

**TAKS Exit Level Retest  
Online Comparability Study Report  
2008-2009**

11/06/09

## Summary

The Texas Assessment of Knowledge and Skills (TAKS) has been offered online (in addition to paper) for certain grades and subject areas since 2005. The joint *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999, Standard 4.10) and the *Guidelines for Computer-Based Tests and Interpretations* (APA, 1986) both speak to the need for the evaluation of the score equivalence across computer-based and paper-based tests.

Traditionally, Texas uses a “matched samples comparability analyses”, or MSCA (Way, Davis, & Fitzpatrick, 2006), design to study equivalence of the resulting raw-score-to-scale-score conversions between online and paper testing modes. In this design, a bootstrap sampling approach is used to select online and paper samples where each selected online student is matched to a paper student with the same gender, ethnicity, and level of proficiency on previous test scores. Once both the paper sample and online sample are selected, raw-score-to-scale-score conversions are calculated applying the Rasch measurement model. This sampling is repeated for a predetermined number of times. Conversion tables for each replication are retained and aggregated to obtain the final conversion and the standard errors of linking. The equivalency between online and paper scale scores is then evaluated. A separate conversion table is recommended if the two sets of scale scores are considered not comparable.

Beginning with the October 2007 exit level comparability studies, a stratified MSCA was implemented due to the large number of first-time testers participating in the retest administrations. The first-time testers differed from the re-testers in a few systematic ways. First of all, the first-time testers had higher mean raw scores than the re-testers, and secondly there was a stronger association between the raw scores and previous TAKS scores for the first-time testers. Since the October 2007 administration, student representation (whether first-time testers or retesters) has been evaluated in each retest administration, and the stratified approach was used as needed.

The stratified MSCA utilized student grade level when they took their most recent primary administration as an additional matching variable to include the first-time testers in constructing the online scale score conversions. In other words, the online first-time testers were only matched to paper first-time testers, where the proficiency was defined by the grade 10 TAKS scores in their previous primary TAKS testing participation. The online re-testers were only matched to paper re-testers, where the proficiency level was defined by the exit level TAKS scores from their previous primary TAKS testing participation. Between-mode item-level analyses and subgroup analyses for ethnic and gender subgroups were performed in addition to the overall test-level analysis.

Using this stratified methodology, the comparability analyses were conducted for the October 2008 through July 2009 TAKS exit level administrations. Note that a comparability study was not performed for the following administrations:

- October 2008 mathematics, science and social studies because these were reused forms in which a comparability study had been conducted previously for each of these tests.
- April 2009 ELA because it was a reused form in which a comparability study had been conducted previously.
- April 2009 social studies because the online sample size was too small.
- July 2009 social studies because the online sample size was too small.

The 2008 - 2009 online test administrations are summarized below.

	English language arts	Mathematics	Science	Social Studies
October 2008	◆	–	–	–
March 2009	◇	◆	◆	◇
April 2009	–	◆	◇	–
July 2009	◆	◇	◇	–

◇ : a comparability study was conducted but no mode effect was found.

◆ : a comparability study was conducted and a mode effect was found.

– : an online administration was provided but no comparability analysis was conducted.

Three criteria have been used to evaluate the comparability between online and paper administrations: raw score differences that matter, scale score differences compared to two standard errors of linking, and raw score cuts at various performance

levels (details are provided in the report). Additional considerations were given to the impact of using an alternate conversion table when the evidence from the decision rules was less clear cut.

Based on the comparability analysis results, Pearson recommended using a separate conversion table for the following administrations:

- October 2008: TAKS exit level ELA online retest;
- March 2009: TAKS exit level mathematics and science online retests;
- April 2009: TAKS exit level mathematics online retest; and
- July 2009: TAKS exit level ELA online retest.

In addition, a separate conversion table was used for the following reused online forms based on the previous comparability study results: April 2009 ELA, and October 2008 mathematics, science and social studies online retests. For the other tests, the paper conversion table was used for both the paper and online administrations.

## Introduction

Online comparability studies were first implemented in Texas in 2005 covering the Texas Assessment of Knowledge and Skills (TAKS) in grade 8 reading, mathematics and social studies as well as exit level retests of TAKS in English language arts (ELA), mathematics, science and social studies. The 2006 comparability studies included TAKS grade 8 reading, mathematics, science, and social studies, grade 9 reading and mathematics, and all of the July and October exit level retests. Further expansion for online testing in 2007 added TAKS grade 7 reading and mathematics and grade 10 ELA, mathematics, science, and social studies. In 2007-2008 the TAKS exit level retests were offered both online and on paper in October, March, April, and July. The 2008-2009 TAKS exit level retests were also offered in both modes in October, March, April, and July. This report summarizes the comparability study results across the 2008-2009 test administrations. The discussions and analyses are grouped by subject areas tested. Please note that although this report includes information from all administrations, the analyses were performed for each administration separately.

## Methodology

In 2005, TEA and Pearson devised a matched samples comparability analysis (MSCA) plan using a bootstrap approach in which students in the online group would be matched to students from the paper group on their previous TAKS test scores. Based on recommendations from the Texas Technical Advisory Committee (TTAC), additional demographic variables were considered as matching variables beginning in 2006. The decision was made to include previous TAKS scores, ethnicity, and gender as matching variables in the matched samples comparability analyses.

When the October 2007 exit level retest comparability studies were conducted, it was noted that a great number of students would have been excluded from the comparability analyses because of missing April 2007 TAKS exit level scores. Further investigation indicated that these students differed from the re-testers in the following ways: their mean raw score was higher and their raw scores were more highly correlated with their previous TAKS scores (as indicated by higher r-square values) than those of the re-testers in that October administration. Furthermore, these students were in grade 10 in April 2007. Excluding these students may have had an undesirable impact because they systematically differed from the re-testers.

A similar situation occurred in the subsequent online retest administrations in that first-time testers as well as re-testers participated in the administration (Note that the phrase “first-time testers” used in this document refers to students who participate in the TAKS exit level retests for the first time, without taking the grade 11 primary administration). Although it is desirable to include the first-time testers in the study, it could be possible that not enough students would be assigned to certain matched groups when the first-time testing sample is too small. For this reason, Pearson developed a decision rule for whether or not to include first-time testers in the comparability study. Specifically, first-time testers will be included if *a), the online first-time testers have at least 500 students, or b), the online first-time testers account for at least 20% of all online testers*. If the number of online first-time testers does not meet EITHER requirement, they will be excluded from both modes, and only re-testers will be included in the comparability analysis.

In order to appropriately match first-time testers in the comparability analyses when they met the sample size requirement, modifications were made to the comparability method in October 2007 and a stratified MSCA approach has been adopted since then. The stratified MSCA uses a separate  $\hat{y}$  variable for the first-time testers because these students' previous TAKS scores are based on grade 10 (and not exit level) performance. In the bootstrapping process, these first-time testers are matched with first-time testers *only* and not matched to the re-testers. Similarly, the re-testers are matched with re-testers *only*, not with the first-time testers. The detailed procedures are provided in the following section.

### The Stratified MSCA Analysis

The following is a list of steps in the ‘stratified’ comparability analyses. The following grid shows the previous-score variables to use for student participated in the retest administrations.

If students tested were...	Then use previous scores from...
First-Time tester in October 2008	Grade 10 scores in April 2008
First-Time tester in March or April 2009	Grade 10 scores in April 2008
First-Time tester in July 2009	Grade 10 scores in April 2009
Retester in October 2008	Grade 11 scores in April 2008
Retester in March or April 2009	Grade 11 scores in April 2008
Retester in July 2009	Grade 11 scores in April 2009

- 1) For students who tested in the paper mode, their retest raw scores were regressed on their ELA, mathematics, science, and social studies scale scores from previous primary administration.

For students with TAKS grade 10 scores in the previous administrations:

$$\hat{Y}_{predicted\_rawscore} = \beta_0 + \beta_1 X_{1(prev\_G10\_ELA)} + \beta_2 X_{2(prev\_G10\_Math)} + \beta_3 X_{3(prev\_G10\_Science)} + \beta_4 X_{4(prev\_G10\_SocialStudies)}$$

For students with TAKS exit level (XL) scores in the previous administrations:

$$\hat{Y}_{predicted\_rawscore} = \beta_0 + \beta_1 X_{1(prev\_XL\_ELA)} + \beta_2 X_{2(prev\_XL\_Math)} + \beta_3 X_{3(prev\_XL\_Science)} + \beta_4 X_{4(prev\_XL\_SocialStudies)}$$

In other words, for the exit level retest comparability analyses, the regression analysis was repeated separately for students with grade 10 TAKS scores in the previous administration, and for students with exit level TAKS scores in the previous administrations.

- 2) The resulting regression weights were applied to all students (paper and online) to obtain an estimated raw score ( $\hat{y}$ ) for each of the students for a given administration. For the exit level retest comparability analyses, online students'  $\hat{y}$  scores were generated using appropriate regression weights depending on whether they took grade 10 TAKS in April 2008 (or April 2009 for the July 2009 administration) or they took exit level TAKS in April 2008 (or April 2009 for the July 2009 administration). The regression weights for each group are shown in Table 1.
- 3) Students in each group (first-time testers and re-testers) were then broken into either 10 or 20 groups based on the estimated raw score. Due to the nature of the matched-sample bootstrap approach, we need to have enough students participating who are first-time testers to use the stratified approach. The criteria for including first-time testers and breaking them into groups are shown in the following grid:

Proportion \ Sample Size	Sample Size	
	$\geq 500$	$< 500$
$\geq 20\%$	20 groups	10 groups
$< 20\%$	20 groups	Exclude

Therefore, the first-time testers would be excluded from the analyses if their count was less than 500 **AND** was less than 20% of the total online students (first-time testers and re-testers combined). When this occurred, then the analysis used the non-stratified approach. If both first-time testers and retesters are included, then the stratified approach will be used (regardless of the number of groups).

With the sample size consideration, decision was made, on a test-by-test basis, on whether a comparability study should be performed; and if so, whether a stratified approach should be used:

	English language arts	Mathematics	Science	Social Studies
October 2008	Stratified	–	–	–
March 2009	Stratified	Stratified	Stratified	Stratified
April 2009	–	Stratified	Stratified	–
July 2009	Non-Stratified	Non-Stratified	Non-Stratified	–

In order to modify the procedure such that re-testers would only be matched to re-testers and first-time testers would only be matched to first-time testers, the following steps were implemented:

- I. Grouped the retest students (online plus paper) with previous exit level information into 10 (or 20) score groups based on their  $\hat{y}$  values. This produced a ranking variable ranging from 0 to 9 (or 19), for all re-testers (students with exit level information).
  - II. Grouped the first-time students (online plus paper) with previous grade 10 information into 10 or 20 score groups based on their  $\hat{y}$  values. This also produced a ranking variable ranging from 0 to 9 (or 19), for all first-time testers (students with grade 10 information).
  - III. Added a constant to the exit level ranking from step I, such that the ranking wasn't duplicated between the two groups of students. For example, if 20 groups were used for both first-time testers and re-testers, then the rank variable would range from 0 to 39, where 0-19 was for the first-time testers, and 20-39 was for the re-testers.
  - IV. Separated the online group of students from the paper group of students to form the base of online and paper samples, and then proceeded with the bootstrap process.
- 4) This grouping from step 3 could result in a 40 (previous score groups—20 for first-time testers plus 20 for re-testers) by 4 (ethnicity groups) by 2 (gender groups) grid that was used in the matched sampling. Note that the total number of groups could be different from 40, depending on the number of groups for the first-time testers as well as the re-testers.
  - 5) To improve optimal matching, students with missing values on any of the matching variables were dropped from the study.

#### Analysis Procedure used

The standard or stratified matched samples comparability analyses were conducted after evaluating the number of first-time testers and retesters for each test in each administration (refer to the table in the previous section for approaches used for each test). The key steps are described below. The number of score groups for each test in each administration is noted in the following table. Note that the first entry in each cell is the number of score groups for the first-time testers, and the second entry in each cell is the number of score groups for the retesters. A '0' means that the respective student group was not included in the analysis.

	English language arts	Mathematics	Science	Social Studies
October 2008	20,20	–	–	–
March 2009	10,10	10,20	10,20	10,10
April 2009	–	10,20	10,20	–
July 2009	0,20	0,20	0,20	–

1. All students eligible for matching were placed into score groups based on the regression as described earlier. Each student testing online with complete data was matched to a student from the available paper TAKS data in the same administration with an identical profile on the matching variables.
2. Online versus paper comparability analyses were performed using matched groups of students. The following steps were repeated 100 times (500 for ELA):
  - a. A bootstrap sample of students was drawn from the online participants.
  - b. A matched sample was drawn at random from the available paper TAKS data in the same administration.
  - c. A raw score-to-raw score equating was carried out with the bootstrap samples.
  - d. The raw score equivalents were transformed to scale scores using the appropriate paper conversion tables and linear interpolation.
3. Online scale score conversions for each raw score were based on the average of the conversions calculated over each of the 100 replications (500 for ELA). These average scale score values comprised the alternate online conversion table.
4. The standard deviation of online scale score conversions at each raw score represented the conditional bootstrap standard errors of the linking.
5. To evaluate comparability, raw score points for which the difference between the online and paper scale score conversions exceeded two standard errors of the linking were noted. Also, the differences between the paper-raw score equivalent and the corresponding paper raw score were calculated, and differences greater than 0.5 were noted.

To verify the comparability analysis results, two Pearson psychometricians programmed independent versions of the analysis. The online results were then compared to the paper results. The recommendations regarding the use of a separate online score conversion table were made based on a set of rules that TEA adopted in 2006. These rules include the consideration of three pieces of information: the standard error of the linking, the magnitude of the raw score differences, and the rounding differences for cut scores.

- The standard error of the linking criterion was suggested by Dorans and Lawrence (1990): “To assess equivalence, it is convenient to compute the difference between the equating function and the identity transformation, and to divide this difference by the standard error of equating. If the resultant ratio falls within a bandwidth of plus or minus two, then the equating function is deemed to be within sampling error of the identity function” (p. 247). In using this procedure, special attention was paid to differences in the range of scale scores around the “Met the Standard” and “Commended” performance levels. Differences at the two extremes of the scale are less important, given the purpose and primary uses of the TAKS tests. This standard error procedure is sensitive to the sample size such that the standard errors will be greater when the sample sizes are smaller. Therefore, we also considered additional criteria.
- The magnitude of the raw score differences was evaluated using the criterion of differences that matter (DTM; Dorans & Feigenbaum, 1994). This was originally developed in the context of the SAT where scale scores are reported in 10-point units. For a given raw score, if the resulting scale scores from the linking differed by fewer than 5 points, then the scale scores would likely be rounded to the same value and would be considered equivalent. This process was adapted to other tests and the DTM was considered to be a half of a score unit for unrounded scores (Dorans, Holland, Thayer, & Tateneni, 2003). For the TAKS, the DTM was considered to be half of a raw score point. For a given proficiency level, if the corresponding raw scores from the linking differed by less than half of a raw score point, then the two could be considered equivalent.
- The third piece of information considered was the rounding differences for the cut scores. The raw-score-to-scale-score conversions for the paper and online tests were compared to see if they resulted in different raw score cut

points across the two modes of test administration. Cuts were evaluated for both the “Met the Standard” and the “Commended Performance” levels. Pearson recommended that this information be used in conjunction with the magnitude of the raw score differences, and the statistical significance of the differences (based on the Dorans and Lawrence [1990] two standard errors of the linking).

In addition to those three pieces of information, subgroup and item-level analyses were conducted, and the impact of using the alternate score table was considered. Results from these analyses were used to inform decision-making in borderline cases. Using these pieces of information, overall psychometric judgment determined the recommendation for whether to use an alternate score table for the online TAKS administration.

## Results

The summary of samples and regression results are presented in Table 1. As can be seen, when we had sufficient first-time-testing students to include in the analyses, the mean scores were higher and the relationship between the raw scores and previous TAKS scores was much stronger for first-time-testing students than those who were re-testers. Table 2 displays the demographic information and descriptive statistics for the online and paper samples for each subject area tested in each administration. Across all subject areas when a comparability analysis was performed, the Hispanic students accounted for the majority of all the students tested, and the online and paper samples tended to have similar gender and ethnicity profiles. As observed consistently in the previous TAKS exit level administrations, in general a higher proportion of Hispanic students took the test on paper whereas a higher proportion of white students took the tests online.

