883	43	1					2%	98%	0%				
883	44	1					5%	90%	5%				
883	46	1					5%	95%	0%				
883	47	1					2%	95%	3%				
883	48	1					3%	90%	6%				
883	49	1					3%	95%	2%				
883	52	1					10%	85%	6%				
883	53	1					0%	98%	2%				
883	54	1					5%	94%	2%				
883	55	1					5%	88%	7%				
883	56	1					5%	91%	4%				
884	42	1					4%	90%	6%				
884	43	1					2%	93%	5%				
884	45	1					3%	87%	10%				
884	46	1					10%	80%	10%				
884	47	1					11%	79%	11%				
884	48	1					12%	79%	9%				
884	49	1					4%	96%	0%				
884	50	1					12%	73%	14%				
884	51	1					12%	76%	12%				
884	52	1					0%	98%	2%				
884	53	1					5%	82%	13%				
884	54	1					9%	73%	18%				
884	55	1					8%	87%	6%				
884	56	1					0%	100%	0%				
885	42	1					5%	94%	2%				
885	43	1					5%	91%	4%				
885	46	1					2%	98%	0%				
885	47	1					5%	87%	8%				
885	48	1					12%	83%	5%				
885	49	1					16%	65%	19%				
885	50	1					14%	75%	11%				
885	51	1					2%	96%	2%				
885	52	1					9%	85%	6%				
885	53	1					6%	91%	4%				
885	54	1					0%	100%	0%				
886	41	1					12%	81%	7%				

Form	Item	Score Points	Difference (First Read Minus Second Read)										
			−5	−4	−3	−2	−1	0	1	2	3	4	5
886	44	1					3%	92%	5%				
886	46	1					3%	86%	10%				
886	47	1					9%	82%	9%				
886	48	1					4%	90%	6%				
886	49	1					2%	98%	0%				
886	50	1					5%	93%	2%				
886	51	1					5%	74%	21%				
886	52	1					10%	88%	2%				
886	53	1					2%	95%	2%				
886	54	1					15%	85%	0%				
886	55	1					2%	90%	7%				
887	42	1					9%	83%	8%				
887	43	1					2%	94%	5%				
887	44	1					8%	86%	6%				
887	45	1					3%	93%	4%				
887	46	1					4%	93%	3%				
887	47	1					3%	92%	5%				
887	48	1					5%	90%	4%				
887	49	1					0%	93%	7%				
887	50	1					3%	91%	6%				
887	51	1					15%	75%	9%				
887	52	1					11%	83%	6%				
887	53	1					7%	91%	2%				
888	41	1					3%	97%	0%				
888	42	1					4%	96%	0%				
888	43	1					2%	97%	2%				
888	44	1					3%	90%	7%				
888	46	1					6%	88%	6%				
888	48	5	0%	1%	0%	2%	6%	85%	4%	1%	0%	0%	1%

Appendix C: Additional Measures of Inter-rater Reliability and Agreement

The first four columns from the left contain the form ID, item sequence number, number of score points, and the total count of items receiving a first and second read. In the fifth column the percent of exact matches between the first and second scores is provided. The following column ("Adj.") is the percentage first and second scores with a difference of −1 or 1. "Total" is the sum of Exact and Adjacent matches (e.g., the two prior columns).

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
871	41	1	64	100.0%	0.0%	100.0%	0.8	0.8	0.37	0.37	1.00	1.00
871	42	1	60	80.0%	20.0%	100.0%	0.6	0.7	0.49	0.46	0.57	0.57
871	43	1	60	86.7%	13.3%	100.0%	0.5	0.5	0.50	0.50	0.74	0.73
871	46	1	59	94.9%	5.1%	100.0%	0.9	1.0	0.28	0.18	0.55	0.55
871	47	1	60	96.7%	3.3%	100.0%	0.5	0.5	0.50	0.50	0.93	0.93
871	48	1	58	98.3%	1.7%	100.0%	0.4	0.4	0.50	0.50	0.97	0.97
871	49	1	61	85.2%	14.8%	100.0%	0.6	0.6	0.50	0.48	0.69	0.69
871	50	1	56	80.4%	19.6%	100.0%	0.6	0.6	0.49	0.49	0.59	0.58
871	51	1	50	88.0%	12.0%	100.0%	0.8	0.8	0.40	0.43	0.66	0.65
871	52	1	60	85.0%	15.0%	100.0%	0.9	0.8	0.36	0.38	0.44	0.44
871	53	1	61	86.9%	13.1%	100.0%	0.4	0.3	0.50	0.48	0.72	0.72
871	54	1	57	82.5%	17.5%	100.0%	0.3	0.3	0.45	0.47	0.59	0.58
871	55	1	54	100.0%	0.0%	100.0%	0.3	0.3	0.48	0.48	1.00	1.00
872	41	1	66	90.9%	9.1%	100.0%	0.3	0.3	0.46	0.48	0.79	0.79
872	42	1	66	89.4%	10.6%	100.0%	0.7	0.6	0.47	0.48	0.77	0.76
872	44	1	60	91.7%	8.3%	100.0%	0.8	0.7	0.39	0.45	0.76	0.76
872	45	1	55	98.2%	1.8%	100.0%	0.1	0.2	0.36	0.37	0.93	0.93
872	46	1	54	98.1%	1.9%	100.0%	0.6	0.6	0.48	0.49	0.96	0.96
872	47	1	63	90.5%	9.5%	100.0%	0.5	0.5	0.50	0.50	0.81	0.81

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
872	48	1	66	97.0%	3.0%	100.0%	0.8	0.9	0.38	0.35	0.88	0.88
872	49	1	63	88.9%	11.1%	100.0%	0.4	0.4	0.50	0.50	0.78	0.77
872	51	1	64	95.3%	4.7%	100.0%	0.4	0.4	0.49	0.48	0.90	0.90
872	52	1	60	95.0%	5.0%	100.0%	0.6	0.6	0.50	0.50	0.90	0.90
872	53	1	60	86.7%	13.3%	100.0%	0.4	0.5	0.50	0.50	0.73	0.73
872	54	1	61	90.2%	9.8%	100.0%	0.8	0.9	0.39	0.36	0.65	0.64
873	41	1	60	93.3%	6.7%	100.0%	0.6	0.6	0.50	0.49	0.86	0.86
873	42	1	59	91.5%	8.5%	100.0%	0.7	0.7	0.45	0.46	0.79	0.79
873	44	1	63	96.8%	3.2%	100.0%	0.8	0.8	0.40	0.40	0.90	0.90
873	47	1	53	75.5%	24.5%	100.0%	0.2	0.4	0.39	0.48	0.39	0.40
873	48	1	53	98.1%	1.9%	100.0%	0.4	0.4	0.48	0.49	0.96	0.96
873	49	1	54	72.2%	27.8%	100.0%	0.6	0.8	0.50	0.42	0.37	0.39
873	50	1	54	87.0%	13.0%	100.0%	0.7	0.8	0.44	0.38	0.62	0.62
873	51	1	54	81.5%	18.5%	100.0%	0.6	0.7	0.50	0.48	0.61	0.61
873	52	1	50	94.0%	6.0%	100.0%	0.9	0.9	0.35	0.33	0.74	0.73
873	53	1	51	98.0%	2.0%	100.0%	0.7	0.7	0.47	0.46	0.95	0.95
873	56	1	50	88.0%	12.0%	100.0%	0.5	0.4	0.50	0.49	0.76	0.76
874	41	1	72	88.9%	11.1%	100.0%	0.8	0.7	0.44	0.45	0.72	0.71
874	42	1	72	77.8%	22.2%	100.0%	0.7	0.8	0.46	0.44	0.45	0.45
874	45	1	70	84.3%	15.7%	100.0%	0.5	0.4	0.50	0.50	0.69	0.68
874	46	1	71	83.1%	16.9%	100.0%	0.4	0.4	0.49	0.49	0.65	0.64
874	47	1	78	85.9%	14.1%	100.0%	0.5	0.5	0.50	0.50	0.72	0.72
874	48	1	78	94.9%	5.1%	100.0%	0.7	0.8	0.45	0.43	0.87	0.87
874	49	1	78	96.2%	3.8%	100.0%	0.8	0.8	0.41	0.40	0.88	0.88
874	50	1	67	91.0%	9.0%	100.0%	0.3	0.3	0.48	0.48	0.80	0.80
874	51	1	74	89.2%	10.8%	100.0%	0.7	0.7	0.47	0.45	0.74	0.74

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
874	53	1	74	86.5%	13.5%	100.0%	0.6	0.6	0.49	0.49	0.72	0.72
874	55	1	71	95.8%	4.2%	100.0%	0.6	0.6	0.49	0.48	0.91	0.91
875	41	1	58	89.7%	10.3%	100.0%	0.8	0.8	0.37	0.40	0.64	0.64
875	42	1	58	87.9%	12.1%	100.0%	0.7	0.7	0.47	0.46	0.72	0.71
875	43	1	58	93.1%	6.9%	100.0%	0.9	0.9	0.31	0.31	0.63	0.63
875	46	1	57	96.5%	3.5%	100.0%	0.6	0.6	0.49	0.48	0.93	0.92
875	47	1	55	83.6%	16.4%	100.0%	0.7	0.7	0.47	0.48	0.64	0.63
875	48	1	58	93.1%	6.9%	100.0%	0.5	0.6	0.50	0.50	0.86	0.86
875	49	1	52	76.9%	23.1%	100.0%	0.6	0.7	0.50	0.47	0.51	0.51
875	50	1	47	89.4%	10.6%	100.0%	0.6	0.7	0.49	0.45	0.76	0.76
875	51	1	51	84.3%	15.7%	100.0%	0.8	0.8	0.42	0.39	0.51	0.50
875	52	1	54	79.6%	20.4%	100.0%	0.3	0.3	0.46	0.47	0.53	0.52
875	53	1	53	98.1%	1.9%	100.0%	0.5	0.5	0.50	0.50	0.96	0.96
876	41	1	55	90.9%	9.1%	100.0%	0.3	0.3	0.46	0.47	0.79	0.78
876	42	1	53	90.6%	9.4%	100.0%	0.8	0.7	0.43	0.46	0.77	0.76
876	43	1	59	98.3%	1.7%	100.0%	0.8	0.8	0.42	0.41	0.95	0.95
876	44	1	59	100.0%	0.0%	100.0%	0.7	0.7	0.48	0.48	1.00	1.00
876	46	1	49	91.8%	8.2%	100.0%	0.6	0.6	0.49	0.50	0.83	0.83
876	47	1	60	90.0%	10.0%	100.0%	0.7	0.8	0.45	0.43	0.74	0.73
876	48	1	57	84.2%	15.8%	100.0%	0.7	0.6	0.48	0.50	0.67	0.67
876	49	1	57	91.2%	8.8%	100.0%	0.5	0.4	0.50	0.49	0.83	0.82
876	50	1	53	96.2%	3.8%	100.0%	0.3	0.4	0.47	0.48	0.92	0.92
876	51	1	53	83.0%	17.0%	100.0%	0.6	0.5	0.49	0.50	0.66	0.65
876	52	1	56	96.4%	3.6%	100.0%	0.8	0.8	0.37	0.37	0.87	0.87
876	53	1	54	96.3%	3.7%	100.0%	0.6	0.6	0.49	0.50	0.92	0.92
876	54	1	51	88.2%	11.8%	100.0%	0.3	0.3	0.47	0.47	0.73	0.73

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
877	41	1	61	91.8%	8.2%	100.0%	0.8	0.8	0.40	0.43	0.77	0.76
877	42	1	60	91.7%	8.3%	100.0%	0.8	0.8	0.40	0.39	0.73	0.73
877	44	1	53	98.1%	1.9%	100.0%	0.0	0.1	0.19	0.23	0.79	0.79
877	45	1	55	94.5%	5.5%	100.0%	0.3	0.3	0.47	0.45	0.87	0.87
877	46	1	56	89.3%	10.7%	100.0%	0.9	0.9	0.29	0.23	0.20	0.20
877	47	1	56	92.9%	7.1%	100.0%	0.8	0.8	0.43	0.37	0.78	0.78
877	48	1	61	91.8%	8.2%	100.0%	0.3	0.2	0.44	0.39	0.77	0.76
877	49	1	59	62.7%	37.3%	100.0%	0.4	0.4	0.48	0.50	0.22	0.22
877	50	1	59	88.1%	11.9%	100.0%	0.5	0.4	0.50	0.50	0.76	0.76
877	51	1	53	81.1%	18.9%	100.0%	0.5	0.6	0.50	0.50	0.63	0.62
877	52	1	58	98.3%	1.7%	100.0%	0.2	0.3	0.43	0.44	0.95	0.95
877	53	1	57	91.2%	8.8%	100.0%	0.4	0.4	0.50	0.50	0.82	0.82
877	54	1	57	91.2%	8.8%	100.0%	0.8	0.8	0.42	0.41	0.75	0.74
878	41	1	76	97.4%	2.6%	100.0%	0.5	0.5	0.50	0.50	0.95	0.95
878	42	1	75	97.3%	2.7%	100.0%	0.7	0.7	0.46	0.46	0.94	0.94
878	44	1	68	94.1%	5.9%	100.0%	0.4	0.4	0.50	0.49	0.88	0.88
878	45	1	76	82.9%	17.1%	100.0%	0.5	0.6	0.50	0.50	0.66	0.65
878	46	1	68	85.3%	14.7%	100.0%	0.6	0.7	0.48	0.47	0.68	0.67
878	47	1	77	92.2%	7.8%	100.0%	0.5	0.4	0.50	0.50	0.84	0.84
878	48	1	72	100.0%	0.0%	100.0%	0.3	0.3	0.45	0.45	1.00	1.00
878	49	1	76	96.1%	3.9%	100.0%	0.6	0.6	0.49	0.49	0.92	0.92
878	50	1	84	91.7%	8.3%	100.0%	0.5	0.4	0.50	0.50	0.83	0.83
878	52	1	83	96.4%	3.6%	100.0%	0.8	0.8	0.39	0.38	0.88	0.87
878	54	1	77	94.8%	5.2%	100.0%	0.7	0.8	0.46	0.43	0.87	0.87
879	41	1	62	90.3%	9.7%	100.0%	0.2	0.2	0.39	0.39	0.67	0.67
879	42	1	58	91.4%	8.6%	100.0%	0.4	0.4	0.49	0.48	0.82	0.82