Studies from previous comparability analyses on ELA retest administrations have consistently indicated an item type by mode interaction, namely students tested online tend to have higher essay scores, whereas students tested in paper tend to have higher scores on multiple-choice items. Table 3 provides the performance for exit level ELA students by testing mode in the three administrations where a comparability analysis was performed, which typically indicated a consistent trend with the previous findings. Note that for the March 2009 administration, students tested online had a higher score on the essay as well as on the multiple-choice items.

Table 4 provides an overview of the results of the online and paper comparability studies from October 2008 through July 2009. Information is grouped by the subject areas and administration. The performance standard cuts calculated for each mode, as well as the final cuts, are listed. In addition the impact of using the cuts is included; the impact sometimes served as an added source for determining which score conversion table to use. More detailed descriptions of the table are provided in the following subsections for each test administered.

Tables 5 to 14 detail the comparisons between online and paper for each retest. Tables 5 to 7 are for ELA, Tables 8 to 10 are for mathematics, Tables 11 to 13 are for science, and Table 14 is for social studies. The columns of the tables are as follows:

Raw – Paper test raw score

CBT\_RS – Equivalent raw scores on the online test based on the comparability linking. Note that a higher equivalent raw score indicates that the online version of the test was more difficult.

RS\_SD – Standard deviation of the equivalent raw scores over the 100/500 replications.

PAP\_SS – Paper test scale score conversions.

CBT\_SS – Equivalent scale scores on the online test based on the comparability linking. Again, higher equivalent scale scores indicate that the online version of the test was more difficult.

SS\_SD – Standard deviation of the equivalent scale scores over the 100/500 replications.

RS\_DIF – Difference between online raw score equivalent and paper raw score.

SS\_DIF – Difference between online scale score equivalent and paper scale score.

SIG – Raw score points where scale score differences exceed two standard errors of the linking and where the difference in raw scores is greater than half a point are noted by “\*”.

FINAL – Final recommended online scale score conversion.

Note that the “\*” in the SIG column indicates both statistical and practical significance, based on the recommendations from the TTAC. In addition, the scale scores that corresponded to the ‘1-SEM and ‘2-SEM performance cuts are underlined and



italicized whereas the scale scores that corresponded to the ‘Met Standard’ and ‘Commended’ performance cuts are highlighted and bolded.

It has been consistently observed in the previous comparability studies that large differences occur at the lowest and highest scaled score points for all subject areas. This is because WINSTEPS (the IRT calibration software used in the study) does not estimate abilities for zero and perfect scores. These differences are not meaningful. Therefore, for each test the online conversion table has the scale score at the extreme ends set to the paper as has been consistently done in the past.

### English language arts

A mode effect was detected in the October 2008 (Table 5) and July 2009 (Table 7) administrations. In both administrations the differences in raw scores between paper and online exceeded half of a raw score point throughout much of the raw score range and the scale score differences were statistically significant throughout the scale. The online “Met Standard” cut score was lower than the paper version whereas the online “Commended” cut was higher.

For the March 2009 (Table 6) administration, no mode effect was detected. The differences in raw scores between paper and online was less than half of a raw score point throughout much of the raw score range and the scale score differences were not statistically significant throughout the scale. The online “Met Standard” cut score was the same as that for the paper version. Although the ‘Commended’ cut showed a 1 point difference, students are not required to achieve the ‘Commended’ level to graduate.

The April administration of ELA was a reused form from July 2008. The conversion table for July 2008 online was reused for the April administration. Although a comparability analysis was not conducted in April 2009, a separate conversion table was used for students tested online.

### Mathematics

A mode effect was detected in the March 2009 (Table 8) and April 2009 (Table 9) administrations. In both administrations the differences in raw scores between paper and online exceeded half of a raw score point throughout much of the raw score range and the scale score differences were statistically significant throughout the scale. The online “Met Standard” cut score was lower than the paper version in both administrations. The online “Commended” cut was also lower in the March 2009 administration.

For the July 2009 (Table 10) administration, no mode effect was detected. The differences in raw scores between paper and online were less half of a raw score point throughout much of the raw score range. Although the scale score differences were statistically significant throughout the scale, many of these differences did not correspond to a practical raw score differences. The online “Met Standard” cut score was the same as that for paper, while the online ‘Commended’ cut was 1 point lower. However, the difference at the “Commended” cut was not practically significant. Furthermore, impact data (Table 4, the mathematics section) suggested that applying the paper scoring table to online testers would not make a difference in terms of the percentage of students achieving the “Commended” performance level.

The October 2008 administration of mathematics was a reused form from March 2008. The conversion table for March 2008 online was reused for the October 2008 administration. Although a comparability analysis was not conducted, a separate conversion table was used for students tested online.

### Science

A mode effect was detected in the March 2009 (Table 11) administration. In that administration the differences in raw scores between paper and online exceeded half of a raw score point throughout much of the raw score range and the scale score differences were statistically significant throughout the scale. Both the online “Met Standard” and “Commended” cut scores were lower than those of the paper version.

For the April 2009 (Table 12) administration, it was found that the differences in raw scores between paper and online exceeded half of a raw score point throughout much of the raw score range and the scale score differences were statistically

significant throughout the scale. However, both the online “Met Standard” and “Commended” cut scores were the same as those of the paper version. In addition, we made the following observations:

- Using one scale score conversion table for both the paper and online versions of the test is logistically simpler than using separate scale score conversion table.
- Any impact of the possible mode effect would be minimal because the use of paper scale score conversion table would not impact student pass rates (Table 4, the science section), measures of growth, or other accountability measures.
- While using the paper score conversion table could slightly impact the mean scale scores for campuses if a majority of the students took the April 2009 retest of TAKS exit level science online, it is anticipated that this would affect only a small number of campuses.

Therefore, although the raw score differences and scale score differences were found, such effects were not practically important, and the paper score table was applied to students testing online.

For the July 2009 (Table 13) administration, there was no mode effect between online and paper. The differences in raw scores between paper and online was less half of a raw score point throughout much of the raw score range, the scale score differences were less than two standard errors of linking throughout the scale; furthermore, both the online “Met Standard” and the ‘Commended’ cut scores were the same as those for paper.

The October 2008 administration of science was a reused form from March 2008. The conversion table for March 2008 online was reused for October 2008. Although a comparability analysis was not conducted, a separate conversion table was used for students tested online.

#### Social studies

A comparability analysis was only conducted for the March 2009 (Table 14) administration, and no mode effect was detected. The differences in raw scores between paper and online were less than half of a raw score point throughout much of the raw score range and the scale score differences were not statistically significant throughout the scale. The “Met the Standard” performance level was different by one raw score point between online and paper. However, the difference was not statistically significant. Furthermore, impact data (Table 4, the social studies section) suggested that applying the paper scoring table to online testers would produce the most equivalent results in terms of the passing rates.

A comparability analysis was not conducted for the April 2009 or July 2009 administration because the sample size was too low in each administration to support a meaningful analysis. Instead, TEA made a policy decision on the conversion tables to use. Because the most recent studies prior to April 2009 (March 2009 and July 2008) suggested that no mode effect adjustments were needed, the paper conversion tables were used for both online administrations (April 2009 and July 2009).

Finally, as with mathematics and science, the October 2008 administration of social studies was a reused form from March 2008. The conversion table for March 2008 online was reused for October 2008. Although a comparability analysis was not conducted, a separate conversion table was used for students tested online.

#### **Impact Data Analyses**

The pass-rate comparison shown in table 4 indicates that in general, when there was no mode effect, applying the paper conversion tables to the online students resulted in a similar percentage of students achieving the ‘Met the Standard’ level. On the other hand, if a mode effect was detected, using a separate conversion table would result in a more similar student passing rate.

## Additional Analysis

As consistent with previous online comparability studies, two sets of additional analyses were conducted: subgroup analysis and item-level analysis. The subgroup analysis compares mean differences in the total raw scores between the two testing modes across replications for male, female, White, Hispanic and African American student groups separately, whereas the item-level analysis compares mean differences of each item between the two testing modes across replications.

### Subgroup Analysis

The mean raw score differences (and the mean effect size, see Cohen [1992]) between the online and paper testing modes for each subgroup for each subject area tested are listed in Table 15. A significance test was performed for each ‘matched’ subgroup using the following equation:

$$Z_{dif} = \frac{\bar{D}_{Diff}}{\sqrt{SE_{Diff}^2}}$$

where  $\bar{D}_{Diff}$  is the grand mean of the differences between mean online and mean raw scores over the replications for each subgroup; and  $SE_{diff}$  and is the bootstrap standard error of the mean differences over the replications, also for each subgroup.

The effect size between two group means at each replication was calculated by the following equation:

$$EffectSize = \frac{\bar{X}_{Group1} - \bar{X}_{Group2}}{\sqrt{\frac{(SD_{Group1}^2 + SD_{Group2}^2)}{2}}}$$

The effect sizes for the raw scores were based on the averages of the effect sizes over the replications.

As can be seen in Table 15, male students tested online consistently showed lower mean raw scores than male students tested on paper for mathematics, science, and ELA across administrations. A similar pattern was found for the African American and Hispanic groups. It is interesting to note that although in general the overall mean differences were consistent with the mode differences, within each subgroup the effect was not always in the same direction. For white students, for instance, a higher mean raw score for the online group was found in ELA across administrations although the mean raw score was lower for the online group overall.

### Item-Level Analysis

Item-level analysis was performed using similar methods as the subgroup analysis. The mean item raw score differences across replications between the online and paper testing modes for each subject area were computed, and the effect sizes were also calculated. Tables 16 to 25 display the results of item-level comparison across replications for each subject area analyzed between October 200 and July 2009. Tables 16 to 18 are for ELA, 19 to 21 are for mathematics, 22 to 24 are for science, and Table 25 is for social studies. The columns of the tables are as follows:

CBT\_PVAL: Mean item score for the online students across 100/500 replications.

PAP\_PVAL: Mean item score for the paper students across 100/500 replications.

DIF\_PVAL: Mean item score differences between online and paper students across 100/500 replications

DIF\_STD: Standard deviation of the mean differences across 100/500 replications

Z\_DIF: Z statistic for the mean item score differences

SIG: Items where the Z\_DIF statistic was greater than 2 are noted by “\*”.

EFFECT\_SIZE: Mean effect size over 100/500 replications.

The average effect size across iterations for each item difficulty difference was calculated and listed in the last column of these tables. For the majority of the items, the magnitude of the effect size was less than 0.1, where a few reached 0.2. These all indicate a negligible to small mode effect. Similar to the subgroup-level analysis, the general trend in item mean differences was consistent with the mode differences, but there were typically some items showing a mode effect in the opposite direction.

### Summary of Recommendations

Based on the findings from the comparability studies and other considerations as described above, the following table shows the decisions made regarding which conversion table to use for each test administration.

	English language arts	Mathematics	Science	Social Studies
October 2008	♦	♦	♦	♦
March 2009	◇	♦	♦	◇
April 2009	♦	♦	◇	◇
July 2009	♦	◇	◇	◇

♦: a separate conversion table for the online version was recommended.

◇: the paper conversion table was used for both the paper and the online version.

### References

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Table 1. Summary of Sample Statistics and Regression Results, by Student Population and Subject Area Tested

## ELA:

Administration	Student Population	Intercept	Prev_ELA	Prev_Math	Prev_Scie	Prev_Sost	r-square	PaperN	PaperMean	OnlineN	OnlineMean
Oct '08	First timers	-64.951	0.034	0.004	0.008	0.008	0.559	8114	53.68	973	54.83
	Retesters	-156.958	0.066	0.005	0.006	0.019	0.425	8548	41.70	980	40.98
Mar '09	First timers	-72.808	0.038	0.002	0.009	0.009	0.577	3675	52.89	396	54.50
	Retesters	-139.347	0.065	0.002	0.005	0.017	0.355	4176	39.54	365	39.38
July '09	First timers	--	--	--	--	--	--	--	--	--	--
	Retesters	-160.603	0.068	0.003	0.008	0.019	0.428	6151	42.63	787	42.75

## Mathematics:

Administration	Student Population	Intercept	Prev_ELA	Prev_Math	Prev_Scie	Prev_Sost	r-square	PaperN	PaperMean	OnlineN	OnlineMean
Mar '09	First timers	-96.687	0.01	0.039	0.012	0.001	0.552	6024	32.77	569	32.75
	Retesters	-98.131	0.011	0.037	0.012	0.002	0.225	18460	29.42	1602	28.77
Apr '09	First timers	-88.872	0.012	0.031	0.012	0.002	0.323	3053	28.41	280	28.65
	Retesters	-88.202	0.013	0.030	0.010	0.005	0.197	10617	28.19	945	27.72
July '09	First timers	--	--	--	--	--	--	--	--	--	--
	Retesters	-125.404	0.010	0.051	0.010	0.004	0.331	20804	28.12	2840	27.8

## Science:

Administration	Student Population	Intercept	Prev_ELA	Prev_Math	Prev_Scie	Prev_Sost	r-square	PaperN	PaperMean	OnlineN	OnlineMean
March '09	First timers	-79.630	0.010	0.011	0.024	0.008	0.558	5634	30.61	582	31.18
	Retesters	-92.592	0.014	0.011	0.022	0.011	0.275	15943	27.12	1539	26.88
Apr '09	First timers	-71.977	0.013	0.009	0.018	0.008	0.366	2638	27.84	259	27.67
	Retesters	-71.178	0.014	0.009	0.013	0.011	0.208	9016	27.2	789	26.41
July '09	First timers	--	--	--	--	--	--	--	--	--	--
	Retesters	-95.547	0.010	0.011	0.024	0.013	0.300	15730	26.54	2134	26.66

## Social studies

Administration	Student Population	Intercept	Prev_ELA	Prev_Math	Prev_Scie	Prev_Sost	r-square	PaperN	PaperMean	OnlineN	OnlineMean
March '09	First timers	-79.001	0.015	0.000	0.017	0.022	0.595	3442	37.85	380	38.93
	Retesters	-74.217	0.015	0.009	0.004	0.022	0.146	2869	26.81	259	25.86

**Table 2. Student Demographic and Descriptive Information for 2008-2009 Comparability Analyses\***

ELA:

Administration	Number of Campuses		Number of Students		Mean Raw Score		Estimated Raw Score, or y-hat		Demographic Information**											
	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	Male		White		Hispanic		African American		Other Ethnicity		Special Education***	
									CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP
October '08	160	1176	1953	16662	47.88	47.54	48.48	47.54	53	52	23	18	57	63	14	16	6	3	4	3
March '09	105	1000	761	7851	47.25	45.79	47.19	45.79	54	54	23	16	57	65	15	15	5	3	4	3
July '09	128	1027	787	6151	42.75	42.63	43.31	42.63	53	56	15	14	55	66	21	17	8	3	5	4

Mathematics:

Administration	Number of Campuses		Number of Students		Mean Raw Score		Estimated Raw Score, or y-hat		Demographic Information**											
	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	Male		White		Hispanic		African American		Other Ethnicity		Special Education***	
									CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP
March '09	138	1350	2171	24484	29.81	30.25	30.71	30.25	47	46	23	18	52	57	23	23	2	2	3	3
April '09	114	1151	1225	13670	27.93	28.24	28.61	28.24	44	45	16	15	58	59	24	25	2	1	2	2
July '09	151	1338	2840	20804	27.80	28.12	28.38	28.12	40	43	22	20	45	55	30	23	3	2	3	2

Science:

Administration	Number of Campuses		Number of Students		Mean Raw Score		Estimated Raw Score, or y-hat		Demographic Information**											
	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	Male		White		Hispanic		African American		Other Ethnicity		Special Education***	
									CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP
March '09	143	1303	2121	21577	28.06	28.03	28.64	28.03	38	38	18	13	57	63	21	21	4	2	2	2
April '09	113	1100	1048	11654	26.72	27.34	27.47	27.34	36	38	10	10	65	66	22	22	3	2	1	2
July '09	148	1261	2134	15730	26.66	26.54	26.74	26.54	35	38	15	14	53	63	27	22	4	2	3	2

## Social studies:

Administration	Number of Campuses		Number of Students		Mean Raw Score		Estimated Raw Score, or y-hat		Demographic Information**											
	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	Male		White		Hispanic		African American		Other Ethnicity		Special Education***	
									CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP	CBT	PAP
March '09	110	957	639	6311	33.63	32.83	33.94	32.83	41	39	21	16	59	64	15	18	4	2	2	2

\*: CBT-Online administration; PAP-Paper administration.