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
879	43	1	61	91.8%	8.2%	100.0%	0.4	0.4	0.50	0.50	0.84	0.83
879	44	1	63	74.6%	25.4%	100.0%	0.7	0.7	0.44	0.44	0.34	0.33
879	45	1	61	88.5%	11.5%	100.0%	0.6	0.6	0.50	0.50	0.77	0.77
879	46	1	62	98.4%	1.6%	100.0%	0.9	0.9	0.32	0.30	0.92	0.91
879	50	1	60	76.7%	23.3%	100.0%	0.6	0.7	0.49	0.46	0.48	0.48
879	51	1	62	93.5%	6.5%	100.0%	0.9	0.9	0.30	0.34	0.68	0.68
879	52	1	61	88.5%	11.5%	100.0%	0.8	0.8	0.40	0.43	0.67	0.67
879	53	1	61	78.7%	21.3%	100.0%	0.8	0.8	0.42	0.43	0.42	0.41
879	54	1	59	96.6%	3.4%	100.0%	0.4	0.3	0.49	0.48	0.93	0.93
880	42	1	60	95.0%	5.0%	100.0%	0.7	0.7	0.45	0.45	0.88	0.87
880	43	1	60	90.0%	10.0%	100.0%	0.6	0.6	0.49	0.50	0.80	0.80
880	44	1	51	100.0%	0.0%	100.0%	0.5	0.5	0.50	0.50	1.00	1.00
880	45	1	56	100.0%	0.0%	100.0%	0.6	0.6	0.50	0.50	1.00	1.00
880	47	1	57	94.7%	5.3%	100.0%	0.5	0.5	0.50	0.50	0.90	0.89
880	48	1	54	98.1%	1.9%	100.0%	0.5	0.5	0.50	0.50	0.96	0.96
880	49	1	53	94.3%	5.7%	100.0%	0.4	0.4	0.49	0.48	0.88	0.88
880	50	1	59	96.6%	3.4%	100.0%	0.7	0.7	0.47	0.47	0.92	0.92
880	51	1	60	86.7%	13.3%	100.0%	0.7	0.7	0.45	0.46	0.68	0.67
880	52	1	54	94.4%	5.6%	100.0%	0.2	0.2	0.39	0.41	0.83	0.82
880	53	1	54	85.2%	14.8%	100.0%	0.5	0.5	0.50	0.50	0.71	0.70
880	54	1	53	94.3%	5.7%	100.0%	0.4	0.4	0.50	0.50	0.89	0.88
880	55	1	51	92.2%	7.8%	100.0%	0.5	0.5	0.50	0.50	0.85	0.84
881	41	1	59	91.5%	8.5%	100.0%	0.4	0.4	0.49	0.50	0.83	0.83
881	44	1	47	97.9%	2.1%	100.0%	0.0	0.0	0.15	0.20	0.66	0.66
881	45	1	54	88.9%	11.1%	100.0%	0.8	0.8	0.38	0.43	0.66	0.66
881	46	1	55	92.7%	7.3%	100.0%	0.1	0.1	0.36	0.36	0.71	0.71

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
881	47	1	54	81.5%	18.5%	100.0%	0.4	0.4	0.50	0.50	0.63	0.62
881	48	1	52	94.2%	5.8%	100.0%	0.2	0.2	0.40	0.41	0.82	0.82
881	49	1	41	92.7%	7.3%	100.0%	0.2	0.1	0.40	0.33	0.73	0.73
881	50	1	49	95.9%	4.1%	100.0%	0.2	0.3	0.42	0.45	0.89	0.89
881	51	1	53	90.6%	9.4%	100.0%	0.9	0.9	0.32	0.34	0.57	0.56
881	52	1	54	90.7%	9.3%	100.0%	0.3	0.2	0.45	0.42	0.76	0.75
881	53	1	46	91.3%	8.7%	100.0%	0.3	0.2	0.46	0.40	0.77	0.76
881	54	1	49	93.9%	6.1%	100.0%	0.3	0.2	0.45	0.43	0.84	0.84
881	55	1	46	93.5%	6.5%	100.0%	0.2	0.2	0.43	0.38	0.80	0.80
882	42	1	67	94.0%	6.0%	100.0%	0.3	0.3	0.47	0.46	0.86	0.86
882	43	1	65	96.9%	3.1%	100.0%	0.3	0.3	0.46	0.44	0.92	0.92
882	44	1	72	88.9%	11.1%	100.0%	0.6	0.6	0.50	0.50	0.78	0.78
882	46	1	69	81.2%	18.8%	100.0%	0.5	0.5	0.50	0.50	0.63	0.62
882	47	1	69	97.1%	2.9%	100.0%	0.3	0.3	0.47	0.47	0.93	0.93
882	48	1	73	84.9%	15.1%	100.0%	0.5	0.5	0.50	0.50	0.70	0.70
882	49	1	70	85.7%	14.3%	100.0%	0.4	0.3	0.49	0.48	0.70	0.70
882	50	1	73	84.9%	15.1%	100.0%	0.8	0.7	0.42	0.44	0.59	0.59
882	51	1	73	100.0%	0.0%	100.0%	0.2	0.2	0.41	0.41	1.00	1.00
882	52	1	73	90.4%	9.6%	100.0%	0.7	0.7	0.47	0.47	0.78	0.78
882	53	1	73	91.8%	8.2%	100.0%	0.6	0.5	0.50	0.50	0.84	0.84
882	54	1	70	95.7%	4.3%	100.0%	0.4	0.4	0.50	0.50	0.91	0.91
883	41	1	61	96.7%	3.3%	100.0%	0.2	0.2	0.39	0.39	0.89	0.89
883	43	1	60	98.3%	1.7%	100.0%	0.3	0.3	0.44	0.45	0.96	0.96
883	44	1	62	90.3%	9.7%	100.0%	0.4	0.4	0.48	0.48	0.79	0.79
883	46	1	62	95.2%	4.8%	100.0%	0.7	0.8	0.46	0.43	0.88	0.88
883	47	1	63	95.2%	4.8%	100.0%	0.8	0.8	0.41	0.42	0.86	0.86

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
883	48	1	63	90.5%	9.5%	100.0%	0.8	0.7	0.43	0.45	0.75	0.75
883	49	1	58	94.8%	5.2%	100.0%	0.4	0.4	0.50	0.50	0.90	0.89
883	52	1	52	84.6%	15.4%	100.0%	0.4	0.4	0.50	0.50	0.69	0.69
883	53	1	63	98.4%	1.6%	100.0%	0.4	0.4	0.50	0.50	0.97	0.97
883	54	1	63	93.7%	6.3%	100.0%	0.7	0.8	0.44	0.42	0.83	0.83
883	55	1	58	87.9%	12.1%	100.0%	0.4	0.4	0.50	0.49	0.75	0.75
883	56	1	55	90.9%	9.1%	100.0%	0.4	0.4	0.49	0.49	0.81	0.81
884	42	1	52	90.4%	9.6%	100.0%	0.3	0.2	0.44	0.43	0.74	0.74
884	43	1	59	93.2%	6.8%	100.0%	0.9	0.8	0.33	0.36	0.71	0.71
884	45	1	31	87.1%	12.9%	100.0%	0.3	0.2	0.44	0.40	0.64	0.63
884	46	1	40	80.0%	20.0%	100.0%	0.4	0.4	0.48	0.48	0.57	0.56
884	47	1	57	78.9%	21.1%	100.0%	0.6	0.6	0.50	0.50	0.58	0.57
884	48	1	58	79.3%	20.7%	100.0%	0.6	0.7	0.48	0.47	0.55	0.54
884	49	1	51	96.1%	3.9%	100.0%	0.5	0.5	0.50	0.50	0.92	0.92
884	50	1	49	73.5%	26.5%	100.0%	0.4	0.3	0.49	0.48	0.43	0.42
884	51	1	49	75.5%	24.5%	100.0%	0.7	0.7	0.48	0.48	0.47	0.46
884	52	1	59	98.3%	1.7%	100.0%	0.6	0.6	0.49	0.50	0.97	0.96
884	53	1	56	82.1%	17.9%	100.0%	0.6	0.6	0.48	0.50	0.63	0.63
884	54	1	56	73.2%	26.8%	100.0%	0.5	0.4	0.50	0.50	0.47	0.47
884	55	1	52	86.5%	13.5%	100.0%	0.3	0.3	0.44	0.45	0.66	0.65
884	56	1	46	100.0%	0.0%	100.0%	0.3	0.3	0.46	0.46	1.00	1.00
885	42	1	63	93.7%	6.3%	100.0%	0.8	0.9	0.38	0.35	0.77	0.76
885	43	1	55	90.9%	9.1%	100.0%	0.7	0.7	0.46	0.45	0.78	0.78
885	46	1	56	98.2%	1.8%	100.0%	0.2	0.2	0.39	0.40	0.94	0.94
885	47	1	61	86.9%	13.1%	100.0%	0.3	0.3	0.48	0.47	0.71	0.70
885	48	1	66	83.3%	16.7%	100.0%	0.2	0.2	0.38	0.43	0.49	0.49

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
885	49	1	63	65.1%	34.9%	100.0%	0.5	0.5	0.50	0.50	0.31	0.30
885	50	1	64	75.0%	25.0%	100.0%	0.5	0.6	0.50	0.50	0.50	0.49
885	51	1	55	96.4%	3.6%	100.0%	0.3	0.3	0.47	0.47	0.92	0.91
885	52	1	54	85.2%	14.8%	100.0%	0.5	0.5	0.50	0.50	0.71	0.70
885	53	1	54	90.7%	9.3%	100.0%	0.7	0.8	0.44	0.43	0.76	0.75
885	54	1	60	100.0%	0.0%	100.0%	0.4	0.4	0.50	0.50	1.00	1.00
886	41	1	58	81.0%	19.0%	100.0%	0.5	0.6	0.50	0.50	0.62	0.62
886	44	1	59	91.5%	8.5%	100.0%	0.3	0.3	0.48	0.47	0.81	0.81
886	46	1	59	86.4%	13.6%	100.0%	0.6	0.6	0.49	0.50	0.72	0.72
886	47	1	57	82.5%	17.5%	100.0%	0.7	0.7	0.48	0.48	0.61	0.61
886	48	1	52	90.4%	9.6%	100.0%	0.4	0.4	0.50	0.50	0.81	0.80
886	49	1	44	97.7%	2.3%	100.0%	0.2	0.2	0.41	0.42	0.93	0.93
886	50	1	42	92.9%	7.1%	100.0%	0.1	0.1	0.33	0.35	0.69	0.69
886	51	1	39	74.4%	25.6%	100.0%	0.4	0.2	0.49	0.41	0.38	0.38
886	52	1	41	87.8%	12.2%	100.0%	0.7	0.8	0.45	0.40	0.66	0.66
886	53	1	43	95.3%	4.7%	100.0%	0.5	0.5	0.51	0.51	0.91	0.91
886	54	1	39	84.6%	15.4%	100.0%	0.2	0.4	0.41	0.49	0.63	0.63
886	55	1	42	90.5%	9.5%	100.0%	0.6	0.6	0.49	0.50	0.81	0.80
887	42	1	64	82.8%	17.2%	100.0%	0.2	0.2	0.37	0.38	0.38	0.37
887	43	1	62	93.5%	6.5%	100.0%	0.3	0.3	0.47	0.46	0.85	0.85
887	44	1	64	85.9%	14.1%	100.0%	0.3	0.3	0.45	0.45	0.65	0.65
887	45	1	74	93.2%	6.8%	100.0%	0.9	0.8	0.36	0.37	0.75	0.74
887	46	1	71	93.0%	7.0%	100.0%	0.3	0.3	0.47	0.47	0.84	0.84
887	47	1	76	92.1%	7.9%	100.0%	0.8	0.7	0.43	0.44	0.79	0.79
887	48	1	73	90.4%	9.6%	100.0%	0.7	0.7	0.46	0.46	0.77	0.77
887	49	1	75	93.3%	6.7%	100.0%	0.9	0.8	0.31	0.38	0.73	0.73

Form	Item	Score Points	Total N-Count	Agreement (%)			Raw Score Mean		Raw Score Standard Deviation		Intraclass Corr.	Weighted Kappa
				Exact	Adj.	Total	First Read	Second Read	First Read	Second Read		
887	50	1	65	90.8%	9.2%	100.0%	0.2	0.1	0.36	0.33	0.62	0.61
887	51	1	65	75.4%	24.6%	100.0%	0.3	0.3	0.45	0.48	0.43	0.42
887	52	1	66	83.3%	16.7%	100.0%	0.7	0.7	0.48	0.46	0.62	0.61
887	53	1	58	91.4%	8.6%	100.0%	0.2	0.3	0.42	0.45	0.77	0.77
888	41	1	70	97.1%	2.9%	100.0%	0.7	0.7	0.48	0.47	0.94	0.94
888	42	1	68	95.6%	4.4%	100.0%	0.5	0.6	0.50	0.50	0.91	0.91
888	43	1	58	96.6%	3.4%	100.0%	0.6	0.6	0.49	0.49	0.93	0.93
888	44	1	58	89.7%	10.3%	100.0%	0.6	0.6	0.48	0.49	0.78	0.78
888	46	1	64	87.5%	12.5%	100.0%	0.7	0.7	0.45	0.45	0.69	0.69
888	48	5	84	84.5%	9.5%	94.0%	2.4	2.5	1.95	2.00	0.91	0.88

Appendix D: Partial-Credit Model Item Analysis

The first five columns from the left contain the test name, form name, item type, item number on the form, and maximum points possible for the item. The sixth column contains the number of students that the item was administered to. The remaining seven columns contain the Rasch Item Difficulty, step difficulties (for multi-point items only), and the INFIT Rasch model fit statistic. Items without statistics are DNS (Do Not Score) status items.

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	871	MC	01	1	694	0.3437						1.03
2014_LEnv	871	MC	02	1	694	−0.9758						1.03
2014_LEnv	871	MC	03	1	694	−0.7208						1.05
2014_LEnv	871	MC	04	1	694	−0.8665						0.95
2014_LEnv	871	MC	05	1	694	0.7116						1.01
2014_LEnv	871	MC	06	1	694	1.0233						1.02
2014_LEnv	871	MC	07	1	694	0.4291						1.01
2014_LEnv	871	MC	08	1	694	0.0538						1.02
2014_LEnv	871	MC	09	1	694	0.6309						1.02
2014_LEnv	871	MC	10	1	694	−0.8336						1.07
2014_LEnv	871	MC	11	1	694	−1.2930						0.96
2014_LEnv	871	CR	41	1	694	−1.3916						0.99
2014_LEnv	871	CR	42	1	694	−0.4370						1.10
2014_LEnv	871	CR	43	1	694	0.0962						1.07
2014_LEnv	871	MC	44	1	694	−0.0242						1.29
2014_LEnv	871	MC	45	1	694	1.3439						0.98
2014_LEnv	871	CR	46	1	694	−1.5592						0.91
2014_LEnv	871	CR	47	1	694	0.7561						0.92
2014_LEnv	871	CR	48	1	694	0.8916						0.99
2014_LEnv	871	CR	49	1	694	−0.2389						1.00
2014_LEnv	871	CR	50	1	694	0.2658						0.89

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	871	CR	51	1	694	0.3366						0.86
2014_LEnv	871	CR	52	1	694	−0.7050						0.88
2014_LEnv	871	CR	53	1	694	0.8009						0.95
2014_LEnv	871	CR	54	1	694	1.3439						0.92
2014_LEnv	871	CR	55	1	694	1.5686						0.92
2014_LEnv	872	MC	01	1	688	−2.0672						1.01
2014_LEnv	872	MC	02	1	688	−0.2872						1.15
2014_LEnv	872	MC	03	1	688	−1.3992						1.00
2014_LEnv	872	MC	04	1	688	−0.6673						1.05
2014_LEnv	872	MC	05	1	688	−0.4345						1.01
2014_LEnv	872	MC	06	1	688	−2.7821						0.86
2014_LEnv	872	MC	07	1	688	−1.1697						1.10
2014_LEnv	872	MC	08	1	688	−0.5056						0.97
2014_LEnv	872	MC	09	1	688	−0.1277						0.97
2014_LEnv	872	MC	10	1	688	0.0295						0.99
2014_LEnv	872	MC	11	1	688	−1.3373						1.01
2014_LEnv	872	MC	12	1	688	0.6024						1.12
2014_LEnv	872	CR	41	1	688	0.9740						1.08
2014_LEnv	872	CR	42	1	688	−0.7253						1.12
2014_LEnv	872	MC	43	1	688	−0.8699						0.99
2014_LEnv	872	CR	44	1	688	−0.6838						0.96
2014_LEnv	872	CR	45	1	688	3.0865						0.93
2014_LEnv	872	CR	46	1	688	0.3038						1.00
2014_LEnv	872	CR	47	1	688	0.4599						1.04
2014_LEnv	872	CR	48	1	688	−1.0299						0.85
2014_LEnv	872	CR	49	1	688	0.6783						0.95
2014_LEnv	872	MC	50	1	688	0.5874						0.95
2014_LEnv	872	CR	51	1	688	1.6156						1.03

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	872	CR	52	1	688	0.5949						0.89
2014_LEnv	872	CR	53	1	688	1.1867						1.00
2014_LEnv	872	CR	54	1	688	0.4078						0.93
2014_LEnv	873	MC	01	1	674	−0.5673						0.96
2014_LEnv	873	MC	02	1	674	−0.8480						1.03
2014_LEnv	873	MC	03	1	674	−1.6012						0.99
2014_LEnv	873	MC	04	1	674	−1.2410						1.09
2014_LEnv	873	MC	05	1	674	−1.2005						1.00
2014_LEnv	873	MC	06	1	674	−0.0583						1.11
2014_LEnv	873	MC	07	1	674	−1.5091						0.99
2014_LEnv	873	MC	08	1	674	−0.4159						1.06
2014_LEnv	873	MC	09	1	674	−0.6187						1.19
2014_LEnv	873	MC	10	1	674	−1.9577						1.01
2014_LEnv	873	CR	41	1	674	−0.2435						1.02
2014_LEnv	873	CR	42	1	674	−0.4576						0.86
2014_LEnv	873	MC	43	1	674	−1.7976						1.06
2014_LEnv	873	CR	44	1	674	−1.3986						1.11
2014_LEnv	873	MC	45	1	674	−1.6972						1.02
2014_LEnv	873	MC	46	1	674	−1.4866						1.03
2014_LEnv	873	CR	47	1	674	1.3342						0.99
2014_LEnv	873	CR	48	1	674	1.3249						0.86
2014_LEnv	873	CR	49	1	674	−0.0183						0.87
2014_LEnv	873	CR	50	1	674	−0.4159						0.89
2014_LEnv	873	CR	51	1	674	0.0852						0.96
2014_LEnv	873	CR	52	1	674	−0.4326						0.87
2014_LEnv	873	CR	53	1	674	−0.1144						0.88
2014_LEnv	873	MC	54	1	674	1.8703						1.16
2014_LEnv	873	MC	55	1	674	0.3075						1.02

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	873	CR	56	1	674	1.1881						1.00
2014_LEnv	874	MC	01	1	685	0.1437						1.08
2014_LEnv	874	MC	02	1	685	−1.0047						1.01
2014_LEnv	874	MC	03	1	685	−0.9531						1.06
2014_LEnv	874	MC	04	1	685	0.3870						1.04
2014_LEnv	874	MC	05	1	685	−0.4034						1.04
2014_LEnv	874	MC	06	1	685	−0.0175						1.10
2014_LEnv	874	MC	07	1	685	−0.2015						1.03
2014_LEnv	874	MC	08	1	685	0.7047						1.03
2014_LEnv	874	MC	09	1	685	−1.6721						0.92
2014_LEnv	874	MC	10	1	685	−0.7138						1.02
2014_LEnv	874	MC	11	1	685	−0.3732						1.05
2014_LEnv	874	CR	41	1	685	−1.6158						1.01
2014_LEnv	874	CR	42	1	685	−1.0660						1.04
2014_LEnv	874	MC	43	1	685	−0.4261						1.09
2014_LEnv	874	MC	44	1	685	−0.1793						1.08
2014_LEnv	874	CR	45	1	685	0.5065						1.15
2014_LEnv	874	CR	46	1	685	1.2453						0.87
2014_LEnv	874	CR	47	1	685	0.7905						0.92
2014_LEnv	874	CR	48	1	685	0.2171						0.97
2014_LEnv	874	CR	49	1	685	−0.5101						0.83
2014_LEnv	874	CR	50	1	685	1.8041						0.87
2014_LEnv	874	CR	51	1	685	0.1437						0.89
2014_LEnv	874	MC	52	1	685	−0.4034						0.99
2014_LEnv	874	CR	53	1	685	1.3524						0.87
2014_LEnv	874	MC	54	1	685	1.5204						1.11
2014_LEnv	874	CR	55	1	685	1.5591						0.81
2014_LEnv	875	MC	01	1	657	−0.1994						0.91

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	875	MC	02	1	657	−1.1570						0.99
2014_LEnv	875	MC	03	1	657	−0.4103						1.03
2014_LEnv	875	MC	04	1	657	−0.7134						1.05
2014_LEnv	875	MC	05	1	657	−3.1475						0.91
2014_LEnv	875	MC	06	1	657	−0.6796						1.10
2014_LEnv	875	MC	07	1	657	−1.0800						0.86
2014_LEnv	875	MC	08	1	657	−1.5711						0.86
2014_LEnv	875	MC	09	1	657	−0.6046						1.09
2014_LEnv	875	MC	10	1	657	−0.0162						1.01
2014_LEnv	875	MC	11	1	657	1.2508						1.24
2014_LEnv	875	MC	12	1	657	0.7738						1.01
2014_LEnv	875	CR	41	1	657	−1.7669						0.95
2014_LEnv	875	CR	42	1	657	−0.8693						1.07
2014_LEnv	875	CR	43	1	657	−1.5595						1.00
2014_LEnv	875	MC	44	1	657	1.4955						1.10
2014_LEnv	875	MC	45	1	657	0.0518						1.40
2014_LEnv	875	CR	46	1	657	−0.3629						0.94
2014_LEnv	875	CR	47	1	657	0.0292						0.92
2014_LEnv	875	CR	48	1	657	0.7035						0.84
2014_LEnv	875	CR	49	1	657	0.4434						0.85
2014_LEnv	875	CR	50	1	657	0.1121						0.88
2014_LEnv	875	CR	51	1	657	0.1573						0.91
2014_LEnv	875	CR	52	1	657	2.0793						0.89
2014_LEnv	875	CR	53	1	657	0.9167						1.02
2014_LEnv	876	MC	01	1	671	−1.1717						1.02
2014_LEnv	876	MC	02	1	671	−0.1926						1.00
2014_LEnv	876	MC	03	1	671	−0.2452						1.13
2014_LEnv	876	MC	04	1	671	−1.6434						0.82

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	876	MC	05	1	671	0.6724						1.39
2014_LEnv	876	MC	06	1	671	−0.8061						1.11
2014_LEnv	876	MC	07	1	671	0.6800						1.17
2014_LEnv	876	MC	08	1	671	−0.2527						0.98
2014_LEnv	876	MC	09	1	671	−1.3798						1.06
2014_LEnv	876	MC	10	1	671	−0.2001						1.04
2014_LEnv	876	MC	11	1	671	0.0296						0.99
2014_LEnv	876	CR	41	1	671	1.2475						1.18
2014_LEnv	876	CR	42	1	671	−0.0589						1.03
2014_LEnv	876	CR	43	1	671	−1.4110						1.08
2014_LEnv	876	CR	44	1	671	−0.1777						0.90
2014_LEnv	876	MC	45	1	671	−0.2452						0.97
2014_LEnv	876	CR	46	1	671	0.4113						0.91
2014_LEnv	876	CR	47	1	671	−0.4903						0.91
2014_LEnv	876	CR	48	1	671	0.2276						0.90
2014_LEnv	876	CR	49	1	671	0.9273						0.91
2014_LEnv	876	CR	50	1	671	1.8341						1.00
2014_LEnv	876	CR	51	1	671	0.2716						0.98
2014_LEnv	876	CR	52	1	671	−0.3589						0.88
2014_LEnv	876	CR	53	1	671	0.5075						0.82
2014_LEnv	876	CR	54	1	671	1.4417						0.96
2014_LEnv	876	MC	55	1	671	0.6724						0.84
2014_LEnv	877	MC	01	1	681	−1.0121						1.13
2014_LEnv	877	MC	02	1	681	−0.6929						1.09
2014_LEnv	877	MC	03	1	681	0.0360						1.13
2014_LEnv	877	MC	04	1	681	0.4403						1.00
2014_LEnv	877	MC	05	1	681	−1.3884						1.02
2014_LEnv	877	MC	06	1	681	0.6351						1.08

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	877	MC	07	1	681	−1.1380						0.93
2014_LEnv	877	MC	08	1	681	1.5519						1.34
2014_LEnv	877	MC	09	1	681	0.6427						1.06
2014_LEnv	877	MC	10	1	681	0.8117						1.18
2014_LEnv	877	MC	11	1	681	0.0506						0.94
2014_LEnv	877	MC	12	1	681	−0.9339						0.96
2014_LEnv	877	CR	41	1	681	−1.5134						0.98
2014_LEnv	877	CR	42	1	681	−1.1750						0.99
2014_LEnv	877	MC	43	1	681	−0.1186						1.01
2014_LEnv	877	CR	44	1	681	3.1080						0.94
2014_LEnv	877	CR	45	1	681	1.1506						0.88
2014_LEnv	877	CR	46	1	681	−0.8490						0.86
2014_LEnv	877	CR	47	1	681	−0.1779						0.92
2014_LEnv	877	CR	48	1	681	1.5903						0.96
2014_LEnv	877	CR	49	1	681	1.1759						0.97
2014_LEnv	877	CR	50	1	681	1.1590						0.80
2014_LEnv	877	CR	51	1	681	1.0510						0.94
2014_LEnv	877	CR	52	1	681	1.8881						0.88
2014_LEnv	877	CR	53	1	681	1.3316						0.86
2014_LEnv	877	CR	54	1	681	0.5973						0.97
2014_LEnv	878	MC	01	1	683	−1.2879						0.91
2014_LEnv	878	MC	02	1	683	−1.6872						0.93
2014_LEnv	878	MC	03	1	683	0.1935						1.27
2014_LEnv	878	MC	04	1	683	−0.0932						1.00
2014_LEnv	878	MC	05	1	683	0.2150						1.14
2014_LEnv	878	MC	06	1	683	0.8501						1.18
2014_LEnv	878	MC	07	1	683	−0.9385						1.05
2014_LEnv	878	MC	08	1	683	−1.5941						0.87

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	878	MC	09	1	683	−0.6256						0.94
2014_LEnv	878	MC	10	1	683	−0.0788						1.12
2014_LEnv	878	MC	11	1	683	1.2489						1.19
2014_LEnv	878	MC	12	1	683	−1.2008						1.07
2014_LEnv	878	CR	41	1	683	0.1935						0.92
2014_LEnv	878	CR	42	1	683	−0.1222						0.91
2014_LEnv	878	MC	43	1	683	−0.5863						1.17
2014_LEnv	878	CR	44	1	683	0.9191						0.96
2014_LEnv	878	CR	45	1	683	0.3222						0.94
2014_LEnv	878	CR	46	1	683	0.2150						0.92
2014_LEnv	878	CR	47	1	683	1.3256						0.96
2014_LEnv	878	CR	48	1	683	2.3665						0.89
2014_LEnv	878	CR	49	1	683	0.7820						0.88
2014_LEnv	878	CR	50	1	683	1.0365						0.97
2014_LEnv	878	MC	51	1	683	−0.0860						0.96
2014_LEnv	878	CR	52	1	683	0.0792						0.97
2014_LEnv	878	MC	53	1	683	0.0004						0.93
2014_LEnv	878	CR	54	1	683	0.3939						0.89
2014_LEnv	879	MC	01	1	675	−0.6269						1.04
2014_LEnv	879	MC	02	1	675	−0.6923						1.08
2014_LEnv	879	MC	03	1	675	−1.4863						1.00
2014_LEnv	879	MC	04	1	675	1.4459						1.01
2014_LEnv	879	MC	05	1	675	0.2642						1.11
2014_LEnv	879	MC	06	1	675	−0.1325						1.07
2014_LEnv	879	MC	07	1	675	−1.6336						0.99
2014_LEnv	879	MC	08	1	675	−1.0385						1.19
2014_LEnv	879	MC	09	1	675	1.6613						1.16
2014_LEnv	879	MC	10	1	675	0.2131						1.11

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	879	MC	11	1	675	1.4190						1.20
2014_LEnv	879	CR	41	1	675	1.7917						0.86
2014_LEnv	879	CR	42	1	675	0.7373						1.01
2014_LEnv	879	CR	43	1	675	0.3885						1.01
2014_LEnv	879	CR	44	1	675	−0.9573						1.08
2014_LEnv	879	CR	45	1	675	0.2204						0.92
2014_LEnv	879	CR	46	1	675	−1.8183						0.84
2014_LEnv	879	MC	47	1	675	−1.0385						0.90
2014_LEnv	879	MC	48	1	675	−1.6219						0.81
2014_LEnv	879	MC	49	1	675	−0.6350						0.93
2014_LEnv	879	CR	50	1	675	0.0888						0.92
2014_LEnv	879	CR	51	1	675	−1.1314						0.88
2014_LEnv	879	CR	52	1	675	−0.6595						0.89
2014_LEnv	879	CR	53	1	675	−0.4520						0.89
2014_LEnv	879	CR	54	1	675	1.3137						1.03
2014_LEnv	879	MC	55	1	675	0.3592						0.89
2014_LEnv	880	MC	01	1	691	1.9837						1.28
2014_LEnv	880	MC	02	1	691	0.2750						1.15
2014_LEnv	880	MC	03	1	691	0.9238						1.35
2014_LEnv	880	MC	04	1	691	1.1198						1.13
2014_LEnv	880	MC	05	1	691	0.8477						0.98
2014_LEnv	880	MC	06	1	691	−0.8900						0.92
2014_LEnv	880	MC	07	1	691	0.1478						0.96
2014_LEnv	880	MC	08	1	691	0.2750						1.01
2014_LEnv	880	MC	09	1	691	−0.3466						0.97
2014_LEnv	880	MC	10	1	691	−0.4729						0.96
2014_LEnv	880	MC	11	1	691	0.5100						1.28
2014_LEnv	880	MC	41	1	691	−1.8751						0.94