\*\* : Cell entries represent percentages rounded to the nearest integer. Due to rounding, the percentages may not add up to 100%.

\*\*\*: Special education status is included in the demographics table, but was not used as a matching variable.



**Table 3. Student Performance on 2008-2009 Exit Level ELA Multiple Choice, Open-Ended Items, and Essay by Test Mode**

October 2008

	ONLINE					PAPER				
Multiple Choice	36.35					36.59				
	0	1	2	3		0	1	2	3	
OE 1	10.55%	53.71%	35.64%	0.10%		9.66%	53.28%	36.96%	0.09%	
OE 2	21.35%	56.17%	22.48%	0.00%		24.19%	64.12%	11.58%	0.11%	
OE 3	34.72%	45.11%	20.17%	0.00%		36.51%	49.25%	14.14%	0.10%	
	0	1	2	3	4	0	1	2	3	4
Essay	1.64%	25.40%	40.40%	26.37%	6.20%	1.36%	23.39%	51.32%	21.29%	2.63%

\*: based on the eligible students included in the analyses.

March 2009

	ONLINE					PAPER				
Multiple Choice	34.77					34.04				
	0	1	2	3		0	1	2	3	
OE 1	6.70%	34.17%	59.13%	0.00%		9.76%	30.53%	59.58%	0.13%	
OE 2	14.85%	43.36%	41.79%	0.00%		14.53%	43.88%	41.56%	0.03%	
OE 3	35.09%	37.19%	27.73%	0.00%		33.69%	42.21%	24.00%	0.10%	
	0	1	2	3	4	0	1	2	3	4
Essay	1.31%	18.92%	45.86%	27.33%	6.57%	1.10%	21.91%	54.21%	19.54%	3.25%

\*: based on the eligible students included in the analyses.

July 2009

	ONLINE					PAPER				
Multiple Choice	32.43					32.79				
	0	1	2	3		0	1	2	3	
OE 1	27.06%	55.53%	17.28%	0.13%		27.78%	55.05%	17.15%	0.02%	
OE 2	24.02%	48.79%	26.94%	0.25%		29.60%	51.89%	18.48%	0.02%	
OE 3	44.09%	43.20%	12.58%	0.13%		47.89%	42.30%	9.77%	0.03%	
	0	1	2	3	4	0	1	2	3	4
Essay	1.52%	27.45%	50.57%	18.04%	2.41%	1.61%	25.82%	58.14%	13.85%	0.59%

\*: based on the eligible students included in the analyses.

**Table 4. Summary of the 2008-2009 Exit Level Online TAKS Comparability Analyses**

ELA\*\*\*\*:

Administration	Sample Size		Raw Score Cuts*		Pass Rates (%) Comparison**			Number of Raw Score Points with Meaningful Difference***	Decision (Conclusion)
	Online	Paper	Online	Paper	Paper w/Paper	Online w/Online	Online w/Paper		
October 2008	1953	16662	<b>39</b>	41	57.2	56.0	51.0	56 (73)	Alternate Conversion Table (Mode Effect)
			<b>63</b>	62	9.4	11.2	13.9		
March 2009	761	7851	44	<b>44</b>	48.7	54.0	51.0	7 (73)	Paper Conversion Table (No Mode Effect)
			64	<b>63</b>	7.3	7.1	10.1		
July 2009	787	6151	<b>40</b>	41	53.4	53.3	49.0	30 (73)	Alternate Conversion Table (Mode Effect)
			<b>63</b>	62	1.9	3.2	4.4		

\*: Raw score points corresponding to 'Met Standards' (top) and 'Commended' (bottom) levels. Final RS cuts in bold.

\*\*: Pass rates based on different conversion tables.

\*\*\*: Meaningful differences require both scale score statistical significance and raw score practical significance. Total maximum RS points shown in parentheses.

\*\*\*\*: For ELA, an essay score of 2 or above is required in addition to the scale score requirements to be considered passing.

Mathematics:

Administration	Sample Size		Raw Score Cuts*		Pass Rates (%) Comparison**			Number of Raw Score Points with Meaningful Difference***	Decision (Conclusion)
	Online	Paper	Online	Paper	Paper w/Paper	Online w/Online	Online w/Paper		
March 2009	2171	24484	<b>32</b>	33	37.5	38.3	34.3	45(60)	Alternate Conversion Table (Mode Effect)
			<b>53</b>	54	1.0	1.2	1.0		
April 2009	1225	13670	<b>33</b>	34	24.9	26.9	22.5	34 (60)	Alternate Conversion Table (Mode Effect)
			<b>53</b>	53	0.3	0.2	0.2		
July 2009	2840	20804	33	<b>33</b>	29.1	27.8	27.8	26 (60)	Paper Conversion Table (No Mode Effect)
			53	<b>54</b>	0.0	0.0	0.0		

\*: Raw score points corresponding to 'Met Standards' (top) and 'Commended' (bottom) levels. Final RS cuts in bold.

\*\*: Pass rates based on different conversion tables.

\*\*\*: Meaningful differences require both scale score statistical significance and raw score practical significance. Total maximum RS points shown in parentheses.

## Science:

Administration	Sample Size		Raw Score Cuts*		Pass Rates (%) Comparison**			Number of Raw Score Points with Meaningful Difference***	Decision (Conclusion)
	Online	Paper	Online	Paper	Paper w/Paper	Online w/Online	Online w/Paper		
March 2009	2121	21577	<b>29</b>	30	40.2	45.6	40.3	28(55)	Alternate Conversion Table (Mode Effect)
			<b>49</b>	50	0.5	0.8	0.6		
April 2009	1225	13670	30	<b>30</b>	36.7	34.2	34.2	34 (55)	Paper Conversion Table (No Mode Effect)
			49	<b>49</b>	0.2	0.3	0.3		
July 2009	2134	15730	30	<b>30</b>	31.5	32.7	32.7	0 (55)	Paper Conversion Table (No Mode Effect)
			50	<b>50</b>	0.0	0.0	0.0		

\*: Raw score points corresponding to 'Met Standards' (top) and 'Commended' (bottom) levels. Final RS cuts in bold.

\*\* : Pass rates based on different conversion tables.

\*\*\*: Meaningful differences require both scale score statistical significance and raw score practical significance. Total maximum RS points shown in parentheses.

## Social studies:

Administration	Sample Size		Raw Score Cuts*		Pass Rates (%) Comparison**			Number of Raw Score Points with Meaningful Difference***	Decision (Conclusion)
	Online	Paper	Online	Paper	Paper w/Paper	Online w/Online	Online w/Paper		
March 2009	639	6311	27	<b>28</b>	54.3	55.9	52.1	28(55)	Paper Conversion Table (No Mode Effect)
			49	<b>49</b>	10.6	13.0	13.0		

\*: Raw score points corresponding to 'Met Standards' (top) and 'Commended' (bottom) levels. Final RS cuts in bold.

\*\* : Pass rates based on different conversion tables.

\*\*\*: Meaningful differences require both scale score statistical significance and raw score practical significance. Total maximum RS points shown in parentheses.

Table 5. Summary of Comparability Analysis – October 2008 Exit Level ELA

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	S_DIF	SIG	Final
0	0.35	0.042	1380.80	1429.45	5.790	0.35	48.65		1381
1	1.16	0.124	1519.69	1532.13	10.732	0.16	12.44		1532
2	2.28	0.210	1601.59	1615.35	10.905	0.28	13.76		1615
3	3.40	0.271	1650.86	1664.95	9.941	0.40	14.09		1665
4	4.50	0.313	1686.77	1700.86	9.008	0.50	14.09		1701
5	5.59	0.342	1715.38	1729.38	8.156	0.59	14.00		1729
6	6.67	0.361	1739.38	1753.29	7.408	0.67	13.91		1753
7	7.75	0.375	1760.19	1774.04	6.782	0.75	13.85	*	1774
8	8.83	0.384	1778.69	1792.51	6.257	0.83	13.82	*	1793
9	9.91	0.391	1795.42	1809.23	5.824	0.91	13.81	*	1809
10	10.98	0.396	1810.77	1824.58	5.463	0.98	13.81	*	1825
11	12.05	0.401	1824.99	1838.82	5.172	1.05	13.83	*	1839
12	13.12	0.406	1838.30	1852.16	4.931	1.12	13.86	*	1852
13	14.18	0.411	1850.85	1864.74	4.735	1.18	13.89	*	1865
14	15.24	0.415	1862.76	1876.68	4.569	1.24	13.92	*	1877
15	16.30	0.421	1874.11	1888.06	4.434	1.30	13.94	*	1888
16	17.35	0.426	1884.99	1898.96	4.326	1.35	13.97	*	1899
17	18.40	0.431	1895.45	1909.45	4.233	1.40	14.00	*	1909
18	19.44	0.436	1905.56	1919.57	4.153	1.44	14.01	*	1920
19	20.49	0.441	1915.35	1929.37	4.089	1.49	14.01	*	1929
20	21.53	0.446	1924.86	1938.88	4.029	1.53	14.01	*	1939
21	22.56	0.450	1934.14	1948.13	3.980	1.56	13.99	*	1948
22	23.59	0.454	1943.18	1957.15	3.939	1.59	13.97	*	1957
23	24.62	0.458	1952.03	1965.98	3.898	1.62	13.95	*	1966
24	25.64	0.461	1960.72	1974.62	3.864	1.64	13.90	*	1975
25	26.66	0.463	1969.26	1983.10	3.830	1.66	13.84	*	1983
26	27.67	0.465	1977.67	1991.44	3.806	1.67	13.78	*	1991
27	28.68	0.466	1985.95	1999.66	3.774	1.68	13.71	*	2000
28	29.68	0.467	1994.16	2007.76	3.745	1.68	13.61	*	2008
29	30.68	0.466	2002.27	2015.77	3.723	1.68	13.50	*	2016
30	31.68	0.466	2010.30	2023.70	3.700	1.68	13.39	*	2024
31	32.67	0.464	2018.29	2031.56	3.676	1.67	13.27	*	2032
32	33.66	0.462	2026.25	<u>2039.37</u>	3.657	1.66	13.12	*	<u>2045</u>
33	34.64	0.459	2034.17	2047.15	3.636	1.64	12.98	*	2047
34	35.61	0.455	<u>2042.09</u>	2054.90	3.617	1.61	12.81	*	2055
35	36.59	0.450	2050.01	2062.64	3.598	1.59	12.62	*	2063
36	37.55	0.445	2057.96	<u>2070.38</u>	3.582	1.55	12.42	*	<u>2072</u>
37	38.51	0.439	<u>2065.93</u>	2078.15	3.567	1.51	12.21	*	2078
38	39.47	0.433	2073.97	2085.95	3.552	1.47	11.98	*	2086
39	40.42	0.425	2082.08	<b>2093.80</b>	3.538	1.42	11.72	*	<b>2100</b>
40	41.37	0.417	2090.29	2101.73	3.528	1.37	11.44	*	2102
41	42.31	0.409	<b>2098.60</b>	2109.75	3.516	1.31	11.14	*	2110
42	43.24	0.400	2107.07	2117.87	3.506	1.24	10.80	*	2118
43	44.18	0.390	2115.69	2126.12	3.498	1.18	10.42	*	2126
44	45.10	0.379	2124.51	2134.52	3.491	1.10	10.01	*	2135
45	46.02	0.368	2133.56	2143.10	3.486	1.02	9.54	*	2143
46	46.93	0.357	2142.86	2151.88	3.481	0.93	9.02	*	2152
47	47.84	0.345	2152.47	2160.90	3.475	0.84	8.42	*	2161
48	48.75	0.333	2162.43	2170.17	3.471	0.75	7.75	*	2170
49	49.65	0.320	2172.76	2179.75	3.472	0.65	6.99	*	2180
50	50.54	0.307	2183.56	2189.67	3.478	0.54	6.12		2190
51	51.43	0.294	2194.86	2199.98	3.494	0.43	5.12		2200
52	52.31	0.281	2206.76	2210.72	3.505	0.31	3.96		2211
53	53.20	0.268	2219.31	2221.94	3.521	0.20	2.62		2222
54	54.07	0.255	2232.63	2233.71	3.534	0.07	1.09		2234
55	54.95	0.242	2246.82	2246.13	3.537	-0.05	-0.69		2246
56	55.82	0.230	2262.01	2259.28	3.544	-0.18	-2.73		2259
57	56.69	0.218	2278.36	2273.28	3.580	-0.31	-5.08		2273

**Table 5. Summary of Comparability Analysis – October 2008 Exit Level ELA  
(Continued)**

<b>RAW</b>	<b>CBT_RS</b>	<b>RS_SD</b>	<b>PAP_SS</b>	<b>CBT_SS</b>	<b>SS_SD</b>	<b>RS_DIF</b>	<b>SS_DIF</b>	<b>SIG</b>	<b>Final</b>
58	57.56	0.206	2296.06	2288.26	3.657	-0.44	-7.80		2288
59	58.43	0.196	2315.34	2304.39	3.772	-0.57	-10.95	*	2304
60	59.31	0.186	2336.52	2321.87	3.932	-0.69	-14.65	*	2322
61	60.19	0.179	2359.98	2341.00	4.136	-0.81	-18.98	*	2341
62	61.08	0.174	<b>2386.22</b>	2362.18	4.405	-0.92	-24.04	*	<b>2362</b>
63	61.98	0.173	2415.93	<b>2385.98</b>	4.820	-1.02	-29.95	*	<b>2400</b>
64	62.90	0.178	2450.02	2413.16	5.531	-1.10	-36.86	*	2413
65	63.84	0.190	2489.53	2444.86	6.729	-1.16	-44.67	*	2445
66	64.82	0.209	2535.68	2482.69	8.565	-1.18	-52.99	*	2483
67	65.86	0.230	2590.07	2529.50	11.157	-1.14	-60.57	*	2530
68	67.00	0.242	2655.97	2591.26	14.586	-1.00	-64.71	*	2591
69	68.36	0.224	2742.58	2686.90	19.171	-0.64	-55.68	*	2687
70	70.20	0.330	2868.36	2898.62	46.287	0.20	30.26		2899
71	71.81	0.417	3012.28	3129.89	62.881	0.81	117.61		3130
72	72.57	0.230	3155.39	3251.75	38.050	0.57	96.36	*	3252
73	72.89	0.078	3323.92	3305.47	13.154	-0.11	-18.46		3324

Table 6. Summary of Comparability Analysis – March 2009 Exit Level ELA

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.31	0.086	1340.44	1383.73	11.894	0.31	43.29		1340
1	1.03	0.240	1479.52	1477.24	25.097	0.03	-2.28		1477
2	2.04	0.390	1561.67	1558.96	24.878	0.04	-2.71		1559
3	3.04	0.485	1611.18	1610.15	20.724	0.04	-1.03		1610
4	4.04	0.541	1647.32	1647.06	17.610	0.04	-0.26		1647
5	5.05	0.570	1676.15	1676.39	15.160	0.05	0.24		1676
6	6.06	0.583	1700.35	1700.99	13.184	0.06	0.63		1701
7	7.08	0.584	1721.38	1722.33	11.586	0.08	0.95		1722
8	8.09	0.580	1740.07	1741.31	10.292	0.09	1.24		1741
9	9.11	0.573	1756.99	1758.47	9.250	0.11	1.48		1758
10	10.13	0.565	1772.53	1774.22	8.406	0.13	1.69		1774
11	11.15	0.557	1786.94	1788.82	7.720	0.15	1.88		1789
12	12.17	0.551	1800.42	1802.47	7.168	0.17	2.05		1802
13	13.19	0.547	1813.14	1815.35	6.725	0.19	2.21		1815
14	14.21	0.544	1825.22	1827.56	6.370	0.21	2.35		1828
15	15.23	0.543	1836.75	1839.22	6.082	0.23	2.47		1839
16	16.25	0.544	1847.80	1850.39	5.849	0.25	2.59		1850
17	17.27	0.546	1858.43	1861.13	5.666	0.27	2.70		1861
18	18.28	0.549	1868.72	1871.51	5.514	0.28	2.79		1872
19	19.30	0.552	1878.69	1881.57	5.392	0.30	2.88		1882
20	20.32	0.557	1888.38	1891.34	5.298	0.32	2.96		1891
21	21.33	0.561	1897.84	1900.87	5.218	0.33	3.03		1901
22	22.34	0.566	1907.09	1910.19	5.152	0.34	3.10		1910
23	23.36	0.570	1916.16	1919.31	5.096	0.36	3.15		1919
24	24.37	0.575	1925.06	1928.26	5.053	0.37	3.20		1928
25	25.38	0.578	1933.83	1937.07	5.014	0.38	3.24		1937
26	26.38	0.582	1942.48	1945.74	4.980	0.38	3.27		1946
27	27.39	0.584	1951.02	1954.31	4.949	0.39	3.29		1954
28	28.40	0.586	1959.48	1962.79	4.925	0.40	3.31		1963
29	29.40	0.587	1967.87	1971.18	4.898	0.40	3.31		1971
30	30.40	0.587	1976.20	1979.52	4.877	0.40	3.31		1980
31	31.40	0.586	1984.51	1987.80	4.852	0.40	3.29		1988
32	32.40	0.585	1992.77	1996.04	4.831	0.40	3.27		1996
33	33.39	0.582	2001.03	2004.27	4.812	0.39	3.24		2004
34	34.38	0.579	2009.29	2012.49	4.792	0.38	3.19		2012
35	35.38	0.574	2017.58	2020.70	4.766	0.38	3.12		2021
36	36.37	0.569	2025.87	2028.93	4.743	0.37	3.05		2029
37	37.35	0.563	2034.21	2037.18	4.722	0.35	2.96		2037
38	38.34	0.556	<u>2042.61</u>	<u>2045.48</u>	4.701	0.34	2.86		<u>2045</u>
39	39.32	0.548	2051.09	2053.83	4.677	0.32	2.74		2054
40	40.30	0.539	2059.65	2062.24	4.652	0.30	2.60		2062
41	41.28	0.529	<u>2068.30</u>	<u>2070.74</u>	4.629	0.28	2.44		<u>2072</u>
42	42.25	0.518	2077.09	2079.34	4.605	0.25	2.25		2079
43	43.22	0.507	2086.01	2088.05	4.582	0.22	2.04		2088
44	44.19	0.495	<b>2095.10</b>	<b>2096.90</b>	4.558	0.19	1.80		<b>2100</b>
45	45.16	0.482	2104.37	2105.90	4.532	0.16	1.53		2106
46	46.12	0.468	2113.84	2115.07	4.508	0.12	1.23		2115
47	47.08	0.454	2123.56	2124.44	4.488	0.08	0.89		2124
48	48.04	0.440	2133.56	2134.05	4.469	0.04	0.49		2134
49	49.00	0.425	2143.86	2143.92	4.447	-0.00	0.06		2144
50	49.95	0.409	2154.51	2154.07	4.428	-0.05	-0.44		2154
51	50.91	0.393	2165.55	2164.56	4.416	-0.09	-0.99		2165
52	51.86	0.377	2177.05	2175.43	4.408	-0.14	-1.62		2175
53	52.80	0.361	2189.08	2186.75	4.404	-0.20	-2.33		2187
54	53.75	0.345	2201.71	2198.58	4.408	-0.25	-3.13		2199
55	54.69	0.329	2215.05	2211.01	4.427	-0.31	-4.04		2211
56	55.64	0.313	2229.21	2224.13	4.462	-0.36	-5.08		2224
57	56.59	0.298	2244.35	2238.09	4.523	-0.41	-6.26		2238

**Table 6. Summary of Comparability Analysis – March 2009 Exit Level ELA  
(Continued)**

<b>RAW</b>	<b>CBT_RS</b>	<b>RS_SD</b>	<b>PAP_SS</b>	<b>CBT_SS</b>	<b>SS_SD</b>	<b>RS_DIF</b>	<b>SS_DIF</b>	<b>SIG</b>	<b>Final</b>
58	57.53	0.283	2260.64	2253.04	4.619	-0.47	-7.61		2253
59	58.48	0.270	2278.35	2269.19	4.774	-0.52	-9.16		2269
60	59.44	0.259	2297.78	2286.82	5.015	-0.56	-10.96	*	2287
61	60.39	0.251	2319.33	2306.28	5.387	-0.61	-13.04	*	2306
62	61.36	0.249	2343.59	2328.09	5.987	-0.64	-15.50	*	2328
63	62.34	0.253	<b>2371.27</b>	2352.93	6.932	-0.66	-18.33	*	2353
64	63.32	0.267	2403.31	<b>2381.72</b>	8.424	-0.68	-21.59	*	<b>2400</b>
65	64.33	0.289	2440.92	2415.72	10.673	-0.67	-25.20	*	2416
66	65.35	0.315	2485.38	2456.66	13.768	-0.65	-28.72	*	2457
67	66.40	0.334	2538.31	2506.97	17.485	-0.60	-31.35		2507
68	67.51	0.326	2602.75	2571.40	21.053	-0.49	-31.35		2571
69	68.72	0.258	2686.79	2663.86	22.622	-0.28	-22.93		2664
70	70.27	0.245	2806.65	2847.41	36.001	0.27	40.76		2847
71	71.72	0.388	2955.80	3081.67	68.098	0.72	125.87		3082
72	72.48	0.236	3128.30	3222.42	45.751	0.48	94.11		3222
73	72.86	0.078	3325.02	3297.04	15.283	-0.14	-27.98		3325

Table 7. Summary of Comparability Analysis – July 2009 Exit Level ELA

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.32	0.066	1388.04	1432.47	9.156	0.32	44.43		1388
1	1.06	0.194	1526.83	1529.31	19.328	0.06	2.48		1529
2	2.11	0.329	1608.58	1611.75	19.511	0.11	3.17		1612
3	3.16	0.421	1657.69	1662.33	16.657	0.16	4.64		1662
4	4.22	0.481	1693.45	1698.83	14.565	0.22	5.38		1699
5	5.27	0.517	1721.89	1727.79	12.828	0.27	5.90		1728
6	6.32	0.537	1745.72	1752.05	11.358	0.32	6.33		1752
7	7.38	0.545	1766.34	1773.07	10.127	0.38	6.73		1773
8	8.44	0.546	1784.66	1791.73	9.091	0.44	7.07		1792
9	9.50	0.542	1801.19	1808.58	8.228	0.50	7.39		1809
10	10.55	0.537	1816.34	1824.02	7.508	0.55	7.67		1824
11	11.61	0.531	1830.37	1838.30	6.910	0.61	7.93		1838
12	12.67	0.525	1843.46	1851.63	6.420	0.67	8.16		1852
13	13.72	0.521	1855.79	1864.16	6.019	0.72	8.38		1864
14	14.78	0.518	1867.46	1876.03	5.689	0.78	8.56		1876
15	15.83	0.516	1878.59	1887.31	5.420	0.83	8.73		1887
16	16.87	0.515	1889.22	1898.11	5.201	0.87	8.89		1898
17	17.92	0.516	1899.46	1908.46	5.017	0.92	9.00		1908
18	18.96	0.517	1909.31	1918.42	4.870	0.96	9.12		1918
19	20.00	0.520	1918.85	1928.06	4.747	1.00	9.21		1928
20	21.04	0.522	1928.11	1937.39	4.644	1.04	9.28	*	1937
21	22.07	0.525	1937.12	1946.47	4.562	1.07	9.35	*	1946
22	23.10	0.528	1945.91	1955.31	4.492	1.10	9.40	*	1955
23	24.12	0.530	1954.53	1963.96	4.430	1.12	9.43	*	1964
24	25.14	0.533	1962.97	1972.42	4.380	1.14	9.45	*	1972
25	26.16	0.534	1971.27	1980.73	4.335	1.16	9.46	*	1981
26	27.17	0.536	1979.45	1988.89	4.292	1.17	9.44	*	1989
27	28.18	0.537	1987.52	1996.94	4.258	1.18	9.42	*	1997
28	29.19	0.537	1995.49	2004.89	4.230	1.19	9.40	*	2005
29	30.19	0.536	2003.40	2012.77	4.205	1.19	9.36	*	2013
30	31.19	0.535	2011.27	2020.58	4.180	1.19	9.31	*	2021
31	32.18	0.533	2019.10	2028.35	4.159	1.18	9.25	*	2028
32	33.17	0.530	2026.91	2036.08	4.139	1.17	9.17	*	2036
33	34.16	0.526	2034.71	<u>2043.80</u>	4.120	1.16	9.09	*	<u>2045</u>
34	35.14	0.521	<u>2042.53</u>	<u>2051.52</u>	4.105	1.14	8.99	*	<u>2052</u>
35	36.12	0.516	<u>2050.37</u>	<u>2059.26</u>	4.092	1.12	8.88	*	<u>2059</u>
36	37.10	0.509	<u>2058.27</u>	<u>2067.03</u>	4.083	1.10	8.76	*	<u>2072</u>
37	38.07	0.502	<u>2066.23</u>	<u>2074.86</u>	4.075	1.07	8.64	*	<u>2075</u>
38	39.04	0.494	<u>2074.29</u>	<u>2082.77</u>	4.067	1.04	8.48	*	<u>2083</u>
39	40.00	0.486	<u>2082.44</u>	<u>2090.76</u>	4.059	1.00	8.31	*	<u>2091</u>
40	40.96	0.476	<u>2090.73</u>	<b>2098.85</b>	4.055	0.96	8.12	*	<b>2100</b>
41	41.92	0.466	<b>2099.16</b>	2107.08	4.053	0.92	7.92		2107
42	42.87	0.456	2107.77	2115.46	4.052	0.87	7.68		2115
43	43.82	0.444	2116.58	2124.01	4.055	0.82	7.43		2124
44	44.76	0.433	2125.62	2132.76	4.059	0.76	7.14		2133
45	45.71	0.420	2134.93	2141.74	4.068	0.71	6.81		2142
46	46.65	0.408	2144.54	2150.99	4.078	0.65	6.44		2151
47	47.58	0.395	2154.49	2160.51	4.091	0.58	6.02		2161
48	48.51	0.382	2164.82	2170.36	4.111	0.51	5.54		2170
49	49.44	0.369	2175.58	2180.58	4.139	0.44	5.00		2181
50	50.37	0.356	2186.82	2191.21	4.178	0.37	4.38		2191
51	51.29	0.343	2198.64	2202.30	4.218	0.29	3.66		2202
52	52.21	0.330	2211.05	2213.89	4.275	0.21	2.84		2214
53	53.13	0.318	2224.18	2226.06	4.340	0.13	1.88		2226
54	54.05	0.306	2238.10	2238.87	4.418	0.05	0.78		2239
55	54.96	0.295	2252.92	2252.41	4.514	-0.04	-0.51		2252
56	55.87	0.285	2268.76	2266.76	4.635	-0.13	-2.00		2267
57	56.78	0.277	2285.77	2282.02	4.794	-0.22	-3.74		2282



**Table 7. Summary of Comparability Analysis – July 2009 Exit Level ELA  
(Continued)**

<b>RAW</b>	<b>CBT_RS</b>	<b>RS_SD</b>	<b>PAP_SS</b>	<b>CBT_SS</b>	<b>SS_SD</b>	<b>RS_DIF</b>	<b>SS_DIF</b>	<b>SIG</b>	<b>Final</b>
58	57.68	0.270	2304.11	2298.32	5.009	-0.32	-5.79		2298
59	58.59	0.266	2323.99	2315.78	5.311	-0.41	-8.21		2316
60	59.49	0.265	2345.64	2334.54	5.730	-0.51	-11.10		2335
61	60.38	0.268	2369.35	2354.78	6.322	-0.62	-14.57	*	2355
62	61.28	0.279	<b>2395.44</b>	2376.67	7.166	-0.72	-18.77	*	<b>2377</b>
63	62.17	0.299	2424.38	<b>2400.43</b>	8.391	-0.83	-23.94	*	<b>2400</b>
64	63.05	0.330	2456.65	2426.37	10.164	-0.95	-30.28	*	2426
65	63.93	0.375	2493.01	2454.82	12.747	-1.07	-38.19	*	2455
66	64.81	0.433	2534.54	2486.44	16.475	-1.19	-48.11	*	2486
67	65.70	0.504	2583.31	2522.57	21.818	-1.30	-60.73	*	2523
68	66.63	0.584	2643.77	2566.47	29.725	-1.37	-77.30	*	2566
69	67.65	0.667	2727.53	2626.38	43.500	-1.35	-101.2	*	2626
70	68.82	0.761	2861.01	2724.50	76.856	-1.18	-136.5		2725
71	70.02	0.801	3017.11	2873.02	109.67	-0.98	-144.1		2873
72	71.24	0.699	3163.99	3052.67	103.40	-0.76	-111.3		3053
73	72.31	0.420	3333.64	3218.42	67.467	-0.69	-115.2		3334

Table 8. Summary of Comparability Analysis – March 2009 Exit Level Mathematics

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.33	0.007	1302.63	1349.55	0.950	0.33	46.92		1303
1	1.11	0.022	1443.54	1454.30	2.193	0.11	10.76		1454
2	2.20	0.041	1545.16	1557.48	2.503	0.20	12.32		1557
3	3.29	0.058	1606.36	1619.22	2.608	0.29	12.86		1619
4	4.37	0.074	1651.04	1664.11	2.646	0.37	13.07		1664
5	5.44	0.089	1686.68	1699.81	2.658	0.44	13.13		1700
6	6.50	0.102	1716.61	1729.73	2.656	0.50	13.12	*	1730
7	7.56	0.114	1742.62	1755.69	2.650	0.56	13.07	*	1756
8	8.62	0.126	1765.77	1778.76	2.637	0.62	12.99	*	1779
9	9.67	0.136	1786.73	1799.64	2.626	0.67	12.91	*	1800
10	10.72	0.146	1805.99	1818.81	2.606	0.72	12.82	*	1819
11	11.76	0.155	1823.88	1836.59	2.582	0.76	12.71	*	1837
12	12.80	0.163	1840.64	1853.25	2.560	0.80	12.61	*	1853
13	13.83	0.171	1856.47	1868.97	2.540	0.83	12.50	*	1869
14	14.86	0.177	1871.51	1883.90	2.521	0.86	12.39	*	1884
15	15.89	0.184	1885.88	1898.16	2.505	0.89	12.28	*	1898
16	16.92	0.189	1899.68	1911.85	2.491	0.92	12.17	*	1912
17	17.94	0.195	1912.98	1925.07	2.477	0.94	12.09	*	1925
18	18.96	0.199	1925.90	1937.83	2.455	0.96	11.93	*	1938
19	19.97	0.203	1938.38	1950.20	2.444	0.97	11.82	*	1950
20	20.99	0.207	1950.54	1962.27	2.434	0.99	11.73	*	1962
21	22.00	0.210	1962.44	1974.06	2.422	1.00	11.62	*	1974
22	23.01	0.213	1974.09	1985.60	2.411	1.01	11.51	*	1986
23	24.01	0.215	1985.53	1996.95	2.401	1.01	11.42	*	1997
24	25.02	0.216	1996.80	<u>2008.12</u>	2.391	1.02	11.32	*	<u>2015</u>
25	26.02	0.218	<u>2007.92</u>	2019.13	2.380	1.02	11.21	*	2019
26	27.02	0.219	2018.91	2030.02	2.366	1.02	11.11	*	2030
27	28.02	0.219	2029.80	2040.79	2.358	1.02	10.99	*	2041
28	29.02	0.219	2040.58	<u>2051.50</u>	2.350	1.02	10.92	*	<u>2058</u>
29	30.01	0.219	<u>2051.33</u>	2062.15	2.341	1.01	10.82	*	2062
30	31.00	0.218	2062.04	2072.77	2.331	1.00	10.73	*	2073
31	31.99	0.217	2072.74	2083.37	2.322	0.99	10.63	*	2083
32	32.98	0.215	2083.44	<b>2093.98</b>	2.315	0.98	10.54	*	<b>2100</b>
33	33.97	0.213	<b>2094.17</b>	2104.62	2.304	0.97	10.45	*	2105
34	34.95	0.211	2104.95	2115.32	2.295	0.95	10.37	*	2115
35	35.94	0.208	2115.80	2126.08	2.288	0.94	10.28	*	2126
36	36.92	0.205	2126.75	2136.95	2.279	0.92	10.20	*	2137
37	37.90	0.201	2137.82	2147.94	2.272	0.90	10.12	*	2148
38	38.88	0.197	2149.04	2159.08	2.263	0.88	10.04	*	2159
39	39.86	0.193	2160.44	2170.41	2.256	0.86	9.97	*	2170
40	40.83	0.188	2172.06	2181.96	2.247	0.83	9.90	*	2182
41	41.81	0.183	2183.93	2193.76	2.240	0.81	9.83	*	2194
42	42.78	0.178	2196.09	2205.85	2.233	0.78	9.76	*	2206
43	43.75	0.172	2208.60	2218.30	2.225	0.75	9.70	*	2218
44	44.72	0.165	2221.51	2231.15	2.215	0.72	9.64	*	2231
45	45.69	0.159	2234.88	2244.47	2.210	0.69	9.59	*	2244
46	46.65	0.151	2248.80	2258.34	2.207	0.65	9.54	*	2258
47	47.62	0.144	2263.37	2272.87	2.205	0.62	9.50	*	2273
48	48.58	0.136	2278.70	2288.16	2.206	0.58	9.46	*	2288
49	49.54	0.127	2294.94	2304.37	2.207	0.54	9.43	*	2304
50	50.50	0.118	2312.28	2321.69	2.210	0.50	9.41	*	2322
51	51.46	0.109	2330.96	2340.36	2.218	0.46	9.40		2340
52	52.42	0.099	2351.33	2360.75	2.229	0.42	9.42		2361
53	53.37	0.088	2373.86	<b>2383.31</b>	2.245	0.37	9.45		<b>2400</b>
54	54.33	0.078	<b>2399.23</b>	2408.74	2.270	0.33	9.51		2409
55	55.28	0.066	2428.50	2438.15	2.311	0.28	9.65		2438
56	56.22	0.054	2463.47	2473.35	2.378	0.22	9.88		2473
57	57.17	0.041	2507.45	2517.83	2.507	0.17	10.38		2518