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	880	CR	42	1	691	−0.8983						0.94
2014_LEnv	880	CR	43	1	691	0.3175						0.96
2014_LEnv	880	CR	44	1	691	0.7357						0.87
2014_LEnv	880	CR	45	1	691	0.5749						0.84
2014_LEnv	880	MC	46	1	691	−0.4206						1.11
2014_LEnv	880	CR	47	1	691	1.0481						0.99
2014_LEnv	880	CR	48	1	691	1.0167						0.90
2014_LEnv	880	CR	49	1	691	1.3267						0.94
2014_LEnv	880	CR	50	1	691	0.1478						0.91
2014_LEnv	880	CR	51	1	691	0.3459						0.92
2014_LEnv	880	CR	52	1	691	2.4364						0.91
2014_LEnv	880	CR	53	1	691	1.1846						0.96
2014_LEnv	880	CR	54	1	691	1.8119						0.86
2014_LEnv	880	CR	55	1	691	1.2175						0.88
2014_LEnv	881	MC	01	1	661	0.5935						1.17
2014_LEnv	881	MC	02	1	661	−1.1153						0.99
2014_LEnv	881	MC	03	1	661	−1.1919						0.93
2014_LEnv	881	MC	04	1	661	−0.8969						0.90
2014_LEnv	881	MC	05	1	661	−1.2508						0.83
2014_LEnv	881	MC	06	1	661	0.0117						1.22
2014_LEnv	881	MC	07	1	661	−1.5353						0.87
2014_LEnv	881	MC	08	1	661	−0.8706						0.90
2014_LEnv	881	MC	09	1	661	−1.0685						0.92
2014_LEnv	881	MC	10	1	661	1.3390						1.15
2014_LEnv	881	MC	11	1	661	0.2670						1.14
2014_LEnv	881	CR	41	1	661	0.4330						1.00
2014_LEnv	881	MC	42	1	661	−0.8186						1.16
2014_LEnv	881	MC	43	1	661	−1.0224						1.02

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	881	CR	44	1	661	3.8478						0.93
2014_LEnv	881	CR	45	1	661	−0.7759						0.97
2014_LEnv	881	CR	46	1	661	2.5949						0.98
2014_LEnv	881	CR	47	1	661	0.8289						1.07
2014_LEnv	881	CR	48	1	661	2.4087						0.90
2014_LEnv	881	CR	49	1	661	2.6114						0.92
2014_LEnv	881	CR	50	1	661	1.6374						0.97
2014_LEnv	881	CR	51	1	661	−0.2464						0.97
2014_LEnv	881	CR	52	1	661	1.8279						1.14
2014_LEnv	881	CR	53	1	661	2.0603						0.84
2014_LEnv	881	CR	54	1	661	2.0238						0.93
2014_LEnv	881	CR	55	1	661	2.3084						0.90
2014_LEnv	882	MC	01	1	679	−1.0656						0.98
2014_LEnv	882	MC	02	1	679	−0.9421						0.88
2014_LEnv	882	MC	03	1	679	−1.4860						0.90
2014_LEnv	882	MC	04	1	679	−0.5026						1.12
2014_LEnv	882	MC	05	1	679	−1.1295						1.00
2014_LEnv	882	MC	06	1	679	0.1419						1.04
2014_LEnv	882	MC	07	1	679	−0.3124						1.02
2014_LEnv	882	MC	08	1	679	−0.7734						1.03
2014_LEnv	882	MC	09	1	679	0.4249						1.10
2014_LEnv	882	MC	10	1	679	−1.1854						1.00
2014_LEnv	882	MC	11	1	679	−2.4096						0.96
2014_LEnv	882	MC	41	1	679	0.3157						1.19
2014_LEnv	882	CR	42	1	679	0.7895						0.95
2014_LEnv	882	CR	43	1	679	0.9286						0.85
2014_LEnv	882	CR	44	1	679	−0.3274						0.94
2014_LEnv	882	MC	45	1	679	−0.4029						1.27

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	882	CR	46	1	679	0.4249						0.93
2014_LEnv	882	CR	47	1	679	1.2292						1.10
2014_LEnv	882	CR	48	1	679	0.6237						1.03
2014_LEnv	882	CR	49	1	679	0.7666						0.94
2014_LEnv	882	CR	50	1	679	−0.4563						0.90
2014_LEnv	882	CR	51	1	679	2.1354						0.98
2014_LEnv	882	CR	52	1	679	0.0984						0.93
2014_LEnv	882	CR	53	1	679	0.6760						0.95
2014_LEnv	882	CR	54	1	679	0.9680						0.96
2014_LEnv	883	MC	01	1	680	0.2173						1.13
2014_LEnv	883	MC	02	1	680	−1.9443						0.97
2014_LEnv	883	MC	03	1	680	−0.4347						1.17
2014_LEnv	883	MC	04	1	680	−1.4977						0.88
2014_LEnv	883	MC	05	1	680	−0.3795						1.07
2014_LEnv	883	MC	06	1	680	0.2691						1.08
2014_LEnv	883	MC	07	1	680	−0.8679						0.96
2014_LEnv	883	MC	08	1	680	0.9403						1.23
2014_LEnv	883	MC	09	1	680	−1.8361						0.81
2014_LEnv	883	CR	41	1	680	1.9849						1.06
2014_LEnv	883	MC	42	1	680	−1.7715						1.05
2014_LEnv	883	CR	43	1	680	2.1230						0.99
2014_LEnv	883	CR	44	1	680	0.8622						1.06
2014_LEnv	883	MC	45	1	680	−1.0779						0.90
2014_LEnv	883	CR	46	1	680	−0.8415						1.06
2014_LEnv	883	CR	47	1	680	−0.7550						0.98
2014_LEnv	883	CR	48	1	680	−0.5066						0.86
2014_LEnv	883	CR	49	1	680	0.7774						0.85
2014_LEnv	883	MC	50	1	680	0.4319						0.99

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	883	MC	51	1	680	1.6929						1.12
2014_LEnv	883	CR	52	1	680	1.3261						0.92
2014_LEnv	883	CR	53	1	680	1.3434						0.98
2014_LEnv	883	CR	54	1	680	−0.2246						0.89
2014_LEnv	883	CR	55	1	680	1.4136						0.93
2014_LEnv	883	CR	56	1	680	1.5684						0.86
2014_LEnv	884	MC	01	1	679	−1.2853						1.00
2014_LEnv	884	MC	02	1	679	−0.2881						1.01
2014_LEnv	884	MC	03	1	679	−1.0312						1.00
2014_LEnv	884	MC	04	1	679	0.1439						1.19
2014_LEnv	884	MC	05	1	679	−0.9955						0.96
2014_LEnv	884	MC	06	1	679	1.2477						1.05
2014_LEnv	884	MC	07	1	679	−0.8653						1.04
2014_LEnv	884	MC	08	1	679	−0.0156						1.23
2014_LEnv	884	MC	09	1	679	0.5219						1.18
2014_LEnv	884	MC	10	1	679	−1.6388						0.95
2014_LEnv	884	MC	41	1	679	0.5588						1.16
2014_LEnv	884	CR	42	1	679	1.3514						0.97
2014_LEnv	884	CR	43	1	679	−1.9981						0.98
2014_LEnv	884	MC	44	1	679	−2.9023						0.91
2014_LEnv	884	CR	45	1	679	1.6674						0.92
2014_LEnv	884	CR	46	1	679	1.7376						0.98
2014_LEnv	884	CR	47	1	679	0.3032						0.98
2014_LEnv	884	CR	48	1	679	−0.0084						0.96
2014_LEnv	884	CR	49	1	679	0.7228						0.97
2014_LEnv	884	CR	50	1	679	1.2477						0.88
2014_LEnv	884	CR	51	1	679	0.1294						0.83
2014_LEnv	884	CR	52	1	679	0.9695						0.92

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	884	CR	53	1	679	0.9067						0.96
2014_LEnv	884	CR	54	1	679	1.3602						0.88
2014_LEnv	884	CR	55	1	679	2.3757						0.92
2014_LEnv	884	CR	56	1	679	2.5225						1.00
2014_LEnv	885	MC	01	1	688	−0.1595						1.04
2014_LEnv	885	MC	02	1	688	−0.6454						1.02
2014_LEnv	885	MC	03	1	688	−1.0066						1.00
2014_LEnv	885	MC	04	1	688	0.4033						0.98
2014_LEnv	885	MC	05	1	688	0.2957						1.06
2014_LEnv	885	MC	06	1	688	0.2173						1.01
2014_LEnv	885	MC	07	1	688	−0.5996						1.01
2014_LEnv	885	MC	08	1	688	1.3862						1.08
2014_LEnv	885	MC	09	1	688	−1.5193						1.00
2014_LEnv	885	MC	41	1	688	−0.2169						1.11
2014_LEnv	885	CR	42	1	688	−1.2084						1.06
2014_LEnv	885	CR	43	1	688	0.0185						1.07
2014_LEnv	885	MC	44	1	688	−0.8416						1.12
2014_LEnv	885	MC	45	1	688	0.7117						1.10
2014_LEnv	885	CR	46	1	688	2.3619						0.86
2014_LEnv	885	CR	47	1	688	1.8364						1.09
2014_LEnv	885	CR	48	1	688	2.0756						0.96
2014_LEnv	885	CR	49	1	688	1.1279						0.93
2014_LEnv	885	CR	50	1	688	0.7494						0.86
2014_LEnv	885	CR	51	1	688	1.9697						0.89
2014_LEnv	885	CR	52	1	688	1.3862						0.81
2014_LEnv	885	CR	53	1	688	0.7721						0.85
2014_LEnv	885	CR	54	1	688	1.0705						0.94
2014_LEnv	886	MC	01	1	658	−1.0822						0.93

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	886	MC	02	1	658	−0.7065						1.03
2014_LEnv	886	MC	03	1	658	−0.3576						0.98
2014_LEnv	886	MC	04	1	658	−1.2062						0.88
2014_LEnv	886	MC	05	1	658	−1.5889						1.10
2014_LEnv	886	MC	06	1	658	0.4718						1.17
2014_LEnv	886	MC	07	1	658	−0.3194						1.00
2014_LEnv	886	MC	08	1	658	−0.1986						1.06
2014_LEnv	886	MC	09	1	658	−0.8670						1.02
2014_LEnv	886	MC	10	1	658	−0.0869						1.19
2014_LEnv	886	MC	11	1	658	1.1928						1.18
2014_LEnv	886	CR	41	1	658	0.3979						1.05
2014_LEnv	886	MC	42	1	658	−1.6006						0.97
2014_LEnv	886	MC	43	1	658	−0.5845						0.93
2014_LEnv	886	CR	44	1	658	1.1337						1.06
2014_LEnv	886	MC	45	1	658	0.0458						0.95
2014_LEnv	886	CR	46	1	658	0.1631						1.03
2014_LEnv	886	CR	47	1	658	−0.4425						0.94
2014_LEnv	886	CR	48	1	658	0.7428						0.86
2014_LEnv	886	CR	49	1	658	1.9993						0.88
2014_LEnv	886	CR	50	1	658	3.0602						1.01
2014_LEnv	886	CR	51	1	658	2.0231						1.03
2014_LEnv	886	CR	52	1	658	0.2217						0.83
2014_LEnv	886	CR	53	1	658	1.6224						0.95
2014_LEnv	886	CR	54	1	658	2.0715						0.93
2014_LEnv	886	CR	55	1	658	0.8277						0.96
2014_LEnv	887	MC	01	1	694	0.0007						0.93
2014_LEnv	887	MC	02	1	694	0.1161						1.37
2014_LEnv	887	MC	03	1	694	0.0224						1.09

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	887	MC	04	1	694	−1.0507						1.00
2014_LEnv	887	MC	05	1	694	1.1663						0.99
2014_LEnv	887	MC	06	1	694	0.0152						1.16
2014_LEnv	887	MC	07	1	694	0.9160						1.17
2014_LEnv	887	MC	08	1	694	−0.6703						1.10
2014_LEnv	887	MC	09	1	694	−1.0419						0.95
2014_LEnv	887	MC	10	1	694	−0.7739						1.06
2014_LEnv	887	MC	41	1	694	−0.7739						1.03
2014_LEnv	887	CR	42	1	694	1.3903						1.02
2014_LEnv	887	CR	43	1	694	0.6335						1.03
2014_LEnv	887	CR	44	1	694	1.5555						0.97
2014_LEnv	887	CR	45	1	694	−0.7019						0.90
2014_LEnv	887	CR	46	1	694	1.5460						0.98
2014_LEnv	887	CR	47	1	694	−0.6156						0.79
2014_LEnv	887	CR	48	1	694	−0.1514						0.86
2014_LEnv	887	CR	49	1	694	−0.9474						0.85
2014_LEnv	887	CR	50	1	694	2.3198						0.93
2014_LEnv	887	CR	51	1	694	1.4534						0.86
2014_LEnv	887	CR	52	1	694	0.1449						0.88
2014_LEnv	887	CR	53	1	694	2.1779						0.99
2014_LEnv	888	MC	01	1	671	−0.4400						1.14
2014_LEnv	888	MC	02	1	671	−1.1700						1.07
2014_LEnv	888	MC	03	1	671	−0.0500						1.17
2014_LEnv	888	MC	04	1	671	−0.3700						1.01
2014_LEnv	888	MC	05	1	671	1.2300						1.19
2014_LEnv	888	MC	06	1	671	−0.2300						1.13
2014_LEnv	888	MC	07	1	671	0.1000						0.95
2014_LEnv	888	MC	08	1	671	−0.3500						1.19

Test	Form	Type	Item	Max	N-Count	RID	S1	S2	S3	S4	S5	INFIT
2014_LEnv	888	MC	09	1	671	−0.8900						1.15
2014_LEnv	888	CR	41	1	671	−0.4611						0.99
2014_LEnv	888	CR	42	1	671	0.3900						0.98
2014_LEnv	888	CR	43	1	671	0.7800						0.74
2014_LEnv	888	CR	44	1	671	0.5300						0.74
2014_LEnv	888	MC	45	1	671	−0.8100						1.11
2014_LEnv	888	CR	46	1	671	−0.4800						0.97
2014_LEnv	888	MC	47	1	671	−1.7200						0.84
2014_LEnv	888	CR	48	5	671	1.3000	0.6600	−0.8500	−0.3400	0.1100	0.4200	0.95

Appendix E: DIF Statistics

The first four columns from the left contain the test name, form ID, item type, and item sequence number within the form. The next three columns contain the Mantel-Haenszel DIF statistical values (note that the MH Delta statistic cannot be calculated for CR items). The final two columns will only have values if the item displays possible moderate or severe DIF; if so, the degree of DIF (B/BB = moderate; C/CC = severe) and the favored group will be shown. Items without statistics are DNS (Do Not Score) status items.