**Table 8. Summary of Comparability Analysis – March 2009 Exit Level Mathematics  
(Continued)**

<b>RAW</b>	<b>CBT_RS</b>	<b>RS_SD</b>	<b>PAP_SS</b>	<b>CBT_SS</b>	<b>SS_SD</b>	<b>RS_DIF</b>	<b>SS_DIF</b>	<b>SIG</b>	<b>Final</b>
58	58.12	0.028	2567.94	2579.69	2.852	0.12	11.75		2580
59	59.06	0.014	2668.82	2677.09	2.014	0.06	8.27		2677
60	59.72	0.004	2808.24	2768.93	0.614	-0.28	-39.31		2808

Table 9. Summary of Comparability Analysis – April 2009 Exit Level Mathematics

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.32	0.009	1296.70	1341.86	1.220	0.32	45.16		1297
1	1.06	0.028	1438.98	1444.71	2.825	0.06	5.73		1445
2	2.11	0.052	1540.31	1546.96	3.256	0.11	6.65		1547
3	3.16	0.075	1601.23	1608.27	3.363	0.16	7.03		1608
4	4.20	0.095	1645.65	1652.87	3.400	0.20	7.23		1653
5	5.25	0.114	1681.03	1688.39	3.419	0.25	7.36		1688
6	6.29	0.131	1710.85	1718.22	3.391	0.29	7.37		1718
7	7.32	0.147	1736.60	1744.00	3.373	0.32	7.40		1744
8	8.36	0.161	1759.50	1766.92	3.349	0.36	7.41		1767
9	9.39	0.174	1780.26	1787.67	3.324	0.39	7.41		1788
10	10.42	0.186	1799.32	1806.72	3.298	0.42	7.40		1807
11	11.45	0.197	1817.03	1824.41	3.272	0.45	7.39		1824
12	12.47	0.207	1833.63	1841.00	3.245	0.47	7.37		1841
13	13.49	0.216	1849.31	1856.66	3.219	0.49	7.35		1857
14	14.51	0.224	1864.23	1871.56	3.192	0.51	7.33	*	1872
15	15.53	0.231	1878.49	1885.80	3.168	0.53	7.31	*	1886
16	16.55	0.238	1892.19	1899.49	3.142	0.55	7.30	*	1899
17	17.57	0.243	1905.42	1912.70	3.118	0.57	7.28	*	1913
18	18.58	0.248	1918.24	1925.50	3.095	0.58	7.26	*	1925
19	19.60	0.253	1930.70	1937.94	3.072	0.60	7.25	*	1938
20	20.61	0.257	1942.85	1950.08	3.049	0.61	7.23	*	1950
21	21.62	0.260	1954.74	1961.96	3.027	0.62	7.22	*	1962
22	22.63	0.262	1966.40	1973.62	3.005	0.63	7.21	*	1974
23	23.64	0.264	1977.87	1985.08	2.985	0.64	7.21	*	1985
24	24.64	0.266	1989.18	1996.38	2.965	0.64	7.20	*	1996
25	25.65	0.266	2000.35	<u>2007.55</u>	2.946	0.65	7.20	*	<u>2015</u>
26	26.66	0.267	<u>2011.41</u>	<u>2018.62</u>	2.926	0.66	7.20	*	<u>2019</u>
27	27.66	0.267	<u>2022.39</u>	2029.60	2.908	0.66	7.21	*	2030
28	28.66	0.266	2033.30	2040.51	2.890	0.66	7.21	*	2041
29	29.67	0.265	2044.17	<u>2051.40</u>	2.874	0.67	7.22	*	<u>2058</u>
30	30.67	0.263	<u>2055.02</u>	<u>2062.26</u>	2.856	0.67	7.24	*	<u>2062</u>
31	31.67	0.261	2065.88	2073.13	2.840	0.67	7.25	*	2073
32	32.67	0.258	2076.75	2084.02	2.823	0.67	7.27	*	2084
33	33.66	0.255	2087.67	<b>2094.97</b>	2.808	0.66	7.29	*	<b>2100</b>
34	34.66	0.252	<b>2098.66</b>	2105.98	2.793	0.66	7.32	*	2106
35	35.66	0.248	2109.74	2117.09	2.779	0.66	7.35	*	2117
36	36.65	0.244	2120.93	2128.31	2.765	0.65	7.38	*	2128
37	37.65	0.239	2132.26	2139.68	2.751	0.65	7.42	*	2140
38	38.64	0.234	2143.76	2151.22	2.737	0.64	7.46	*	2151
39	39.63	0.228	2155.45	2162.93	2.717	0.63	7.48	*	2163
40	40.62	0.222	2167.34	2174.91	2.719	0.62	7.57	*	2175
41	41.61	0.216	2179.55	2187.17	2.708	0.61	7.62	*	2187
42	42.60	0.210	2192.08	2199.76	2.700	0.60	7.68	*	2200
43	43.58	0.202	2204.96	2212.70	2.692	0.58	7.74	*	2213
44	44.57	0.195	2218.26	2226.07	2.686	0.57	7.81	*	2226
45	45.55	0.187	2232.04	2239.92	2.681	0.55	7.88	*	2240
46	46.53	0.179	2246.37	2254.34	2.678	0.53	7.96	*	2254
47	47.51	0.170	2261.37	2269.42	2.678	0.51	8.05	*	2269
48	48.49	0.161	2277.13	2285.27	2.681	0.49	8.14		2285
49	49.46	0.151	2293.81	2302.13	2.708	0.46	8.31		2302
50	50.44	0.141	2311.75	2320.14	2.708	0.44	8.39		2320
51	51.41	0.130	2330.96	2339.49	2.727	0.41	8.53		2339
52	52.38	0.119	2351.88	2360.56	2.752	0.38	8.68		2361
53	53.34	0.107	<b>2374.98</b>	<b>2383.84</b>	2.787	0.34	8.86		<b>2400</b>
54	54.30	0.095	2400.95	2410.03	2.836	0.30	9.08		2410
55	55.26	0.082	2430.85	2440.21	2.908	0.26	9.36		2440
56	56.22	0.068	2466.46	2476.22	3.017	0.22	9.76		2476
57	57.17	0.053	2511.12	2521.56	3.217	0.17	10.44		2522

**Table 9. Summary of Comparability Analysis – April 2009 Exit Level Mathematics  
(Continued)**

<b>RAW</b>	<b>CBT_RS</b>	<b>RS_SD</b>	<b>PAP_SS</b>	<b>CBT_SS</b>	<b>SS_SD</b>	<b>RS_DIF</b>	<b>SS_DIF</b>	<b>SIG</b>	<b>Final</b>
58	58.12	0.036	2572.32	2584.35	3.701	0.12	12.03		2584
59	59.06	0.019	2673.95	2682.68	2.692	0.06	8.74		2683
60	59.72	0.006	2815.74	2775.90	0.833	-0.28	-39.84		2816

Table 10. Summary of Comparability Analysis – July 2009 Exit Level Mathematics

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.31	0.005	1301.33	1345.73	0.661	0.31	44.40		1301
1	1.04	0.015	1443.80	1447.68	1.514	0.04	3.88		1444
2	2.07	0.028	1545.43	1550.00	1.732	0.07	4.58		1545
3	3.11	0.040	1606.62	1611.53	1.808	0.11	4.91		1607
4	4.14	0.051	1651.36	1656.46	1.829	0.14	5.10		1651
5	5.18	0.061	1686.90	1692.14	1.835	0.18	5.24		1687
6	6.21	0.071	1716.74	1722.10	1.833	0.21	5.36		1717
7	7.24	0.079	1742.66	1748.11	1.827	0.24	5.45		1743
8	8.26	0.087	1765.71	1771.24	1.818	0.26	5.53		1766
9	9.29	0.094	1786.59	1792.19	1.809	0.29	5.60		1787
10	10.32	0.101	1805.77	1811.43	1.798	0.32	5.66		1806
11	11.34	0.107	1823.57	1829.26	1.779	0.34	5.69		1824
12	12.37	0.113	1840.16	1845.92	1.776	0.37	5.77		1840
13	13.39	0.118	1855.86	1861.68	1.766	0.39	5.82		1856
14	14.41	0.123	1870.78	1876.65	1.758	0.41	5.86		1871
15	15.43	0.128	1885.03	1890.94	1.749	0.43	5.91		1885
16	16.45	0.132	1898.71	1904.66	1.741	0.45	5.95		1899
17	17.47	0.136	1911.89	1917.88	1.734	0.47	5.99		1912
18	18.49	0.139	1924.65	1930.68	1.728	0.49	6.03		1925
19	19.50	0.143	1937.03	1943.11	1.721	0.50	6.07	*	1937
20	20.52	0.146	1949.10	1955.21	1.716	0.52	6.11	*	1949
21	21.53	0.148	1960.89	1967.04	1.711	0.53	6.15	*	1961
22	22.54	0.150	1972.44	1978.62	1.705	0.54	6.18	*	1972
23	23.56	0.152	1983.79	1990.00	1.702	0.56	6.22	*	1984
24	24.57	0.154	1994.96	2001.21	1.698	0.57	6.25	*	1995
25	25.58	0.155	<u>2005.98</u>	<u>2012.26</u>	1.694	0.58	6.28	*	<u>2015</u>
26	26.58	0.156	2016.89	2023.20	1.691	0.58	6.31	*	2017
27	27.59	0.157	2027.70	2034.04	1.688	0.59	6.34	*	2028
28	28.60	0.158	2038.43	2044.81	1.686	0.60	6.37	*	2038
29	29.60	0.158	<u>2049.12</u>	<u>2055.52</u>	1.683	0.60	6.40	*	<u>2058</u>
30	30.60	0.158	2059.78	2066.20	1.682	0.60	6.43	*	2060
31	31.61	0.158	2070.43	2076.88	1.681	0.61	6.45	*	2070
32	32.61	0.157	2081.09	2087.57	1.678	0.61	6.48	*	2081
33	33.60	0.156	<b>2091.79</b>	<b>2098.29</b>	1.678	0.60	6.51	*	<b>2100</b>
34	34.60	0.155	2102.54	2109.08	1.679	0.60	6.53	*	2103
35	35.60	0.153	2113.38	2119.94	1.678	0.60	6.56	*	2113
36	36.59	0.152	2124.32	2130.90	1.679	0.59	6.58	*	2124
37	37.59	0.150	2135.39	2141.99	1.680	0.59	6.60	*	2135
38	38.58	0.147	2146.62	2153.25	1.680	0.58	6.62	*	2147
39	39.57	0.144	2158.04	2164.69	1.682	0.57	6.65	*	2158
40	40.56	0.142	2169.68	2176.35	1.684	0.56	6.67	*	2170
41	41.55	0.138	2181.58	2188.27	1.686	0.55	6.69	*	2182
42	42.53	0.135	2193.78	2200.50	1.690	0.53	6.71	*	2194
43	43.52	0.131	2206.34	2213.07	1.693	0.52	6.73	*	2206
44	44.50	0.126	2219.30	2226.05	1.698	0.50	6.75	*	2219
45	45.48	0.122	2232.73	2239.51	1.703	0.48	6.78		2233
46	46.46	0.117	2246.72	2253.52	1.711	0.46	6.80		2247
47	47.44	0.112	2261.35	2268.18	1.719	0.44	6.83		2261
48	48.42	0.106	2276.75	2283.61	1.728	0.42	6.86		2277
49	49.40	0.100	2293.07	2299.95	1.738	0.40	6.89		2293
50	50.37	0.093	2310.49	2317.41	1.751	0.37	6.92		2310
51	51.34	0.086	2329.26	2336.22	1.766	0.34	6.97		2329
52	52.31	0.079	2349.71	2356.77	1.795	0.31	7.06		2350
53	53.28	0.071	2372.45	<b>2379.55</b>	1.812	0.28	7.10		2372
54	54.24	0.063	<b>2397.93</b>	2405.13	1.844	0.24	7.19		<b>2400</b>
55	55.21	0.054	2427.33	2434.67	1.888	0.21	7.33		2427
56	56.17	0.044	2462.42	2469.98	1.957	0.17	7.56		2462
57	57.13	0.034	2506.54	2514.52	2.078	0.13	7.98		2507

**Table 10. Summary of Comparability Analysis – July 2009 Exit Level Mathematics  
(Continued)**

<b>RAW</b>	<b>CBT_RS</b>	<b>RS_SD</b>	<b>PAP_SS</b>	<b>CBT_SS</b>	<b>SS_SD</b>	<b>RS_DIF</b>	<b>SS_DIF</b>	<b>SIG</b>	<b>Final</b>
58	58.12	0.036	2572.32	2584.35	3.701	0.12	12.03		2584
59	59.06	0.019	2673.95	2682.68	2.692	0.06	8.74		2683
60	59.72	0.006	2815.74	2775.90	0.833	-0.28	-39.84		2816