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	871	MC	01	−0.77	2.99	−0.11		
2014_LEnv	871	MC	02	−0.75	2.54	−0.09		
2014_LEnv	871	MC	03	0.69	2.24	0.12		
2014_LEnv	871	MC	04	−0.30	0.38	−0.05		
2014_LEnv	871	MC	05	−0.20	0.18	−0.03		
2014_LEnv	871	MC	06	−0.17	0.16	−0.01		
2014_LEnv	871	MC	07	−0.43	0.98	−0.08		
2014_LEnv	871	MC	08	0.52	1.38	0.10		
2014_LEnv	871	MC	09	0.64	1.95	0.11		
2014_LEnv	871	MC	10	0.53	1.31	0.07		
2014_LEnv	871	MC	11	−0.18	0.11	−0.03		
2014_LEnv	871	CR	41		3.57	−0.14		
2014_LEnv	871	CR	42		2.36	0.09		
2014_LEnv	871	CR	43		0.32	0.05		
2014_LEnv	871	MC	44	0.12	0.08	0.02		
2014_LEnv	871	MC	45	−1.77	12.60	−0.26	C	M
2014_LEnv	871	CR	46		2.08	0.13		
2014_LEnv	871	CR	47		0.56	−0.07		
2014_LEnv	871	CR	48		6.71	0.20	BB	F
2014_LEnv	871	CR	49		0.00	−0.02		
2014_LEnv	871	CR	50		0.03	0.01		
2014_LEnv	871	CR	51		0.03	−0.01		
2014_LEnv	871	CR	52		0.18	0.05		
2014_LEnv	871	CR	53		0.27	−0.04		
2014_LEnv	871	CR	54		0.07	−0.01		
2014_LEnv	871	CR	55		0.58	0.07		
2014_LEnv	872	MC	01	1.31	3.99	0.15	B	F
2014_LEnv	872	MC	02	−0.18	0.17	−0.02		
2014_LEnv	872	MC	03	−0.27	0.23	−0.06		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	872	MC	04	−0.74	2.47	−0.10		
2014_LEnv	872	MC	05	−0.16	0.11	−0.02		
2014_LEnv	872	MC	06	0.69	0.57	0.06		
2014_LEnv	872	MC	07	−0.68	1.97	−0.10		
2014_LEnv	872	MC	08	1.17	6.16	0.16	B	F
2014_LEnv	872	MC	09	0.09	0.04	0.02		
2014_LEnv	872	MC	10	−0.03	0.00	0.00		
2014_LEnv	872	MC	11	0.34	0.41	0.06		
2014_LEnv	872	MC	12	−0.88	4.32	−0.18		
2014_LEnv	872	CR	41		6.63	−0.17		
2014_LEnv	872	CR	42		0.03	−0.01		
2014_LEnv	872	MC	43	0.23	0.22	0.03		
2014_LEnv	872	CR	44		5.80	0.15		
2014_LEnv	872	CR	45		0.03	0.02		
2014_LEnv	872	CR	46		2.27	0.09		
2014_LEnv	872	CR	47		5.13	0.16		
2014_LEnv	872	CR	48		0.01	0.01		
2014_LEnv	872	CR	49		0.49	−0.05		
2014_LEnv	872	MC	50	−0.28	0.38	−0.05		
2014_LEnv	872	CR	51		1.63	−0.09		
2014_LEnv	872	CR	52		0.84	−0.06		
2014_LEnv	872	CR	53		0.00	0.01		
2014_LEnv	872	CR	54		0.66	0.06		
2014_LEnv	873	MC	01	0.10	0.04	0.02		
2014_LEnv	873	MC	02	−0.41	0.66	−0.05		
2014_LEnv	873	MC	03	1.41	5.90	0.17	B	F
2014_LEnv	873	MC	04	0.31	0.37	0.03		
2014_LEnv	873	MC	05	0.98	3.67	0.19		
2014_LEnv	873	MC	06	0.14	0.10	0.01		
2014_LEnv	873	MC	07	−0.21	0.13	−0.03		
2014_LEnv	873	MC	08	0.17	0.13	0.02		
2014_LEnv	873	MC	09	−0.31	0.45	−0.05		
2014_LEnv	873	MC	10	1.31	4.37	0.16	B	F
2014_LEnv	873	CR	41		1.46	0.10		
2014_LEnv	873	CR	42		0.83	−0.07		
2014_LEnv	873	MC	43	−0.04	0.00	−0.01		
2014_LEnv	873	CR	44		0.62	−0.06		
2014_LEnv	873	MC	45	0.28	0.24	0.04		
2014_LEnv	873	MC	46	0.44	0.63	0.05		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	873	CR	47		5.33	−0.13		
2014_LEnv	873	CR	48		4.01	−0.14		
2014_LEnv	873	CR	49		0.03	0.00		
2014_LEnv	873	CR	50		1.24	−0.07		
2014_LEnv	873	CR	51		0.20	0.04		
2014_LEnv	873	CR	52		1.71	−0.09		
2014_LEnv	873	CR	53		0.06	0.02		
2014_LEnv	873	MC	54	0.14	0.07	0.00		
2014_LEnv	873	MC	55	−0.43	0.86	−0.07		
2014_LEnv	873	CR	56		0.16	0.01		
2014_LEnv	874	MC	01	0.69	2.47	0.14		
2014_LEnv	874	MC	02	−0.08	0.03	−0.01		
2014_LEnv	874	MC	03	0.47	1.04	0.12		
2014_LEnv	874	MC	04	0.20	0.22	0.05		
2014_LEnv	874	MC	05	−0.09	0.04	−0.01		
2014_LEnv	874	MC	06	−0.22	0.27	−0.03		
2014_LEnv	874	MC	07	−0.36	0.65	−0.04		
2014_LEnv	874	MC	08	−0.85	3.39	−0.12		
2014_LEnv	874	MC	09	−0.72	1.43	−0.06		
2014_LEnv	874	MC	10	−0.11	0.05	0.02		
2014_LEnv	874	MC	11	0.09	0.04	0.04		
2014_LEnv	874	CR	41		0.02	−0.01		
2014_LEnv	874	CR	42		0.23	0.03		
2014_LEnv	874	MC	43	−1.38	9.60	−0.21	B	M
2014_LEnv	874	MC	44	0.33	0.61	0.06		
2014_LEnv	874	CR	45		0.87	0.07		
2014_LEnv	874	CR	46		0.05	0.03		
2014_LEnv	874	CR	47		2.10	0.11		
2014_LEnv	874	CR	48		0.38	0.06		
2014_LEnv	874	CR	49		0.03	0.03		
2014_LEnv	874	CR	50		0.20	−0.03		
2014_LEnv	874	CR	51		1.44	−0.08		
2014_LEnv	874	MC	52	0.75	2.69	0.14		
2014_LEnv	874	CR	53		0.05	0.05		
2014_LEnv	874	MC	54	−0.42	0.82	−0.06		
2014_LEnv	874	CR	55		1.51	0.12		
2014_LEnv	875	MC	01	0.32	0.47	0.07		
2014_LEnv	875	MC	02	−1.65	10.85	−0.24	C	M
2014_LEnv	875	MC	03	0.18	0.17	0.03		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	875	MC	04	−0.18	0.14	−0.05		
2014_LEnv	875	MC	05	0.68	0.41	0.07		
2014_LEnv	875	MC	06	−0.19	0.20	−0.02		
2014_LEnv	875	MC	07	0.41	0.57	0.06		
2014_LEnv	875	MC	08	1.11	3.28	0.14		
2014_LEnv	875	MC	09	−0.16	0.13	0.00		
2014_LEnv	875	MC	10	−0.50	1.28	−0.09		
2014_LEnv	875	MC	11	0.10	0.05	0.02		
2014_LEnv	875	MC	12	−0.37	0.67	−0.04		
2014_LEnv	875	CR	41		0.02	−0.01		
2014_LEnv	875	CR	42		0.32	0.03		
2014_LEnv	875	CR	43		1.34	−0.09		
2014_LEnv	875	MC	44	−1.36	8.11	−0.23	B	M
2014_LEnv	875	MC	45	−0.07	0.03	0.01		
2014_LEnv	875	CR	46		1.03	0.07		
2014_LEnv	875	CR	47		0.01	−0.01		
2014_LEnv	875	CR	48		0.03	0.01		
2014_LEnv	875	CR	49		0.26	0.04		
2014_LEnv	875	CR	50		4.20	0.14		
2014_LEnv	875	CR	51		0.91	0.05		
2014_LEnv	875	CR	52		0.41	0.03		
2014_LEnv	875	CR	53		0.98	0.07		
2014_LEnv	876	MC	01	0.47	0.92	0.06		
2014_LEnv	876	MC	02	−0.10	0.05	−0.02		
2014_LEnv	876	MC	03	0.10	0.05	0.01		
2014_LEnv	876	MC	04	0.52	0.69	0.06		
2014_LEnv	876	MC	05	−0.26	0.41	−0.05		
2014_LEnv	876	MC	06	0.58	1.69	0.10		
2014_LEnv	876	MC	07	0.09	0.05	0.00		
2014_LEnv	876	MC	08	0.55	1.47	0.09		
2014_LEnv	876	MC	09	−0.85	2.74	−0.12		
2014_LEnv	876	MC	10	0.30	0.53	0.05		
2014_LEnv	876	MC	11	0.51	1.29	0.09		
2014_LEnv	876	CR	41		0.01	0.00		
2014_LEnv	876	CR	42		3.63	−0.12		
2014_LEnv	876	CR	43		1.40	−0.09		
2014_LEnv	876	CR	44		2.11	−0.11		
2014_LEnv	876	MC	45	−0.78	2.84	−0.13		
2014_LEnv	876	CR	46		0.10	0.02		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	876	CR	47		0.40	0.04		
2014_LEnv	876	CR	48		0.06	−0.02		
2014_LEnv	876	CR	49		0.48	0.05		
2014_LEnv	876	CR	50		0.18	0.02		
2014_LEnv	876	CR	51		0.19	0.02		
2014_LEnv	876	CR	52		3.82	0.15		
2014_LEnv	876	CR	53		0.05	0.03		
2014_LEnv	876	CR	54		0.04	0.00		
2014_LEnv	876	MC	55	−1.03	4.11	−0.13	B	M
2014_LEnv	877	MC	01	−0.25	0.29	−0.06		
2014_LEnv	877	MC	02	1.07	5.85	0.18	B	F
2014_LEnv	877	MC	03	−0.21	0.24	−0.05		
2014_LEnv	877	MC	04	−1.04	5.40	−0.17	B	M
2014_LEnv	877	MC	05	0.26	0.25	0.03		
2014_LEnv	877	MC	06	−0.71	2.70	−0.13		
2014_LEnv	877	MC	07	−0.67	1.60	−0.08		
2014_LEnv	877	MC	08	0.55	1.62	0.07		
2014_LEnv	877	MC	09	−0.83	3.57	−0.13		
2014_LEnv	877	MC	10	0.39	0.89	0.06		
2014_LEnv	877	MC	11	−0.75	2.62	−0.10		
2014_LEnv	877	MC	12	0.18	0.14	0.04		
2014_LEnv	877	CR	41		0.21	−0.05		
2014_LEnv	877	CR	42		0.02	−0.01		
2014_LEnv	877	MC	43	−0.60	1.83	−0.10		
2014_LEnv	877	CR	44		10.22	−0.23	BB	M
2014_LEnv	877	CR	45		0.31	−0.03		
2014_LEnv	877	CR	46		0.53	0.05		
2014_LEnv	877	CR	47		0.69	0.05		
2014_LEnv	877	CR	48		6.07	0.18	BB	F
2014_LEnv	877	CR	49		0.21	0.03		
2014_LEnv	877	CR	50		1.29	0.06		
2014_LEnv	877	CR	51		1.17	0.10		
2014_LEnv	877	CR	52		1.05	0.08		
2014_LEnv	877	CR	53		0.56	0.06		
2014_LEnv	877	CR	54		1.08	0.08		
2014_LEnv	878	MC	01	−0.62	1.25	−0.10		
2014_LEnv	878	MC	02	0.43	0.47	0.06		
2014_LEnv	878	MC	03	0.79	3.62	0.16		
2014_LEnv	878	MC	04	−0.58	1.76	−0.10		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	878	MC	05	−0.55	1.68	−0.11		
2014_LEnv	878	MC	06	−0.22	0.27	−0.05		
2014_LEnv	878	MC	07	−0.51	1.13	−0.10		
2014_LEnv	878	MC	08	0.67	1.19	0.07		
2014_LEnv	878	MC	09	0.90	3.41	0.15		
2014_LEnv	878	MC	10	−0.54	1.55	−0.10		
2014_LEnv	878	MC	11	−0.10	0.05	−0.01		
2014_LEnv	878	MC	12	0.29	0.33	0.02		
2014_LEnv	878	CR	41		0.00	0.00		
2014_LEnv	878	CR	42		8.97	−0.23	BB	M
2014_LEnv	878	MC	43	−0.60	1.86	−0.12		
2014_LEnv	878	CR	44		0.88	−0.08		
2014_LEnv	878	CR	45		1.05	−0.08		
2014_LEnv	878	CR	46		0.65	0.06		
2014_LEnv	878	CR	47		0.02	0.01		
2014_LEnv	878	CR	48		0.08	−0.02		
2014_LEnv	878	CR	49		2.39	0.11		
2014_LEnv	878	CR	50		0.49	0.06		
2014_LEnv	878	MC	51	0.31	0.48	0.07		
2014_LEnv	878	CR	52		2.39	0.12		
2014_LEnv	878	MC	53	0.26	0.30	0.04		
2014_LEnv	878	CR	54		4.37	0.17	BB	F
2014_LEnv	879	MC	01	−0.92	3.74	−0.12		
2014_LEnv	879	MC	02	0.06	0.02	0.04		
2014_LEnv	879	MC	03	−0.59	1.09	−0.06		
2014_LEnv	879	MC	04	0.02	0.00	0.02		
2014_LEnv	879	MC	05	−0.13	0.09	−0.02		
2014_LEnv	879	MC	06	−0.44	1.01	−0.06		
2014_LEnv	879	MC	07	−0.22	0.14	−0.03		
2014_LEnv	879	MC	08	0.72	2.41	0.13		
2014_LEnv	879	MC	09	−0.91	3.67	−0.13		
2014_LEnv	879	MC	10	−0.16	0.14	−0.04		
2014_LEnv	879	MC	11	−0.19	0.17	−0.01		
2014_LEnv	879	CR	41		2.74	−0.13		
2014_LEnv	879	CR	42		0.04	−0.02		
2014_LEnv	879	CR	43		4.78	0.16		
2014_LEnv	879	CR	44		1.48	0.10		
2014_LEnv	879	CR	45		0.64	−0.06		
2014_LEnv	879	CR	46		5.36	0.14		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	879	MC	47	−0.07	0.02	0.00		
2014_LEnv	879	MC	48	−0.74	1.41	−0.07		
2014_LEnv	879	MC	49	0.04	0.01	0.01		
2014_LEnv	879	CR	50		0.00	0.00		
2014_LEnv	879	CR	51		2.02	0.10		
2014_LEnv	879	CR	52		4.45	0.17		
2014_LEnv	879	CR	53		0.99	0.10		
2014_LEnv	879	CR	54		0.04	−0.01		
2014_LEnv	879	MC	55	−0.38	0.61	−0.04		
2014_LEnv	880	MC	01	−0.32	0.42	−0.08		
2014_LEnv	880	MC	02	−0.45	1.14	−0.07		
2014_LEnv	880	MC	03	0.34	0.66	0.07		
2014_LEnv	880	MC	04	−0.06	0.02	−0.02		
2014_LEnv	880	MC	05	0.67	2.17	0.12		
2014_LEnv	880	MC	06	−0.47	0.88	−0.06		
2014_LEnv	880	MC	07	−0.48	1.11	−0.10		
2014_LEnv	880	MC	08	−0.20	0.22	−0.02		
2014_LEnv	880	MC	09	0.81	3.26	0.15		
2014_LEnv	880	MC	10	1.09	5.38	0.15	B	F
2014_LEnv	880	MC	11	0.47	1.33	0.07		
2014_LEnv	880	MC	41	−0.47	0.58	−0.05		
2014_LEnv	880	CR	42		0.66	0.07		
2014_LEnv	880	CR	43		2.08	−0.11		
2014_LEnv	880	CR	44		0.29	−0.03		
2014_LEnv	880	CR	45		0.28	−0.03		
2014_LEnv	880	MC	46	0.38	0.79	0.05		
2014_LEnv	880	CR	47		0.27	0.05		
2014_LEnv	880	CR	48		1.80	−0.08		
2014_LEnv	880	CR	49		0.27	0.04		
2014_LEnv	880	CR	50		0.23	−0.03		
2014_LEnv	880	CR	51		0.58	−0.07		
2014_LEnv	880	CR	52		1.29	0.08		
2014_LEnv	880	CR	53		1.60	0.10		
2014_LEnv	880	CR	54		0.36	−0.05		
2014_LEnv	880	CR	55		5.76	−0.16		
2014_LEnv	881	MC	01	−0.59	1.88	−0.12		
2014_LEnv	881	MC	02	0.20	0.15	0.02		
2014_LEnv	881	MC	03	−0.73	1.85	−0.11		
2014_LEnv	881	MC	04	−0.46	0.78	−0.05		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	881	MC	05	−0.43	0.53	−0.04		
2014_LEnv	881	MC	06	0.02	0.00	0.03		
2014_LEnv	881	MC	07	−1.17	3.33	−0.15		
2014_LEnv	881	MC	08	0.03	0.00	−0.01		
2014_LEnv	881	MC	09	−1.39	6.20	−0.21	B	M
2014_LEnv	881	MC	10	0.07	0.02	0.02		
2014_LEnv	881	MC	11	0.25	0.35	0.06		
2014_LEnv	881	CR	41		2.48	0.14		
2014_LEnv	881	MC	42	−0.30	0.42	−0.05		
2014_LEnv	881	MC	43	0.55	1.27	0.10		
2014_LEnv	881	CR	44		0.02	0.00		
2014_LEnv	881	CR	45		10.67	0.26	CC	F
2014_LEnv	881	CR	46		0.00	−0.02		
2014_LEnv	881	CR	47		0.26	0.03		
2014_LEnv	881	CR	48		0.95	−0.09		
2014_LEnv	881	CR	49		0.07	0.04		
2014_LEnv	881	CR	50		0.72	0.05		
2014_LEnv	881	CR	51		1.79	0.11		
2014_LEnv	881	CR	52		0.40	0.05		
2014_LEnv	881	CR	53		0.00	−0.02		
2014_LEnv	881	CR	54		0.00	0.03		
2014_LEnv	881	CR	55		3.58	−0.16		
2014_LEnv	882	MC	01	−0.38	0.56	−0.05		
2014_LEnv	882	MC	02	−1.02	3.64	−0.12		
2014_LEnv	882	MC	03	−0.43	0.59	−0.03		
2014_LEnv	882	MC	04	0.43	0.99	0.07		
2014_LEnv	882	MC	05	0.05	0.01	0.05		
2014_LEnv	882	MC	06	−0.98	4.92	−0.19		
2014_LEnv	882	MC	07	−0.23	0.24	−0.05		
2014_LEnv	882	MC	08	0.40	0.69	0.05		
2014_LEnv	882	MC	09	−0.16	0.14	−0.04		
2014_LEnv	882	MC	10	0.42	0.71	0.07		
2014_LEnv	882	MC	11	1.66	4.55	0.17		
2014_LEnv	882	MC	41	−0.18	0.19	−0.04		
2014_LEnv	882	CR	42		0.08	0.00		
2014_LEnv	882	CR	43		2.73	0.11		
2014_LEnv	882	CR	44		0.49	−0.03		
2014_LEnv	882	MC	45	−0.86	4.11	−0.17		
2014_LEnv	882	CR	46		0.64	−0.05		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	882	CR	47		4.55	0.15		
2014_LEnv	882	CR	48		1.07	0.09		
2014_LEnv	882	CR	49		0.05	0.03		
2014_LEnv	882	CR	50		0.32	−0.04		
2014_LEnv	882	CR	51		0.65	0.09		
2014_LEnv	882	CR	52		0.11	−0.02		
2014_LEnv	882	CR	53		0.09	0.00		
2014_LEnv	882	CR	54		1.09	0.07		
2014_LEnv	883	MC	01	−0.03	0.01	−0.01		
2014_LEnv	883	MC	02	0.11	0.03	0.03		
2014_LEnv	883	MC	03	−0.04	0.01	0.01		
2014_LEnv	883	MC	04	−0.05	0.01	−0.03		
2014_LEnv	883	MC	05	0.04	0.01	0.01		
2014_LEnv	883	MC	06	−1.02	5.41	−0.19	B	M
2014_LEnv	883	MC	07	0.56	1.16	0.09		
2014_LEnv	883	MC	08	−1.04	5.78	−0.19	B	M
2014_LEnv	883	MC	09	−0.18	0.07	−0.03		
2014_LEnv	883	CR	41		7.76	−0.24	BB	M
2014_LEnv	883	MC	42	−0.57	1.01	−0.04		
2014_LEnv	883	CR	43		0.89	−0.06		
2014_LEnv	883	CR	44		0.42	0.05		
2014_LEnv	883	MC	45	0.14	0.06	0.00		
2014_LEnv	883	CR	46		0.03	0.03		
2014_LEnv	883	CR	47		3.91	−0.15		
2014_LEnv	883	CR	48		0.05	0.02		
2014_LEnv	883	CR	49		3.06	0.12		
2014_LEnv	883	MC	50	0.52	1.21	0.11		
2014_LEnv	883	MC	51	1.68	11.05	0.24	C	F
2014_LEnv	883	CR	52		6.65	0.22	BB	F
2014_LEnv	883	CR	53		6.47	0.21	BB	F
2014_LEnv	883	CR	54		2.29	0.07		
2014_LEnv	883	CR	55		7.06	−0.23	BB	M
2014_LEnv	883	CR	56		0.79	−0.08		
2014_LEnv	884	MC	01	−0.48	0.85	−0.06		
2014_LEnv	884	MC	02	−0.10	0.05	−0.03		
2014_LEnv	884	MC	03	−0.50	1.02	−0.11		
2014_LEnv	884	MC	04	−0.93	5.08	−0.17		
2014_LEnv	884	MC	05	0.94	3.43	0.10		
2014_LEnv	884	MC	06	−0.38	0.67	−0.07		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	884	MC	07	−0.02	0.00	0.00		
2014_LEnv	884	MC	08	−0.03	0.01	−0.03		
2014_LEnv	884	MC	09	−0.43	1.07	−0.08		
2014_LEnv	884	MC	10	0.51	0.74	0.07		
2014_LEnv	884	MC	41	0.92	4.66	0.16		
2014_LEnv	884	CR	42		0.01	0.02		
2014_LEnv	884	CR	43		1.49	−0.07		
2014_LEnv	884	MC	44	−0.10	0.01	0.00		
2014_LEnv	884	CR	45		1.37	−0.10		
2014_LEnv	884	CR	46		0.37	−0.06		
2014_LEnv	884	CR	47		9.92	0.24	BB	F
2014_LEnv	884	CR	48		4.01	0.15		
2014_LEnv	884	CR	49		0.36	−0.03		
2014_LEnv	884	CR	50		0.00	0.01		
2014_LEnv	884	CR	51		2.73	−0.11		
2014_LEnv	884	CR	52		0.27	0.07		
2014_LEnv	884	CR	53		0.02	−0.01		
2014_LEnv	884	CR	54		0.88	0.05		
2014_LEnv	884	CR	55		0.09	−0.02		
2014_LEnv	884	CR	56		0.32	0.06		
2014_LEnv	885	MC	01	−0.45	1.10	−0.09		
2014_LEnv	885	MC	02	0.09	0.05	0.01		
2014_LEnv	885	MC	03	−1.71	12.61	−0.29	C	M
2014_LEnv	885	MC	04	0.43	1.01	0.05		
2014_LEnv	885	MC	05	−0.33	0.63	−0.08		
2014_LEnv	885	MC	06	−0.91	4.34	−0.14		
2014_LEnv	885	MC	07	−0.52	1.36	−0.09		
2014_LEnv	885	MC	08	−1.58	11.17	−0.23	C	M
2014_LEnv	885	MC	09	0.41	0.56	0.01		
2014_LEnv	885	MC	41	−0.09	0.05	0.01		
2014_LEnv	885	CR	42		4.77	0.13		
2014_LEnv	885	CR	43		0.07	0.02		
2014_LEnv	885	MC	44	−0.43	0.97	−0.06		
2014_LEnv	885	MC	45	0.05	0.01	0.03		
2014_LEnv	885	CR	46		0.23	0.05		
2014_LEnv	885	CR	47		4.61	0.17		
2014_LEnv	885	CR	48		0.52	0.06		
2014_LEnv	885	CR	49		1.10	0.06		
2014_LEnv	885	CR	50		0.37	0.02		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	885	CR	51		9.44	0.19	BB	F
2014_LEnv	885	CR	52		9.17	0.18	BB	F
2014_LEnv	885	CR	53		1.82	0.11		
2014_LEnv	885	CR	54		1.01	−0.05		
2014_LEnv	886	MC	01	−0.20	0.14	−0.02		
2014_LEnv	886	MC	02	−0.55	1.42	−0.07		
2014_LEnv	886	MC	03	−1.15	6.38	−0.18	B	M
2014_LEnv	886	MC	04	−0.21	0.16	−0.01		
2014_LEnv	886	MC	05	0.91	2.79	0.13		
2014_LEnv	886	MC	06	−0.29	0.50	−0.05		
2014_LEnv	886	MC	07	−0.38	0.78	−0.06		
2014_LEnv	886	MC	08	0.02	0.00	0.04		
2014_LEnv	886	MC	09	0.52	1.24	0.11		
2014_LEnv	886	MC	10	0.12	0.09	0.05		
2014_LEnv	886	MC	11	0.49	1.25	0.11		
2014_LEnv	886	CR	41		1.06	0.09		
2014_LEnv	886	MC	42	1.38	6.04	0.22	B	F
2014_LEnv	886	MC	43	−0.07	0.03	0.03		
2014_LEnv	886	CR	44		1.83	0.10		
2014_LEnv	886	MC	45	−0.35	0.64	−0.03		
2014_LEnv	886	CR	46		4.05	−0.15		
2014_LEnv	886	CR	47		2.09	0.12		
2014_LEnv	886	CR	48		0.03	0.01		
2014_LEnv	886	CR	49		3.82	0.18		
2014_LEnv	886	CR	50		0.04	−0.01		
2014_LEnv	886	CR	51		0.07	0.02		
2014_LEnv	886	CR	52		0.03	0.01		
2014_LEnv	886	CR	53		0.26	−0.04		
2014_LEnv	886	CR	54		8.32	−0.19	BB	M
2014_LEnv	886	CR	55		0.18	0.03		
2014_LEnv	887	MC	01	−0.98	4.72	−0.15		
2014_LEnv	887	MC	02	0.08	0.04	0.02		
2014_LEnv	887	MC	03	0.35	0.63	0.05		
2014_LEnv	887	MC	04	0.56	1.38	0.09		
2014_LEnv	887	MC	05	−0.44	0.84	−0.06		
2014_LEnv	887	MC	06	−0.25	0.38	−0.04		
2014_LEnv	887	MC	07	−0.01	0.00	0.01		
2014_LEnv	887	MC	08	−0.14	0.10	−0.04		
2014_LEnv	887	MC	09	−0.96	3.84	−0.14		