Table 11. Summary of Comparability Analysis – March 2009 Exit Level Science

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.31	0.006	1392.74	1433.35	0.758	0.31	40.61		1393
1	1.04	0.019	1522.90	1526.61	1.775	0.04	3.71		1527
2	2.08	0.036	1616.38	1620.79	2.055	0.08	4.41		1621
3	3.12	0.052	1672.65	1677.42	2.151	0.12	4.77		1677
4	4.15	0.067	1713.70	1718.71	2.196	0.15	5.01		1719
5	5.19	0.081	1746.44	1751.63	2.215	0.19	5.19		1752
6	6.22	0.093	1773.93	1779.28	2.222	0.22	5.35		1779
7	7.26	0.105	1797.82	1803.30	2.224	0.26	5.48		1803
8	8.29	0.115	1819.09	1824.69	2.217	0.29	5.60		1825
9	9.32	0.125	1838.37	1844.08	2.208	0.32	5.71		1844
10	10.35	0.134	1856.08	1861.90	2.202	0.35	5.82		1862
11	11.38	0.142	1872.56	1878.47	2.190	0.38	5.91		1878
12	12.41	0.149	1888.01	1894.03	2.181	0.41	6.02		1894
13	13.44	0.156	1902.63	1908.74	2.170	0.44	6.11		1909
14	14.47	0.162	1916.54	1922.73	2.159	0.47	6.19		1923
15	15.49	0.168	1929.85	1936.14	2.150	0.49	6.29		1936
16	16.51	0.173	1942.67	1949.04	2.139	0.51	6.37	*	1949
17	17.54	0.177	1955.05	1961.53	2.136	0.54	6.48	*	1962
18	18.56	0.181	1967.11	1973.65	2.117	0.56	6.54	*	1974
19	19.58	0.185	1978.80	1985.43	2.110	0.58	6.63	*	1985
20	20.60	0.188	1990.23	1996.94	2.101	0.60	6.71	*	1997
21	21.62	0.190	2001.43	2008.23	2.097	0.62	6.80	*	2008
22	22.63	0.192	2012.46	2019.34	2.089	0.63	6.88	*	2019
23	23.65	0.194	2023.33	<u>2030.29</u>	2.083	0.65	6.96	*	<u>2035</u>
24	24.66	0.195	<u>2034.08</u>	2041.12	2.076	0.66	7.04	*	2041
25	25.67	0.196	2044.73	2051.86	2.071	0.67	7.13	*	2052
26	26.68	0.196	2055.32	<u>2062.52</u>	2.066	0.68	7.20	*	<u>2068</u>
27	27.69	0.196	<u>2065.86</u>	2073.14	2.061	0.69	7.28	*	2073
28	28.70	0.195	2076.38	2083.74	2.057	0.70	7.36	*	2084
29	29.70	0.194	2086.91	<b>2094.35</b>	2.056	0.70	7.44	*	<b>2100</b>
30	30.71	0.193	<b>2097.48</b>	2104.99	2.051	0.71	7.51	*	2105
31	31.71	0.191	2108.10	2115.69	2.050	0.71	7.59	*	2116
32	32.71	0.189	2118.81	2126.48	2.048	0.71	7.67	*	2126
33	33.71	0.187	2129.64	2137.38	2.047	0.71	7.74	*	2137
34	34.70	0.183	2140.61	2148.43	2.046	0.70	7.82	*	2148
35	35.69	0.180	2151.76	2159.66	2.047	0.69	7.90	*	2160
36	36.69	0.176	2163.13	2171.10	2.047	0.69	7.97	*	2171
37	37.67	0.172	2174.75	2182.79	2.047	0.67	8.04	*	2183
38	38.66	0.167	2186.67	2194.78	2.050	0.66	8.11	*	2195
39	39.64	0.162	2198.95	2207.14	2.053	0.64	8.19	*	2207
40	40.63	0.156	2211.65	2219.91	2.056	0.63	8.26	*	2220
41	41.60	0.150	2224.84	2233.18	2.061	0.60	8.34	*	2233
42	42.58	0.143	2238.62	2247.02	2.065	0.58	8.40	*	2247
43	43.55	0.136	2253.08	2261.57	2.075	0.55	8.49	*	2262
44	44.53	0.128	2268.38	2276.94	2.082	0.53	8.56	*	2277
45	45.49	0.119	2284.68	2293.33	2.094	0.49	8.65		2293
46	46.46	0.110	2302.22	2310.96	2.106	0.46	8.74		2311
47	47.42	0.101	2321.30	2330.15	2.125	0.42	8.85		2330
48	48.38	0.091	2342.36	2351.33	2.149	0.38	8.97		2351
49	49.33	0.080	2366.03	<b>2375.15</b>	2.180	0.33	9.12		<b>2400</b>
50	50.29	0.068	<b>2393.29</b>	2402.62	2.226	0.29	9.33		2403
51	51.24	0.056	2425.79	2435.43	2.298	0.24	9.64		2435
52	52.18	0.043	2466.58	2476.79	2.432	0.18	10.21		2477
53	53.12	0.030	2522.58	2534.22	2.776	0.12	11.64		2534
54	54.06	0.015	2615.77	2624.08	1.983	0.06	8.31		2624
55	54.72	0.005	2745.21	2708.92	0.607	-0.28	-36.29		2745



Table 12. Summary of Comparability Analysis – April 2009 Exit Level Science

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.32	0.008	1366.69	1408.11	1.095	0.32	41.42		1367
1	1.07	0.027	1496.09	1502.28	2.560	0.07	6.19		1496
2	2.13	0.052	1590.15	1597.43	2.944	0.13	7.28		1590
3	3.19	0.074	1647.01	1654.79	3.083	0.19	7.78		1647
4	4.24	0.094	1688.68	1696.75	3.140	0.24	8.07		1689
5	5.29	0.112	1722.04	1730.30	3.162	0.29	8.26		1722
6	6.34	0.129	1750.17	1758.57	3.163	0.34	8.39		1750
7	7.39	0.144	1774.71	1783.20	3.155	0.39	8.49		1775
8	8.43	0.157	1796.64	1805.19	3.141	0.43	8.55		1797
9	9.47	0.170	1816.59	1825.19	3.124	0.47	8.60		1817
10	10.50	0.181	1835.00	1843.62	3.105	0.50	8.63	*	1835
11	11.53	0.191	1852.16	1860.80	3.084	0.53	8.64	*	1852
12	12.56	0.200	1868.32	1876.97	3.063	0.56	8.65	*	1868
13	13.59	0.208	1883.64	1892.30	3.042	0.59	8.65	*	1884
14	14.62	0.215	1898.27	1906.92	3.022	0.62	8.65	*	1898
15	15.64	0.222	1912.31	1920.95	3.002	0.64	8.64	*	1912
16	16.66	0.228	1925.85	1934.47	2.984	0.66	8.62	*	1926
17	17.67	0.233	1938.97	1947.59	2.971	0.67	8.62	*	1939
18	18.69	0.237	1951.75	1960.32	2.946	0.69	8.57	*	1952
19	19.70	0.241	1964.18	1972.73	2.932	0.70	8.55	*	1964
20	20.71	0.245	1976.35	1984.88	2.920	0.71	8.53	*	1976
21	21.72	0.247	1988.31	1996.82	2.908	0.72	8.51	*	1988
22	22.73	0.249	2000.08	2008.56	2.895	0.73	8.48	*	2000
23	23.74	0.251	2011.70	2020.16	2.886	0.74	8.46	*	2012
24	24.74	0.253	2023.20	<u>2031.62</u>	2.873	0.74	8.42	*	2023
25	25.74	0.253	<u>2034.58</u>	2042.98	2.869	0.74	8.40	*	<u>2035</u>
26	26.74	0.254	2045.90	2054.28	2.863	0.74	8.38	*	2046
27	27.74	0.254	2057.18	<u>2065.53</u>	2.857	0.74	8.35	*	2057
28	28.74	0.253	<u>2068.44</u>	2076.77	2.854	0.74	8.33	*	<u>2068</u>
29	29.74	0.252	2079.71	2088.01	2.852	0.74	8.31	*	2080
30	30.73	0.251	<b>2091.00</b>	<b>2099.29</b>	2.851	0.73	8.29	*	<b>2100</b>
31	31.72	0.249	2102.35	2110.62	2.851	0.72	8.27	*	2102
32	32.71	0.247	2113.78	2122.04	2.852	0.71	8.25	*	2114
33	33.70	0.244	2125.33	2133.56	2.855	0.70	8.24	*	2125
34	34.69	0.241	2137.01	2145.24	2.859	0.69	8.22	*	2137
35	35.68	0.237	2148.88	2157.09	2.864	0.68	8.21	*	2149
36	36.67	0.233	2160.95	2169.15	2.871	0.67	8.20	*	2161
37	37.65	0.228	2173.27	2181.47	2.879	0.65	8.20	*	2173
38	38.63	0.223	2185.89	2194.09	2.889	0.63	8.19	*	2186
39	39.61	0.217	2198.87	2207.06	2.900	0.61	8.19	*	2199
40	40.59	0.210	2212.26	2220.45	2.912	0.59	8.20	*	2212
41	41.57	0.203	2226.14	2234.34	2.928	0.57	8.20	*	2226
42	42.54	0.194	2240.59	2248.81	2.946	0.54	8.22	*	2241
43	43.52	0.186	2255.74	2263.97	2.967	0.52	8.23	*	2256
44	44.49	0.176	2271.71	2279.97	2.988	0.49	8.25		2272
45	45.46	0.166	2288.69	2296.97	3.015	0.46	8.28		2289
46	46.42	0.154	2306.89	2315.21	3.047	0.42	8.32		2307
47	47.39	0.142	2326.63	2335.01	3.084	0.39	8.38		2327
48	48.35	0.129	2348.34	2356.79	3.130	0.35	8.45		2348
49	49.31	0.114	<b>2372.66</b>	<b>2381.22</b>	3.188	0.31	8.56		<b>2400</b>
50	50.26	0.099	2400.56	2409.32	3.283	0.26	8.76		2401
51	51.22	0.082	2433.83	2442.82	3.393	0.22	8.99		2434
52	52.17	0.064	2475.30	2484.78	3.605	0.17	9.49		2475
53	53.11	0.044	2531.96	2542.75	4.129	0.11	10.79		2532
54	54.06	0.023	2625.82	2633.60	2.998	0.06	7.78		2626
55	54.72	0.007	2757.13	2720.12	0.923	-0.28	-37.01		2757

Table 13. Summary of Comparability Analysis – July 2009 Exit Level Science

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.30	0.005	1387.12	1426.64	0.707	0.30	39.52		1387
1	1.00	0.017	1518.31	1518.56	1.850	0.00	0.25		1518
2	2.01	0.033	1611.94	1612.21	2.277	0.01	0.27		1612
3	3.02	0.047	1668.36	1668.88	2.170	0.02	0.52		1668
4	4.02	0.060	1709.57	1710.24	2.126	0.02	0.67		1710
5	5.03	0.072	1742.54	1743.30	2.088	0.03	0.77		1743
6	6.04	0.082	1770.14	1770.99	2.055	0.04	0.85		1770
7	7.04	0.092	1794.15	1795.06	2.028	0.04	0.91		1794
8	8.05	0.101	1815.55	1816.51	2.004	0.05	0.96		1816
9	9.06	0.109	1834.97	1835.96	1.982	0.06	1.00		1835
10	10.06	0.116	1852.83	1853.86	1.960	0.06	1.02		1853
11	11.07	0.122	1869.46	1870.50	1.939	0.07	1.05		1869
12	12.07	0.128	1885.06	1886.13	1.920	0.07	1.06		1885
13	13.08	0.134	1899.83	1900.90	1.894	0.08	1.07		1900
14	14.08	0.138	1913.81	1914.89	1.879	0.08	1.08		1914
15	15.08	0.143	1927.26	1928.33	1.865	0.08	1.08		1927
16	16.09	0.147	1940.19	1941.26	1.850	0.09	1.08		1940
17	17.09	0.150	1952.68	1953.76	1.836	0.09	1.07		1953
18	18.09	0.153	1964.81	1965.87	1.824	0.09	1.06		1965
19	19.09	0.156	1976.62	1977.67	1.811	0.09	1.05		1977
20	20.09	0.159	1988.15	1989.20	1.802	0.09	1.04		1988
21	21.09	0.160	1999.46	2000.49	1.791	0.09	1.03		1999
22	22.09	0.162	2010.57	2011.58	1.784	0.09	1.02		2011
23	23.09	0.164	2021.52	2022.52	1.776	0.09	1.00		2022
24	24.09	0.165	<u>2032.33</u>	<u>2033.32</u>	1.770	0.09	0.99		<u>2035</u>
25	25.09	0.166	2043.05	2044.02	1.765	0.09	0.98		2043
26	26.09	0.166	2053.68	2054.64	1.760	0.09	0.96		2054
27	27.09	0.166	<u>2064.27</u>	<u>2065.22</u>	1.758	0.09	0.95		<u>2068</u>
28	28.09	0.166	<u>2074.83</u>	<u>2075.77</u>	1.756	0.09	0.93		2075
29	29.09	0.166	2085.40	2086.32	1.755	0.09	0.92		2085
30	30.09	0.165	<b>2095.99</b>	<b>2096.90</b>	1.756	0.09	0.91		<b>2100</b>
31	31.08	0.164	2106.63	2107.53	1.756	0.08	0.90		2107
32	32.08	0.163	2117.35	2118.24	1.760	0.08	0.89		2117
33	33.08	0.162	2128.17	2129.06	1.764	0.08	0.89		2128
34	34.08	0.160	2139.14	2140.02	1.769	0.08	0.88		2139
35	35.08	0.158	2150.27	2151.15	1.776	0.08	0.88		2150
36	36.08	0.155	2161.61	2162.49	1.785	0.08	0.88		2162
37	37.07	0.152	2173.20	2174.08	1.794	0.07	0.88		2173
38	38.07	0.149	2185.08	2185.97	1.805	0.07	0.89		2185
39	39.07	0.146	2197.31	2198.21	1.819	0.07	0.90		2197
40	40.07	0.141	2209.96	2210.87	1.833	0.07	0.91		2210
41	41.07	0.137	2223.08	2224.01	1.850	0.07	0.93		2223
42	42.06	0.132	2236.79	2237.74	1.868	0.06	0.95		2237
43	43.06	0.127	2251.17	2252.15	1.890	0.06	0.98		2251
44	44.06	0.121	2266.38	2267.40	1.915	0.06	1.01		2266
45	45.06	0.114	2282.59	2283.64	1.940	0.06	1.05		2283
46	46.06	0.107	2300.02	2301.13	1.971	0.06	1.10		2300
47	47.05	0.099	2318.99	2320.16	2.007	0.05	1.16		2319
48	48.05	0.090	2339.93	2341.17	2.048	0.05	1.24		2340
49	49.05	0.081	2363.47	2364.80	2.097	0.05	1.33		2363
50	50.04	0.070	<b>2390.59</b>	<b>2392.03</b>	2.159	0.04	1.44		<b>2400</b>
51	51.04	0.059	2422.93	2424.53	2.250	0.04	1.59		2423
52	52.03	0.046	2463.72	2465.53	2.381	0.03	1.81		2464
53	53.02	0.032	2519.58	2521.83	2.683	0.02	2.25		2520
54	54.01	0.017	2612.64	2614.34	2.052	0.01	1.70		2613
55	54.70	0.005	2743.64	2704.85	0.690	-0.30	-38.78		2744

Table 14. Summary of Comparability Analysis – March 2009 Exit Level Social Studies