Test	Form	Type	Item	MH Delta	MH Chi-Sq	Effect Size	DIF Category	Favored Group
2014_LEnv	887	MC	10	0.60	1.76	0.11		
2014_LEnv	887	MC	41	−0.21	0.23	−0.05		
2014_LEnv	887	CR	42		0.65	0.04		
2014_LEnv	887	CR	43		8.77	−0.21	BB	M
2014_LEnv	887	CR	44		1.54	0.10		
2014_LEnv	887	CR	45		4.31	0.14		
2014_LEnv	887	CR	46		5.53	−0.16		
2014_LEnv	887	CR	47		0.11	0.01		
2014_LEnv	887	CR	48		1.10	0.07		
2014_LEnv	887	CR	49		0.82	0.06		
2014_LEnv	887	CR	50		3.94	0.13		
2014_LEnv	887	CR	51		0.15	0.02		
2014_LEnv	887	CR	52		0.88	−0.06		
2014_LEnv	887	CR	53		2.72	0.11		
2014_LEnv	888	MC	01	0.23	0.27	0.05		
2014_LEnv	888	MC	02	0.01	0.00	0.01		
2014_LEnv	888	MC	03	0.03	0.00	0.01		
2014_LEnv	888	MC	04	0.48	1.17	0.09		
2014_LEnv	888	MC	05	0.68	2.26	0.11		
2014_LEnv	888	MC	06	−0.25	0.33	−0.07		
2014_LEnv	888	MC	07	−0.12	0.06	0.00		
2014_LEnv	888	MC	08	0.13	0.09	−0.01		
2014_LEnv	888	MC	09	0.04	0.01	0.01		
2014_LEnv	888	CR	41		1.42	0.10		
2014_LEnv	888	CR	42		1.32	−0.06		
2014_LEnv	888	CR	43		0.02	0.00		
2014_LEnv	888	CR	44		0.47	−0.03		
2014_LEnv	888	MC	45	0.68	2.06	0.09		
2014_LEnv	888	CR	46		3.37	−0.13		
2014_LEnv	888	MC	47	−1.23	3.10	−0.13		
2014_LEnv	888	CR	48		0.06	−0.02		

DIF category meanings: A/AA = negligible, B/BB = moderate, C/CC = severe.