RAW	CBT_RS	RS_SD	PAP_SS	CBT_SS	SS_SD	RS_DIF	SS_DIF	SIG	Final
0	0.32	0.014	1448.34	1489.25	1.788	0.32	40.91		1448
1	1.07	0.045	1576.17	1582.04	4.222	0.07	5.87		1576
2	2.13	0.087	1666.83	1673.60	4.951	0.13	6.77		1667
3	3.18	0.126	1721.14	1728.32	5.103	0.18	7.18		1721
4	4.24	0.163	1760.59	1767.99	5.193	0.24	7.40		1761
5	5.29	0.196	1792.04	1799.50	5.201	0.29	7.46		1792
6	6.33	0.228	1818.22	1825.73	5.207	0.33	7.51		1818
7	7.37	0.257	1840.89	1848.42	5.201	0.37	7.53		1841
8	8.41	0.284	1861.01	1868.53	5.177	0.41	7.52		1861
9	9.45	0.309	1879.19	1886.69	5.147	0.45	7.50		1879
10	10.48	0.332	1895.85	1903.32	5.119	0.48	7.47		1896
11	11.52	0.353	1911.30	1918.74	5.090	0.52	7.44		1911
12	12.54	0.373	1925.76	1933.16	5.063	0.54	7.40		1926
13	13.57	0.391	1939.40	1946.76	5.040	0.57	7.36		1939
14	14.59	0.407	1952.37	1959.68	5.012	0.59	7.31		1952
15	15.61	0.422	1964.75	1972.03	4.994	0.61	7.28		1965
16	16.63	0.435	1976.66	1983.89	4.968	0.63	7.23		1977
17	17.65	0.447	1988.14	1995.33	4.951	0.65	7.19		1988
18	18.66	0.457	1999.28	2006.42	4.930	0.66	7.14		1999
19	19.67	0.466	2010.11	2017.21	4.914	0.67	7.10		2010
20	20.68	0.474	2020.70	<u>2027.74</u>	4.895	0.68	7.04		2021
21	21.69	0.481	<u>2031.06</u>	2038.06	4.881	0.69	7.00		<u>2033</u>
22	22.69	0.486	2041.25	2048.20	4.866	0.69	6.95		2041
23	23.70	0.490	2051.29	<u>2058.20</u>	4.854	0.70	6.91		2051
24	24.70	0.493	<u>2061.22</u>	2068.09	4.842	0.70	6.87		<u>2067</u>
25	25.70	0.494	2071.06	2077.88	4.829	0.70	6.82		2071
26	26.70	0.495	2080.84	2087.61	4.818	0.70	6.77		2081
27	27.69	0.494	2090.58	<b>2097.31</b>	4.811	0.69	6.73		2091
28	28.69	0.492	<b>2100.31</b>	2107.00	4.802	0.69	6.69		<b>2100</b>
29	29.68	0.489	2110.06	2116.70	4.793	0.68	6.64		2110
30	30.67	0.485	2119.84	2126.44	4.790	0.67	6.60		2120
31	31.66	0.480	2129.69	2136.25	4.787	0.66	6.56		2130
32	32.65	0.474	2139.64	2146.15	4.780	0.65	6.51		2140
33	33.63	0.466	2149.70	2156.17	4.777	0.63	6.47		2150
34	34.62	0.458	2159.91	2166.34	4.777	0.62	6.43		2160
35	35.60	0.448	2170.31	2176.70	4.775	0.60	6.39		2170
36	36.58	0.437	2180.92	2187.28	4.780	0.58	6.36		2181
37	37.56	0.426	2191.80	2198.12	4.783	0.56	6.32		2192
38	38.54	0.413	2202.99	2209.27	4.784	0.54	6.28		2203
39	39.52	0.399	2214.53	2220.78	4.792	0.52	6.25		2215
40	40.50	0.384	2226.50	2232.71	4.798	0.50	6.21		2227
41	41.47	0.368	2238.96	2245.14	4.809	0.47	6.18		2239
42	42.45	0.351	2252.01	2258.16	4.821	0.45	6.15		2252
43	43.42	0.332	2265.75	2271.88	4.838	0.42	6.13		2266
44	44.39	0.312	2280.32	2286.42	4.855	0.39	6.10		2280
45	45.36	0.292	2295.89	2301.98	4.878	0.36	6.09		2296
46	46.33	0.269	2312.69	2318.77	4.908	0.33	6.08		2313
47	47.30	0.246	2331.03	2337.12	4.953	0.30	6.09		2331
48	48.27	0.221	2351.33	2357.44	5.011	0.27	6.11		2351
49	49.23	0.195	<b>2374.21</b>	<b>2380.36</b>	5.087	0.23	6.15		<b>2400</b>
50	50.20	0.167	2400.63	2406.86	5.197	0.20	6.23		2401
51	51.16	0.138	2432.21	2438.61	5.364	0.16	6.40		2432
52	52.12	0.107	2471.95	2478.68	5.660	0.12	6.73		2472
53	53.08	0.073	2526.58	2534.24	6.400	0.08	7.66		2527
54	54.04	0.038	2617.62	2623.05	4.685	0.04	5.43		2618
55	54.71	0.012	2745.13	2708.50	1.491	-0.29	-36.63		2745

**Table 15. Summary of 2008-2009 Exit Level Item-Level Analyses and Subgroup Analyses**

## ELA

Grade/ Subject	Number of Items with Significant Mode Differences*	Mean RS Difference (Effect Size) between Online and Paper over Replications**	Subgroup Analysis--Mean RS Difference (Effect Size) between Online and Paper over Replications**				
			Gender		Ethnicity		
			Male	Female	African American	Hispanic	White
October 2008	20 (52)	<b>-0.60</b> <b>(-0.05)</b>	<b>-0.79</b> <b>(-0.07)</b>	-0.38 (-0.03)	-0.69 (-0.07)	<b>-0.98</b> <b>(-0.08)</b>	0.52 (0.05)
March 2009	5 (52)	-0.11 (-0.01)	-0.28 (-0.02)	0.08 (0.01)	-0.68 (-0.06)	-0.22 (-0.02)	0.47 (0.05)
July 2009	15 (52)	<b>-0.83</b> <b>(-0.08)</b>	-0.51 (-0.05)	<b>-1.20</b> <b>(-0.12)</b>	-0.96 (-0.10)	-1.04 (-0.10)	0.90 (0.09)

\*: Items with significant mean differences ( $p < .05$ ) over replications. Total number of items in parentheses.

\*\* : RS Significant Differences ( $p < .05$ ) are in bold-face. Negative values indicate a lower mean RS for the online group.

## Mathematics

Grade/ Subject	Number of Items with Significant Mode Differences*	Mean RS Difference (Effect Size) between Online and Paper over Replications**	Subgroup Analysis--Mean RS Difference (Effect Size) between Online and Paper over Replications**				
			Gender		Ethnicity		
			Male	Female	African American	Hispanic	White
March 2009	17 (60)	<b>-0.93</b> <b>(-0.11)</b>	<b>-0.85</b> <b>(-0.10)</b>	<b>-1.00</b> <b>(-0.12)</b>	-0.67 (-0.08)	<b>-1.05</b> <b>(-0.13)</b>	<b>-1.18</b> <b>(-0.13)</b>
April 2009	8 (60)	<b>-0.65</b> <b>(-0.09)</b>	<b>-0.81</b> <b>(-0.10)</b>	-0.53 (-0.07)	-0.34 (-0.04)	-0.62 (-0.08)	-1.19 (-0.14)
July 2009	14 (60)	<b>-0.55</b> <b>(-0.07)</b>	-0.58 (-0.07)	<b>-0.54</b> <b>(-0.07)</b>	<b>-0.71</b> <b>(-0.10)</b>	<b>-0.44</b> <b>(-0.06)</b>	<b>-0.74</b> <b>(-0.10)</b>

\*: Items with significant mean differences ( $p < .05$ ) over replications. Total number of items in parentheses.

\*\* : RS Significant Differences ( $p < .05$ ) are in bold-face. Negative values indicate a lower mean RS for the online group.

## Science

Grade/ Subject	Number of Items with Significant Mode Differences*	Mean RS Difference (Effect Size) between Online and Paper over Replications**	Subgroup Analysis--Mean RS Difference (Effect Size) between Online and Paper over Replications**				
			Gender		Ethnicity		
			Male	Female	African American	Hispanic	White
March 2009	12 (55)	<b>-0.63</b> (-0.09)	-0.17 (-0.02)	<b>-0.94</b> (-0.13)	<b>-0.96</b> (-0.15)	<b>-0.49</b> (-0.07)	-0.63 (-0.08)
April 2009	6 (55)	<b>-0.74</b> (-0.11)	-0.70 (-0.10)	<b>-0.76</b> (-0.12)	-0.59 (-0.09)	<b>-0.87</b> (-0.14)	-0.64 (-0.09)
July 2009	5 (55)	-0.09 (-0.01)	-0.31 (-0.05)	0.04 (0.01)	-0.43 (-0.07)	0.06 (0.01)	-0.13 (-0.02)

\*: Items with significant mean differences ( $p < .05$ ) over replications. Total number of items in parentheses.

\*\* : RS Significant Differences ( $p < .05$ ) are in bold-face. Negative values indicate a lower mean RS for the online group.

## Social studies

Grade/ Subject	Number of Items with Significant Mode Differences*	Mean RS Difference (Effect Size) between Online and Paper over Replications**	Subgroup Analysis--Mean RS Difference (Effect Size) between Online and Paper over Replications**				
			Gender		Ethnicity		
			Male	Female	African American	Hispanic	White
March 2009	7 (55)	1.02 (0.11)	0.95 (0.09)	0.99 (0.12)	0.66 (0.08)	1.27 (0.15)	2.20 (0.22)

\*: Items with significant mean differences ( $p < .05$ ) over replications. Total number of items in parentheses.

\*\* : RS Significant Differences ( $p < .05$ ) are in bold-face. Negative values indicate a lower mean RS for the online group.

Table 16. Summary of Item-Level Analysis – October 2008 Exit Level ELA

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.71	0.76	-0.05	0.01	-4.30	*	-0.12
2	0.88	0.90	-0.02	0.01	-2.02	*	-0.06
3	0.97	0.98	-0.01	0.00	-2.21	*	-0.07
4	0.66	0.68	-0.03	0.01	-1.90		-0.06
5	0.84	0.84	0.00	0.01	0.12		0.00
6	0.82	0.83	-0.02	0.01	-1.36		-0.04
7	0.93	0.94	-0.01	0.01	-1.15		-0.03
8	0.70	0.70	-0.01	0.01	-0.52		-0.02
9	0.60	0.67	-0.08	0.01	-5.43	*	-0.16
10	0.72	0.76	-0.03	0.01	-2.56	*	-0.08
11	0.83	0.86	-0.03	0.01	-2.82	*	-0.08
12	0.69	0.71	-0.02	0.01	-1.73		-0.05
13	0.72	0.74	-0.02	0.01	-1.41		-0.04
14	0.67	0.70	-0.03	0.01	-2.07	*	-0.06
15	0.87	0.88	0.00	0.01	-0.51		-0.01
16	0.68	0.69	-0.01	0.01	-0.91		-0.03
17	0.83	0.86	-0.03	0.01	-2.33	*	-0.07
18	0.63	0.65	-0.02	0.01	-1.85		-0.05
19	0.57	0.59	-0.02	0.01	-1.67		-0.05
20	0.76	0.80	-0.04	0.01	-3.39	*	-0.10
21	0.82	0.83	-0.02	0.01	-1.36		-0.04
22	0.64	0.65	0.00	0.01	-0.22		-0.01
23	0.69	0.71	-0.02	0.01	-1.61		-0.05
24	0.86	0.89	-0.03	0.01	-2.99	*	-0.09
25	0.72	0.73	-0.01	0.01	-0.64		-0.02
26	0.82	0.85	-0.03	0.01	-2.56	*	-0.08
27	0.90	0.90	0.00	0.01	-0.51		-0.02
28	0.85	0.85	0.00	0.01	-0.35		-0.01
29	1.25	1.29	-0.04	0.02	-1.93		-0.06
30	1.01	0.90	0.11	0.02	5.98	*	0.17
31	0.85	0.80	0.05	0.02	2.39	*	0.07
32	0.86	0.87	-0.01	0.01	-1.01		-0.03
33	0.67	0.65	0.02	0.01	1.52		0.04
34	0.83	0.84	-0.01	0.01	-0.90		-0.03
35	0.79	0.78	0.00	0.01	0.39		0.01
36	0.64	0.64	0.00	0.01	0.06		0.00
37	0.71	0.72	-0.01	0.01	-0.69		-0.02

**Table 16. Summary of Item-Level Analysis – October Exit Level ELA  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.85	0.86	-0.02	0.01	-1.59		-0.05
39	0.70	0.73	-0.04	0.01	-2.78	*	-0.08
40	0.65	0.68	-0.03	0.01	-2.36	*	-0.07
41	0.70	0.72	-0.02	0.01	-1.28		-0.04
42	0.70	0.70	0.00	0.01	-0.36		-0.01
43	0.90	0.92	-0.01	0.01	-1.58		-0.05
44	0.71	0.76	-0.05	0.01	-3.99	*	-0.11
45	0.71	0.75	-0.04	0.01	-3.10	*	-0.09
46	0.68	0.69	-0.01	0.01	-0.63		-0.02
47	0.86	0.88	-0.02	0.01	-1.89		-0.06
48	0.72	0.71	0.01	0.01	0.90		0.03
49	0.69	0.72	-0.03	0.01	-2.62	*	-0.08
50	0.84	0.85	-0.02	0.01	-1.56		-0.05
51	0.77	0.81	-0.04	0.01	-3.01	*	-0.09
52	8.40	8.19	0.21	0.09	2.25	*	0.06

Table 17. Summary of Item-Level Analysis – March 2009 Exit Level ELA

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.83	0.88	-0.05	0.02	-2.91	*	-0.13
2	0.70	0.72	-0.02	0.02	-0.95		-0.05
3	0.63	0.63	0.00	0.02	-0.01		0.00
4	0.86	0.87	-0.01	0.02	-0.60		-0.03
5	0.69	0.70	-0.01	0.02	-0.35		-0.02
6	0.74	0.73	0.01	0.02	0.42		0.02
7	0.73	0.76	-0.03	0.02	-1.44		-0.07
8	0.64	0.63	0.01	0.02	0.45		0.02
9	0.73	0.74	-0.01	0.02	-0.31		-0.02
10	0.75	0.75	0.00	0.02	0.03		0.00
11	0.70	0.73	-0.03	0.02	-1.31		-0.07
12	0.75	0.77	-0.02	0.02	-1.01		-0.05
13	0.70	0.80	-0.09	0.02	-4.48	*	-0.21
14	0.64	0.61	0.03	0.02	1.34		0.07
15	0.78	0.83	-0.04	0.02	-2.21	*	-0.10
16	0.69	0.67	0.02	0.02	0.97		0.04
17	0.72	0.72	0.01	0.02	0.24		0.01
18	0.70	0.73	-0.04	0.02	-1.59		-0.08
19	0.76	0.79	-0.03	0.02	-1.42		-0.07
20	0.51	0.53	-0.02	0.02	-0.68		-0.03
21	0.79	0.79	-0.01	0.02	-0.32		-0.02
22	0.59	0.65	-0.06	0.02	-2.60	*	-0.12
23	0.64	0.61	0.03	0.02	1.29		0.06
24	0.58	0.59	-0.01	0.02	-0.37		-0.02
25	0.85	0.82	0.03	0.02	1.39		0.07
26	0.64	0.67	-0.03	0.02	-1.45		-0.06
27	0.75	0.78	-0.03	0.02	-1.40		-0.07
28	0.53	0.55	-0.02	0.02	-0.94		-0.04
29	1.53	1.52	0.00	0.03	0.11		0.01
30	1.27	1.31	-0.04	0.03	-1.11		-0.05
31	0.93	0.96	-0.03	0.04	-0.81		-0.04
32	0.62	0.64	-0.01	0.02	-0.68		-0.03
33	0.76	0.74	0.03	0.02	1.40		0.06
34	0.94	0.94	0.00	0.01	0.04		0.00
35	0.70	0.71	-0.01	0.02	-0.43		-0.02
36	0.82	0.82	0.01	0.02	0.41		0.02
37	0.78	0.76	0.02	0.02	1.17		0.05



**Table 17. Summary of Item-Level Analysis – March 2009 Exit Level ELA  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.69	0.72	-0.03	0.02	-1.63		-0.07
39	0.86	0.87	-0.01	0.02	-0.85		-0.04
40	0.67	0.69	-0.03	0.02	-1.18		-0.06
41	0.74	0.72	0.02	0.02	0.77		0.04
42	0.81	0.78	0.03	0.02	1.43		0.07
43	0.62	0.64	-0.02	0.02	-0.87		-0.04
44	0.61	0.63	-0.02	0.02	-0.92		-0.04
45	0.78	0.78	0.00	0.02	-0.06		0.00
46	0.82	0.82	0.00	0.02	0.01		0.00
47	0.82	0.79	0.03	0.02	1.48		0.07
48	0.84	0.84	0.00	0.02	0.22		0.01
49	0.75	0.77	-0.02	0.02	-1.08		-0.05
50	0.75	0.73	0.01	0.02	0.50		0.02
51	0.78	0.78	-0.01	0.02	-0.30		-0.01
52	8.76	8.38	0.37	0.13	2.89	*	0.11