Favored group meanings: F = Female, M = Male.

Appendix F: Operational Test Maps

January 2014

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
1	MC	1	1	4	1	1.2	0.34	0.36	1.1877	
2	MC	1	1	4	2	2.1	0.61	0.35	-0.2687	
3	MC	1	1	4	2	2.1	0.71	0.34	-0.8064	
4	MC	1	1	4	2	2.1	0.71	0.40	-0.7598	
5	MC	1	1	4	3	3.1	0.66	0.48	-0.5548	
6	MC	1	1	4	3	3.1	0.68	0.42	-0.5763	
7	MC	1	1	4	5	5.2	0.78	0.35	-1.3014	
8	MC	1	1	4	5	5.1	0.54	0.49	0.1176	
9	MC	1	1	4	5	5.2	0.71	0.54	-0.7657	
10	MC	1	1	4	5	5.1	0.41	0.21	0.7489	
11	MC	1	1	4	3	3.1	0.89	0.41	-2.2152	
12	MC	1	1	4	6	6.3	0.65	0.40	-0.4770	
13	MC	1	1	4	5	5.2	0.75	0.47	-1.0749	
14	MC	1	1	4	5	5.2	0.59	0.38	-0.1564	
15	MC	1	1	4	5	5.1	0.78	0.39	-1.2369	
16	MC	1	1	4	6	6.1	0.62	0.57	-0.3066	
17	MC	1	1	4	6	6.1	0.69	0.49	-0.6916	
18	MC	1	1	4	6	6.2	0.64	0.23	-0.3636	
19	MC	1	1	4	6	6.2	0.80	0.49	-1.3256	
20	MC	1	1	4	6	6.0	0.83	0.51	-1.6047	
21	MC	1	1	4	6	6.1	0.73	0.49	-0.8748	
22	MC	1	1	4	7	7.3	0.79	0.54	-1.3710	
23	MC	1	1	4	6	6.1	0.65	0.34	-0.4496	
24	MC	1	1	4	7	7.0	0.90	0.45	-2.3332	
25	MC	1	1	4	7	7.0	0.54	0.27	0.1228	
26	MC	1	1	4	3	3.1	0.59	0.42	-0.2500	
27	MC	1	1	4	3	3.1	0.47	0.33	0.3300	
28	MC	1	1	4	7	7.1	0.89	0.38	-2.3210	
29	MC	1	1	4	7	7.1	0.58	0.42	-0.0864	
30	MC	1	1	4	2	2.1	0.83	0.43	-1.6285	
31	MC	1	1	1	2	2.3	0.54	0.45	0.1251	
32	MC	1	1	1	3	3.1	0.43	0.39	0.6366	
33	MC	1	1	1	2	2.3	0.65	0.57	-0.4442	
34	MC	1	1	4	2	2.2	0.78	0.43	-1.1941	
35	MC	1	1	4	2	2.2	0.31	0.42	1.2739	

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
36	MC	1	1	4	4	4.1	0.50	0.46	0.2800	
37	MC	1	1	4	3	3.1	0.51	0.46	0.2407	
38	MC	1	1	4	2	2.2	0.42	0.35	0.6800	
39	MC	1	1	4	2	2.1	0.33	0.29	1.0700	
40	MC	1	1	4	3	3.0	0.66	0.56	-0.4889	
41	MC	1	1	4	1	1.3	0.40	0.45	0.8541	
42	MC	1	1	4	5	5.3	0.66	0.49	-0.5183	
43	MC	1	1	4	1	1.2	0.83	0.49	-1.6790	
44	CR	1	1	1	3	3.1	0.81	0.36	-1.5000	
45	CR	1	1	1	3	3.1	0.57	0.36	-0.0666	
46	CR	1	1	1	3	3.1	0.77	0.34	-1.1999	
47	MC	1	1	4	6	6.1	0.66	0.48	-0.5729	
48	CR	1	1	4	6	6.1	0.68	0.55	-0.6476	
49	MC	1	1	4	1	1.1	0.73	0.51	-0.9443	
50	MC	1	1	4	1	1.1	0.78	0.43	-1.2862	
51	CR	1	1	4	1	1.1	0.66	0.40	-0.5670	
52	CR	1	1	4	2	2.2	0.22	0.42	1.8435	
53	CR	1	1	4	7	7.2	0.72	0.47	-0.8436	
54	CR	1	4	4	1	1.2	0.41	0.51	0.6300	
55	CR	1	1	4	7	7.2	0.60	0.47	-0.2034	
56	CR	1	1	4	1	1.2	0.26	0.56	1.6506	
57	CR	1	1	4	1	1.2	0.28	0.56	1.5148	
58	CR	1	1	4	1	1.2	0.35	0.61	1.0865	
59	CR	1	1	4	1	1.2	0.36	0.65	1.0429	
60	CR	1	1	4	1	1.2	0.46	0.62	0.4916	
61	CR	1	1	Appendix A			0.51	0.52	0.2503	
62	CR	1	1	1	2	2.3	0.57	0.61	-0.0110	
63	CR	1	1	Appendix A			0.72	0.57	-0.8252	
64	CR	1	1	4	4	4.1	0.41	0.44	0.7785	
65	CR	1	1	4	4	4.1	0.13	0.39	2.5718	
66	CR	1	1	4	4	4.1	0.46	0.54	0.4952	
67	CR	1	1	4	4	4.1	0.43	0.55	0.6885	
68	CR	1	1	4	5	5.2	0.20	0.45	2.0714	
69	CR	1	1	4	5	5.2	0.48	0.47	0.3863	
70	CR	1	1	4	5	5.2	0.15	0.45	2.4782	
71	CR	1	1	4	7	7.1	0.30	0.49	1.3620	
72	CR	1	1	4	7	7.1	0.37	0.59	0.9733	
73	MC	1	1	Lab		2	0.47	0.46	0.4641	
74	MC	1	1	Lab		5	0.72	0.48	-0.8623	

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
75	MC	1	1	Lab		5	0.73	0.53	-0.9622	
76	MC	1	1	Lab		5	0.30	0.52	1.3148	
77	CR	1	1	Lab		5	0.37	0.56	0.9394	
78	CR	1	1	Lab		1	0.72	0.51	-0.8188	
79	CR	1	1	Lab		1	0.34	0.47	1.1068	
80	CR	1	1	Lab		3	0.45	0.47	0.5407	
81	MC	1	1	Lab		3	0.80	0.42	-1.3704	
82	MC	1	1	Lab		3	0.66	0.45	-0.5059	
83	CR	1	1	Lab		3	0.85	0.50	-1.7286	
84	CR	1	1	Lab		3	0.53	0.42	-0.0400	
85	CR	1	1	Lab		2	0.27	0.51	1.5179	

June 2014

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
1	MC	1	1	4	1	1.2	0.47	0.40	0.4275	1.12
2	MC	1	1	4	1	1.3	0.69	0.45	-0.5875	0.94
3	MC	1	1	4	1	1.0	0.72	0.41	-0.8872	1.09
4	MC	1	1	4	1	1.2	0.68	0.41	-0.6077	1.04
5	MC	1	1	4	6	6.0	0.53	0.42	0.1626	1.00
6	MC	1	1	4	2	2.1	0.54	0.35	0.1210	1.14
7	MC	1	1	4	1	1.1	0.83	0.41	-1.5937	0.94
8	MC	1	1	4	4	4.1	0.72	0.40	-0.7769	0.99
9	MC	1	1	4	5	5.2	0.77	0.39	-1.1998	1.08
10	MC	1	1	4	2	2.1	0.40	0.31	0.8060	1.11
11	MC	1	1	4	2	2.0	0.23	0.28	1.9305	1.15
12	MC	1	1	4	2	2.1	0.41	0.43	0.7462	1.02
13	MC	1	1	4	3	3.1	0.51	0.43	0.2464	1.07
14	MC	1	1	4	3	3.0	0.49	0.39	0.3341	1.13
15	MC	1	1	4	3	3.1	0.77	0.45	-1.1606	0.96
16	MC	1	1	4	5	5.1	0.31	0.38	1.2678	1.05
17	MC	1	1	4	5	5.2	0.72	0.44	-0.8384	0.98
18	MC	1	1	4	2	2.1	0.64	0.42	-0.4645	1.11
19	MC	1	1	4	5	5.1	0.65	0.43	-0.4663	1.05
20	MC	1	1	4	7	7.1	0.85	0.44	-1.8279	0.96
21	MC	1	1	4	5	5.2	0.50	0.48	0.2793	1.01
22	MC	1	1	4	5	5.2	0.62	0.47	-0.2405	0.94
23	MC	1	1	4	7	7.0	0.69	0.45	-0.6770	1.00
24	MC	1	1	4	7	7.3	0.49	0.43	0.3506	1.08
25	MC	1	1	4	7	7.1	0.83	0.45	-1.4540	0.89
26	MC	1	1	4	6	6.1	0.88	0.41	-2.1594	0.95
27	MC	1	1	4	7	7.1	0.76	0.57	-1.0943	0.86
28	MC	1	1	4	7	7.1	0.80	0.55	-1.4024	0.81
29	MC	1	1	4	2	2.2	0.70	0.26	-0.7167	1.30
30	MC	1	1	4	2	2.1	0.73	0.44	-0.8754	0.98
31	MC	1	1	4	1	1.1	0.68	0.49	-0.6070	1.01
32	MC	1	1	4	1	1.1	0.57	0.47	0.0032	1.05
33	MC	1	1	4	7	7.1	0.38	0.27	0.8657	1.03
34	MC	1	1	4	1	1.2	0.38	0.43	0.8960	1.02
35	MC	1	1	4	2	2.1	0.79	0.38	-1.3089	1.03
36	MC	1	1	4	5	5.1	0.41	0.34	0.7542	1.14
37	MC	1	1	4	1	1.1	0.73	0.55	-0.9526	0.90

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
38	MC	1	1	1	3	3.1	0.74	0.40	-0.8644	0.98
39	MC	1	1	1	3	3.1	0.78	0.34	-1.1529	1.02
40	MC	1	1	4	1	1.1	0.82	0.51	-1.5025	0.84
41	MC	1	1	4	6	6.1	0.62	0.46	-0.3192	0.99
42	MC	1	1	4	5	5.3	0.52	0.49	0.2541	1.02
43	MC	1	1	4	5	5.3	0.48	0.39	0.4605	1.17
44	CR	1	1	Appendix A			0.33	0.47	1.2155	1.01
45	CR	1	1	1	3	3.1	0.91	0.27	-2.4308	1.00
46	CR	1	1	1	3	3.1	0.81	0.23	-1.4628	1.14
47	MC	1	1	1	3	3.1	0.83	0.44	-1.5595	0.92
48	CR	1	1	4	5	5.1	0.25	0.45	1.5693	0.91
49	MC	1	1	4	5	5.1	0.25	0.28	1.6126	1.06
50	MC	1	1	4	4	4.1	0.32	0.36	1.1701	1.01
51	CR	1	1	4	4	4.1	0.84	0.33	-1.5907	0.98
52	CR	1	1	4	4	4.1	0.37	0.38	0.9259	1.02
53	CR	1	1	4	4	4.1	0.55	0.56	0.1005	0.86
54	CR	1	1	1	2	2.3	0.74	0.44	-0.9791	1.05
55	CR	1	1	1	3	3.1	0.71	0.54	-0.7727	0.93
56	CR	1	1	4	6	6.1	0.28	0.51	1.4782	0.95
57	CR	1	1	4	6	6.1	0.37	0.57	0.9866	0.88
58	CR	1	1	4	4	4.1	0.70	0.61	-0.7539	0.83
59	CR	1	1	4	3	3.1	0.32	0.54	1.3262	0.90
60	CR	1	1	Appendix A			0.49	0.39	0.3434	1.04
61	CR	1	1	Appendix A			0.37	0.43	0.9411	0.98
62	CR	1	1	Appendix A			0.63	0.51	-0.2806	0.89
63	CR	1	1	4	7	7.1	0.73	0.52	-0.9065	0.88
64	CR	1	1	4	6	6.1	0.53	0.56	0.1570	0.88
65	CR	1	1	4	6	6.1	0.30	0.47	1.3153	0.98
66	CR	1	1	4	6	6.1	0.38	0.49	0.8960	0.97
67	CR	1	1	4	3	3.1	0.48	0.41	0.3890	1.11
68	CR	1	1	4	3	3.1	0.36	0.52	0.9983	0.95
69	CR	1	1	4	3	3.1	0.32	0.53	1.2403	0.91
70	CR	1	1	4	6	6.1	0.45	0.34	0.5676	1.08
71	CR	1	1	4	7	7.1	0.49	0.56	0.3434	0.85
72	CR	1	1	4	1	1.1	0.65	0.57	-0.4648	0.91
73	MC	1	1	Lab		1	0.76	0.51	-1.1107	0.89
74	MC	1	1	Lab		1	0.65	0.38	-0.4840	1.1
75	MC	1	1	Lab		1	0.72	0.33	-0.8475	1.12
76	MC	1	1	Lab		3	0.82	0.48	-1.5025	0.87

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
77	CR	1	1	Lab		2	0.71	0.45	-0.8217	1.01
78	CR	1	1	Lab		2	0.51	0.51	0.2629	0.97
79	CR	1	1	Lab		5	0.46	0.56	0.5138	0.89
80	CR	1	1	Lab		5	0.22	0.45	1.7943	0.92
81	MC	1	1	Lab		2	0.62	0.43	-0.2756	0.98
82	MC	1	1	Lab		2	0.32	0.30	1.2267	1.15
83	CR	1	1	Lab		1	0.69	0.57	-0.7044	0.89
84	CR	1	1	Lab		3	0.48	0.60	0.4550	0.88
85	CR	1	1	Lab		3	0.59	0.56	-0.1016	0.93

August 2014

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
1	MC	1	1	4	1	1.2	0.49	0.49	0.3600	0.97
2	MC	1	1	4	1	1.1	0.66	0.43	-0.5332	1.08
3	MC	1	1	4	1	1.2	0.79	0.41	-1.3389	1.00
4	MC	1	1	4	1	1.2	0.50	0.50	0.2798	0.99
5	MC	1	1	4	5	5.1	0.61	0.44	-0.2613	1.01
6	MC	1	1	4	1	1.2	0.80	0.40	-1.4180	1.03
7	MC	1	1	4	6	6.2	0.67	0.46	-0.5488	0.97
8	MC	1	1	4	2	2.2	0.72	0.47	-0.8162	0.93
9	MC	1	1	4	2	2.1	0.49	0.49	0.3529	1.00
10	MC	1	1	4	3	3.1	0.53	0.30	0.1742	1.18
11	MC	1	1	4	2	2.1	0.67	0.43	-0.5389	1.07
12	MC	1	1	4	3	3.1	0.74	0.42	-1.3000	1.05
13	MC	1	1	4	3	3.1	0.72	0.27	-0.8530	1.25
14	MC	1	1	4	2	2.1	0.39	0.24	0.8781	1.28
15	MC	1	1	5	5	5.1	0.62	0.48	-0.3300	0.98
16	MC	1	1	4	4	4.1	0.68	0.59	-0.6112	0.84
17	MC	1	1	4	4	4.1	0.54	0.48	0.1205	1.03
18	MC	1	1	4	4	4.1	0.39	0.39	0.8614	1.10
19	MC	1	1	4	3	3.1	0.51	0.31	0.2461	1.23
20	MC	1	1	4	5	5.3	0.53	0.54	0.1935	0.94
21	MC	1	1	4	1	1.1	0.75	0.53	-1.0350	0.87
22	MC	1	1	4	7	7.1	0.67	0.45	-0.5666	0.99
23	MC	1	1	4	3	3.1	0.77	0.44	-1.1721	0.96
24	MC	1	1	4	7	7.3	0.37	0.53	0.9899	0.92
25	MC	1	1	4	7	7.2	0.81	0.54	-1.5113	0.87
26	MC	1	1	4	3	3.0	0.37	0.48	0.9682	0.98
27	MC	1	1	4	5	5.2	0.73	0.28	-0.9064	1.11
28	MC	1	1	4	7	7.2	0.66	0.49	-0.5215	0.93
29	MC	1	1	4	6	6.3	0.79	0.40	-1.2647	1.00
30	MC	1	1	4	7	7.2	0.36	0.47	0.9767	0.96
31	MC	1	1	4	2	2.1	0.75	0.46	-1.0329	0.94
32	MC	1	1	4	1	1.2	0.72	0.50	-0.8635	0.90
33	MC	1	1	4	6	6.1	0.77	0.39	-1.1496	1.00
34	MC	1	1	4	5	5.3	0.55	0.50	0.0996	1.00
35	MC	1	1	4	3	3.1	0.65	0.40	-0.4532	1.09
36	MC	1	1	1	3	3.1	0.62	0.42	-0.2892	1.03
37	MC	1	1	4	6	6.1	0.80	0.24	-1.3520	1.10

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
38	MC	1	1	4	1	1.1	0.80	0.31	-1.3156	1.06
39	MC	1	1	4	5	5.1	0.52	0.40	0.1947	1.09
40	MC	1	1	4	4	4.1	0.78	0.44	-1.2705	0.99
41	MC	1	1	4	4	4.1	0.74	0.34	-0.9664	1.17
42	MC	1	1	4	7	7.2	0.62	0.51	-0.3049	0.98
43	MC	1	1	4	6	6.1	0.56	0.45	-0.0073	1.05
44	CR	1	1	Appendix A			0.67	0.40	-0.5543	1.03
45	CR	1	1	Appendix A			0.77	0.29	-1.1223	1.12
46	CR	1	1	Appendix A			0.32	0.53	1.2097	0.89
47	MC	1	1	Appendix A			0.33	0.40	1.1586	1.03
48	CR	1	1	Appendix A			0.55	0.51	0.0341	0.93
49	MC	1	1	1	3	3.1	0.65	0.48	-0.4726	0.94
50	MC	1	1	4	6	6.1	0.42	0.49	0.6927	0.96
51	CR	1	1	4	1	1.2	0.26	0.57	1.5529	0.81
52	CR	1	1	4	2	2.1	0.22	0.55	1.8646	0.82
53	CR	1	1	4	6	6.1	0.55	0.49	0.0629	1.03
54	CR	1	1	4	1	1.1	0.57	0.55	0.0052	0.93
55	CR	1	1	4	6	6.1	0.59	0.57	-0.1058	0.91
56	CR	1	1	4	7	7.2	0.55	0.48	0.0407	0.99
57	CR	1	1	4	6	6.0	0.80	0.52	-1.3244	0.85
58	CR	1	1	4	7	7.2	0.56	0.52	-0.0019	0.94
59	CR	1	1	4	1	1.1	0.65	0.52	-0.4459	0.91
60	CR	1	1	4	5	5.2	0.64	0.49	-0.4056	0.98
61	CR	1	1	4	5	5.2	0.41	0.52	0.7525	0.95
62	CR	1	1	4	5	5.2	0.44	0.56	0.5909	0.91
63	CR	1	1	4	5	5.2	0.38	0.50	0.9536	0.98
64	CR	1	1	Appendix A			0.56	0.57	0.0262	0.91
65	CR	1	1	Appendix A			0.53	0.62	0.1674	0.84
66	CR	1	1	Appendix A			0.49	0.63	0.4171	0.82
67	CR	1	1	Appendix A			0.28	0.53	1.5764	0.86
68	CR	1	1	Appendix A			0.48	0.61	0.4588	0.84
69	CR	1	1	4	5	5.1	0.23	0.35	1.8581	1.12
70	CR	1	1	4	7	7	0.51	0.55	0.2137	0.93
71	CR	1	1	4	2	2.2	0.55	0.47	0.0468	1.02

Position	Item Type	Max Points	Weight	Std	Key Idea	PI	Mean	Point-Biserial	RID	INFIT
72	CR	1	1	4	2	2.2	0.50	0.51	0.2750	0.98
73	MC	1	1	Lab		1	0.85	0.41	-1.7628	0.94
74	MC	1	1	Lab		2	0.89	0.41	-2.1173	0.89
75	MC	1	1	Lab		1	0.56	0.41	0.0248	1.08
76	MC	1	1	Lab		3	0.51	0.44	0.2517	1.07
77	CR	1	1	Lab		3	0.46	0.56	0.4885	0.92
78	CR	1	1	Lab		5	0.37	0.44	0.9497	1.02
79	CR	1	1	Lab		5	0.69	0.45	-0.6433	0.96
80	CR	1	1	Lab		5	0.47	0.48	0.4441	0.97
81	MC	1	1	Lab		5	0.30	0.20	1.4096	1.33
82	MC	1	1	Lab		5	0.50	0.42	0.3023	1.09
83	CR	1	1	Lab		2	0.60	0.52	-0.2012	0.95
84	CR	1	1	Lab		2	0.50	0.60	0.3248	0.87
85	CR	1	1	Lab		2	0.74	0.46	-1.0223	0.96

Appendix G: Scoring Tables

January 2014

Raw Score	Ability	Scale Score
0	−6.270	0.000
1	−5.048	2.043
2	−4.329	4.594
3	−3.898	6.753
4	−3.585	8.875
5	−3.337	10.938
6	−3.129	13.000
7	−2.950	15.009
8	−2.791	17.051
9	−2.647	19.033
10	−2.517	20.944
11	−2.396	22.845
12	−2.283	24.698
13	−2.177	26.483
14	−2.078	28.240
15	−1.983	30.010
16	−1.892	31.766
17	−1.805	33.446
18	−1.722	35.068
19	−1.641	36.692
20	−1.563	38.345
21	−1.487	39.898
22	−1.414	41.394

Raw Score	Ability	Scale Score
23	−1.342	42.888
24	−1.272	44.324
25	−1.203	45.846
26	−1.135	47.199
27	−1.069	48.573
28	−1.004	49.967
29	−0.940	51.329
30	−0.877	52.644
31	−0.814	53.927
32	−0.752	55.156
33	−0.691	56.414
34	−0.630	57.576
35	−0.570	58.756
36	−0.510	59.938
37	−0.451	61.075
38	−0.391	62.156
39	−0.332	63.242
40	−0.273	64.330
41	−0.214	65.311
42	−0.156	66.291
43	−0.097	67.286
44	−0.038	68.262
45	0.021	69.151

Raw Score	Ability	Scale Score
46	0.081	70.066
47	0.140	70.916
48	0.200	71.758
49	0.260	72.596
50	0.321	73.413
51	0.382	74.229
52	0.444	74.973
53	0.506	75.724
54	0.569	76.501
55	0.633	77.176
56	0.697	77.928
57	0.763	78.677
58	0.830	79.406
59	0.898	80.114
60	0.967	80.750
61	1.038	81.472
62	1.110	82.238
63	1.184	82.916
64	1.260	83.593
65	1.338	84.257
66	1.419	84.998
67	1.502	85.731
68	1.589	86.448

Raw Score	Ability	Scale Score
69	1.678	87.154
70	1.772	87.852
71	1.870	88.539
72	1.974	89.243
73	2.083	89.996
74	2.200	90.735
75	2.325	91.453
76	2.460	92.161
77	2.608	92.893
78	2.771	93.670
79	2.956	94.417
80	3.169	95.144
81	3.423	95.898
82	3.743	96.723
83	4.180	97.398
84	4.906	98.187
85	6.133	100.000

June 2014

Raw Score	Ability	Scale Score
0	−6.245	0.000
1	−5.024	2.133
2	−4.306	4.673
3	−3.877	6.883
4	−3.565	9.033
5	−3.317	11.125
6	−3.111	13.202
7	−2.932	15.229
8	−2.775	17.262
9	−2.632	19.242
10	−2.503	21.152
11	−2.383	23.057
12	−2.271	24.902
13	−2.166	26.678
14	−2.067	28.434
15	−1.973	30.200
16	−1.883	31.941
17	−1.797	33.607
18	−1.714	35.221
19	−1.634	36.841
20	−1.557	38.475
21	−1.482	40.014
22	−1.408	41.501

Raw Score	Ability	Scale Score
23	−1.337	42.982
24	−1.267	44.414
25	−1.199	45.915
26	−1.132	47.259
27	−1.067	48.625
28	−1.002	50.008
29	−0.939	51.356
30	−0.876	52.662
31	−0.814	53.934
32	−0.752	55.151
33	−0.692	56.397
34	−0.632	57.552
35	−0.572	58.721
36	−0.513	59.889
37	−0.454	61.022
38	−0.395	62.090
39	−0.336	63.164
40	−0.278	64.248
41	−0.220	65.218
42	−0.162	66.187
43	−0.104	67.167
44	−0.046	68.141
45	0.013	69.010

Raw Score	Ability	Scale Score
46	0.071	69.930
47	0.130	70.767
48	0.189	71.598
49	0.248	72.427
50	0.307	73.230
51	0.367	74.035
52	0.428	74.797
53	0.489	75.509
54	0.550	76.273
55	0.613	76.970
56	0.676	77.678
57	0.740	78.416
58	0.805	79.136
59	0.871	79.851
60	0.939	80.479
61	1.007	81.151
62	1.077	81.905
63	1.149	82.597
64	1.223	83.263
65	1.298	83.916
66	1.376	84.606
67	1.457	85.331
68	1.540	86.048

Raw Score	Ability	Scale Score
69	1.627	86.753
70	1.717	87.451
71	1.812	88.139
72	1.911	88.813
73	2.017	89.540
74	2.129	90.284
75	2.249	91.021
76	2.379	91.755
77	2.521	92.471
78	2.679	93.239
79	2.858	94.020
80	3.064	94.805
81	3.311	95.604
82	3.623	96.424
83	4.052	97.200
84	4.769	98.061
85	5.990	100.000

August 2014

Raw Score	Ability	Scale Score
0	−6.109	0.000
1	−4.890	2.637
2	−4.176	5.128
3	−3.749	7.654
4	−3.440	9.989
5	−3.196	12.299
6	−2.993	14.517
7	−2.817	16.711
8	−2.662	18.829
9	−2.523	20.854
10	−2.396	22.847
11	−2.279	24.776
12	−2.170	26.618
13	−2.067	28.425
14	−1.971	30.233
15	−1.880	32.005
16	−1.793	33.690
17	−1.709	35.318
18	−1.629	36.947
19	−1.552	38.575
20	−1.477	40.102
21	−1.405	41.577
22	−1.335	43.034

Raw Score	Ability	Scale Score
23	−1.266	44.447
24	−1.199	45.917
25	−1.134	47.230
26	−1.070	48.560
27	−1.007	49.902
28	−0.945	51.218
29	−0.885	52.471
30	−0.825	53.715
31	−0.766	54.884
32	−0.708	56.072
33	−0.650	57.208
34	−0.593	58.314
35	−0.536	59.425
36	−0.480	60.545
37	−0.424	61.559
38	−0.368	62.579
39	−0.313	63.602
40	−0.258	64.588
41	−0.203	65.505
42	−0.148	66.421
43	−0.093	67.353
44	−0.038	68.262
45	0.017	69.084

Raw Score	Ability	Scale Score
46	0.073	69.950
47	0.128	70.742
48	0.184	71.529
49	0.240	72.312
50	0.296	73.078
51	0.353	73.843
52	0.410	74.601
53	0.468	75.249
54	0.527	75.980
55	0.586	76.691
56	0.646	77.327
57	0.707	78.037
58	0.769	78.741
59	0.832	79.429
60	0.896	80.102
61	0.962	80.702
62	1.029	81.382
63	1.098	82.131
64	1.169	82.784
65	1.242	83.439
66	1.318	84.077
67	1.395	84.782
68	1.476	85.503

Raw Score	Ability	Scale Score
69	1.560	86.216
70	1.648	86.921
71	1.741	87.623
72	1.838	88.321
73	1.941	89.015
74	2.051	89.783
75	2.170	90.543
76	2.298	91.300
77	2.439	92.055
78	2.595	92.831
79	2.772	93.672
80	2.977	94.503
81	3.223	95.318
82	3.534	96.188
83	3.962	97.061
84	4.678	97.977
85	5.898	100.000