Table 18. Summary of Item-Level Analysis – July 2009 Exit Level ELA

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.65	0.72	-0.07	0.02	-3.40	*	-0.16
2	0.73	0.77	-0.04	0.02	-2.02	*	-0.10
3	0.97	0.97	-0.01	0.01	-0.77		-0.04
4	0.59	0.61	-0.02	0.02	-1.01		-0.05
5	0.60	0.64	-0.04	0.02	-1.57		-0.08
6	0.66	0.71	-0.05	0.02	-2.18	*	-0.10
7	0.64	0.67	-0.03	0.02	-1.41		-0.07
8	0.65	0.71	-0.07	0.02	-3.11	*	-0.14
9	0.73	0.78	-0.04	0.02	-2.14	*	-0.10
10	0.64	0.69	-0.05	0.02	-2.24	*	-0.11
11	0.62	0.64	-0.01	0.02	-0.60		-0.03
12	0.85	0.89	-0.04	0.02	-2.63	*	-0.12
13	0.59	0.65	-0.06	0.02	-2.69	*	-0.13
14	0.89	0.87	0.02	0.02	1.20		0.06
15	0.59	0.64	-0.05	0.02	-1.97		-0.10
16	0.54	0.60	-0.06	0.02	-2.35	*	-0.11
17	0.62	0.63	-0.01	0.02	-0.37		-0.02
18	0.58	0.61	-0.03	0.02	-1.34		-0.06
19	0.72	0.79	-0.07	0.02	-3.25	*	-0.16
20	0.61	0.66	-0.05	0.02	-2.00	*	-0.10
21	0.75	0.78	-0.02	0.02	-1.15		-0.06
22	0.43	0.46	-0.04	0.02	-1.58		-0.08
23	0.73	0.70	0.03	0.02	1.45		0.07
24	0.80	0.80	0.00	0.02	-0.19		-0.01
25	0.72	0.77	-0.05	0.02	-2.59	*	-0.12
26	0.94	0.95	-0.02	0.01	-1.34		-0.07
27	0.77	0.81	-0.04	0.02	-1.96		-0.10
28	0.93	0.94	-0.02	0.01	-1.42		-0.07
29	0.91	0.92	-0.01	0.03	-0.46		-0.02
30	1.04	0.91	0.13	0.03	4.00	*	0.18
31	0.69	0.65	0.04	0.03	1.37		0.06
32	0.70	0.66	0.04	0.02	1.95		0.09
33	0.58	0.61	-0.03	0.02	-1.30		-0.06
34	0.85	0.86	-0.01	0.02	-0.58		-0.03
35	0.60	0.63	-0.03	0.02	-1.34		-0.06
36	0.72	0.77	-0.05	0.02	-2.17	*	-0.10
37	0.59	0.61	-0.02	0.02	-0.76		-0.03

**Table 18. Summary of Item-Level Analysis – July 2009 Exit Level ELA  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.75	0.74	0.01	0.02	0.59		0.03
39	0.63	0.62	0.01	0.02	0.61		0.03
40	0.60	0.61	-0.02	0.02	-0.81		-0.04
41	0.48	0.49	-0.01	0.02	-0.38		-0.02
42	0.78	0.79	-0.01	0.02	-0.40		-0.02
43	0.45	0.41	0.04	0.02	1.61		0.08
44	0.65	0.64	0.01	0.02	0.50		0.02
45	0.48	0.52	-0.04	0.02	-1.80		-0.09
46	0.38	0.42	-0.05	0.02	-2.10	*	-0.10
47	0.65	0.68	-0.03	0.02	-1.35		-0.06
48	0.72	0.75	-0.03	0.02	-1.32		-0.06
49	0.88	0.89	0.00	0.02	-0.18		-0.01
50	0.58	0.54	0.03	0.02	1.26		0.06
51	0.85	0.84	0.01	0.02	0.70		0.03
52	7.71	7.60	0.11	0.13	0.83		0.04

Table 19. Summary of Item-Level Analysis – March 2009 Exit Level Mathematics

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.84	0.87	-0.04	0.01	-3.85	*	-0.11
2	0.73	0.73	0.00	0.01	-0.03		0.00
3	0.69	0.72	-0.04	0.01	-2.58	*	-0.08
4	0.71	0.73	-0.02	0.01	-1.27		-0.04
5	0.58	0.59	-0.01	0.01	-0.78		-0.02
6	0.71	0.71	0.00	0.01	-0.13		0.00
7	0.54	0.60	-0.07	0.01	-4.77	*	-0.14
8	0.54	0.61	-0.07	0.01	-6.08	*	-0.15
9	0.56	0.54	0.02	0.02	1.01		0.03
10	0.45	0.45	0.00	0.02	-0.09		0.00
11	0.30	0.32	-0.02	0.01	-1.34		-0.03
12	0.46	0.48	-0.02	0.01	-1.45		-0.04
13	0.32	0.31	0.01	0.01	0.86		0.03
14	0.47	0.50	-0.03	0.01	-1.95		-0.06
15	0.51	0.51	0.00	0.02	-0.15		0.00
16	0.40	0.39	0.01	0.02	0.66		0.02
17	0.65	0.64	0.00	0.01	0.13		0.00
18	0.60	0.60	0.00	0.02	-0.23		-0.01
19	0.65	0.73	-0.07	0.01	-5.54	*	-0.15
20	0.37	0.38	-0.02	0.01	-1.13		-0.03
21	0.44	0.47	-0.03	0.02	-2.01	*	-0.07
22	0.37	0.42	-0.05	0.02	-3.02	*	-0.10
23	0.29	0.27	0.02	0.01	1.30		0.04
24	0.59	0.60	-0.01	0.01	-0.79		-0.02
25	0.32	0.35	-0.03	0.01	-2.06	*	-0.06
26	0.36	0.38	-0.02	0.01	-1.47		-0.04
27	0.79	0.78	0.01	0.01	0.81		0.02
28	0.59	0.62	-0.03	0.02	-1.70		-0.06
29	0.43	0.43	0.00	0.02	0.22		0.01
30	0.35	0.35	0.01	0.01	0.59		0.02
31	0.44	0.42	0.02	0.02	1.46		0.04
32	0.29	0.29	0.00	0.01	-0.11		0.00
33	0.26	0.27	-0.01	0.01	-0.92		-0.02
34	0.45	0.45	-0.01	0.01	-0.43		-0.01
35	0.33	0.34	-0.01	0.01	-0.86		-0.03
36	0.61	0.63	-0.01	0.01	-1.00		-0.03
37	0.26	0.26	0.00	0.01	-0.33		-0.01

**Table 19. Summary of Item-Level Analysis – March 2009 Exit Level Mathematics  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.40	0.39	0.01	0.02	0.86		0.03
39	0.23	0.25	-0.02	0.01	-1.66		-0.05
40	0.37	0.35	0.02	0.02	1.42		0.05
41	0.41	0.44	-0.03	0.02	-2.05	*	-0.06
42	0.30	0.34	-0.04	0.01	-3.20	*	-0.09
43	0.35	0.38	-0.03	0.01	-1.99		-0.06
44	0.60	0.61	-0.01	0.02	-0.47		-0.01
45	0.42	0.46	-0.04	0.02	-2.40	*	-0.08
46	0.53	0.55	-0.02	0.01	-1.78		-0.05
47	0.38	0.39	-0.01	0.02	-0.81		-0.03
48	0.28	0.30	-0.03	0.01	-1.85		-0.06
49	0.55	0.56	-0.01	0.02	-0.63		-0.02
50	0.28	0.33	-0.04	0.01	-2.98	*	-0.09
51	0.48	0.48	0.00	0.02	-0.31		-0.01
52	0.65	0.69	-0.04	0.01	-2.71	*	-0.08
53	0.61	0.62	0.00	0.01	-0.36		-0.01
54	0.50	0.50	0.00	0.01	0.23		0.01
55	0.50	0.53	-0.03	0.01	-2.05	*	-0.06
56	0.70	0.74	-0.04	0.01	-2.75	*	-0.08
57	0.83	0.81	0.02	0.01	1.77		0.06
58	0.80	0.83	-0.03	0.01	-3.09	*	-0.09
59	0.72	0.74	-0.01	0.01	-0.94		-0.03
60	0.69	0.72	-0.03	0.01	-2.36	*	-0.07

Table 20. Summary of Item-Level Analysis – April 2009 Exit Level Mathematics

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.75	0.77	-0.02	0.01	-1.46		-0.05
2	0.68	0.70	-0.02	0.02	-0.86		-0.04
3	0.74	0.78	-0.04	0.02	-2.31	*	-0.08
4	0.59	0.58	0.01	0.02	0.37		0.01
5	0.83	0.82	0.01	0.02	0.49		0.02
6	0.58	0.59	-0.01	0.02	-0.36		-0.01
7	0.58	0.60	-0.01	0.02	-0.59		-0.02
8	0.48	0.48	0.00	0.02	-0.17		-0.01
9	0.33	0.33	0.00	0.02	0.13		0.01
10	0.47	0.52	-0.05	0.02	-2.31	*	-0.09
11	0.64	0.63	0.00	0.02	0.20		0.01
12	0.69	0.69	0.00	0.02	0.20		0.01
13	0.51	0.52	-0.01	0.02	-0.77		-0.03
14	0.55	0.55	0.00	0.02	0.03		0.00
15	0.51	0.55	-0.03	0.02	-1.64		-0.07
16	0.33	0.32	0.00	0.02	0.24		0.01
17	0.41	0.43	-0.02	0.02	-1.00		-0.04
18	0.44	0.49	-0.05	0.02	-2.46	*	-0.09
19	0.62	0.69	-0.08	0.02	-4.11	*	-0.16
20	0.62	0.61	0.01	0.02	0.54		0.02
21	0.58	0.59	0.00	0.02	-0.05		0.00
22	0.44	0.45	-0.01	0.02	-0.63		-0.03
23	0.35	0.34	0.02	0.02	0.92		0.03
24	0.39	0.41	-0.01	0.02	-0.69		-0.03
25	0.48	0.46	0.02	0.02	0.91		0.04
26	0.29	0.34	-0.05	0.02	-2.93	*	-0.11
27	0.42	0.43	-0.01	0.02	-0.41		-0.02
28	0.40	0.38	0.02	0.02	1.12		0.05
29	0.20	0.22	-0.01	0.01	-1.07		-0.03
30	0.37	0.41	-0.04	0.02	-1.84		-0.07
31	0.23	0.25	-0.02	0.02	-0.84		-0.04
32	0.20	0.23	-0.03	0.02	-1.64		-0.07
33	0.17	0.18	-0.01	0.01	-0.93		-0.03
34	0.46	0.46	-0.01	0.02	-0.35		-0.01
35	0.24	0.28	-0.04	0.02	-1.92		-0.08
36	0.46	0.44	0.02	0.02	0.94		0.04
37	0.50	0.51	-0.01	0.02	-0.49		-0.02

**Table 20. Summary of Item-Level Analysis – April Exit Level Mathematics  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.24	0.25	-0.01	0.02	-0.59		-0.02
39	0.49	0.50	-0.01	0.02	-0.72		-0.03
40	0.52	0.48	0.04	0.02	2.13	*	0.08
41	0.54	0.55	-0.01	0.02	-0.41		-0.01
42	0.24	0.23	0.01	0.02	0.64		0.02
43	0.44	0.43	0.01	0.02	0.37		0.01
44	0.28	0.30	-0.02	0.02	-1.38		-0.05
45	0.41	0.44	-0.02	0.02	-1.31		-0.05
46	0.13	0.15	-0.02	0.01	-1.26		-0.05
47	0.41	0.39	0.02	0.02	1.20		0.05
48	0.27	0.30	-0.03	0.02	-1.70		-0.06
49	0.39	0.37	0.03	0.02	1.22		0.05
50	0.65	0.67	-0.01	0.02	-0.69		-0.03
51	0.25	0.30	-0.05	0.02	-2.94	*	-0.12
52	0.46	0.49	-0.02	0.02	-1.17		-0.05
53	0.40	0.41	-0.01	0.02	-0.55		-0.02
54	0.53	0.58	-0.05	0.02	-2.71	*	-0.10
55	0.54	0.53	0.01	0.02	0.65		0.03
56	0.70	0.67	0.02	0.02	1.18		0.05
57	0.54	0.56	-0.03	0.02	-1.23		-0.05
58	0.56	0.56	0.00	0.02	0.05		0.00
59	0.71	0.74	-0.03	0.02	-1.81		-0.07
60	0.68	0.68	0.00	0.02	-0.05		0.00

Table 21. Summary of Item-Level Analysis – July 2009 Exit Level Mathematics

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.78	0.79	-0.01	0.01	-1.21		-0.03
2	0.71	0.73	-0.02	0.01	-2.33	*	-0.05
3	0.73	0.73	0.00	0.01	-0.26		-0.01
4	0.66	0.63	0.02	0.01	1.44		0.04
5	0.59	0.59	0.01	0.01	0.63		0.02
6	0.75	0.75	-0.01	0.01	-0.59		-0.01
7	0.55	0.55	0.00	0.01	-0.07		0.00
8	0.77	0.77	0.00	0.01	0.20		0.01
9	0.55	0.53	0.02	0.01	1.17		0.03
10	0.35	0.37	-0.01	0.01	-0.92		-0.02
11	0.38	0.38	0.00	0.01	-0.08		0.00
12	0.33	0.34	-0.01	0.01	-0.74		-0.02
13	0.20	0.20	0.00	0.01	-0.01		0.00
14	0.56	0.55	0.01	0.01	0.79		0.02
15	0.52	0.56	-0.04	0.01	-2.81	*	-0.08
16	0.45	0.49	-0.04	0.01	-2.89	*	-0.08
17	0.39	0.47	-0.08	0.01	-6.25	*	-0.16
18	0.64	0.62	0.02	0.01	2.01	*	0.05
19	0.24	0.25	-0.02	0.01	-1.54		-0.04
20	0.35	0.37	-0.02	0.01	-1.41		-0.04
21	0.43	0.48	-0.04	0.01	-3.02	*	-0.09
22	0.28	0.31	-0.03	0.01	-2.17	*	-0.06
23	0.21	0.21	0.00	0.01	-0.16		0.00
24	0.41	0.41	0.00	0.01	-0.16		0.00
25	0.30	0.29	0.01	0.01	0.86		0.02
26	0.23	0.24	-0.01	0.01	-0.57		-0.01
27	0.52	0.53	-0.01	0.01	-0.91		-0.03
28	0.33	0.34	-0.01	0.01	-0.67		-0.02
29	0.29	0.30	-0.01	0.01	-0.73		-0.02
30	0.62	0.59	0.04	0.01	3.07	*	0.08
31	0.20	0.22	-0.01	0.01	-1.39		-0.03
32	0.33	0.34	0.00	0.01	-0.26		-0.01
33	0.27	0.30	-0.03	0.01	-2.59	*	-0.07
34	0.23	0.27	-0.04	0.01	-3.63	*	-0.10
35	0.45	0.46	-0.01	0.01	-0.73		-0.02
36	0.46	0.48	-0.02	0.01	-1.14		-0.03
37	0.27	0.26	0.01	0.01	1.36		0.03



**Table 21. Summary of Item-Level Analysis – July Exit Level Mathematics  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.41	0.42	-0.01	0.01	-0.56		-0.01
39	0.54	0.52	0.01	0.01	1.04		0.03
40	0.35	0.35	-0.01	0.01	-0.52		-0.01
41	0.21	0.22	0.00	0.01	-0.21		-0.01
42	0.41	0.42	0.00	0.01	-0.15		0.00
43	0.38	0.40	-0.02	0.01	-1.45		-0.04
44	0.48	0.47	0.01	0.01	0.69		0.02
45	0.45	0.47	-0.02	0.01	-1.73		-0.04
46	0.55	0.60	-0.05	0.01	-3.63	*	-0.10
47	0.45	0.43	0.01	0.01	0.98		0.02
48	0.62	0.67	-0.05	0.01	-4.71	*	-0.10
49	0.45	0.43	0.01	0.01	0.95		0.03
50	0.44	0.44	-0.01	0.01	-0.51		-0.01
51	0.47	0.46	0.00	0.01	0.29		0.01
52	0.25	0.24	0.01	0.01	0.58		0.02
53	0.50	0.58	-0.09	0.01	-7.24	*	-0.18
54	0.53	0.52	0.01	0.01	1.02		0.03
55	0.62	0.61	0.00	0.01	0.38		0.01
56	0.58	0.59	-0.01	0.01	-0.53		-0.01
57	0.59	0.59	0.00	0.01	-0.34		-0.01
58	0.62	0.65	-0.03	0.01	-2.05	*	-0.05
59	0.71	0.71	0.00	0.01	0.29		0.01
60	0.83	0.83	0.00	0.01	-0.21		-0.01

Table 22. Summary of Item-Level Analysis – March 2009 Exit Level Science

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.71	0.71	0.00	0.01	-0.08		0.00
2	0.74	0.75	-0.01	0.01	-0.80		-0.02
3	0.79	0.79	-0.01	0.01	-0.56		-0.02
4	0.68	0.73	-0.05	0.01	-3.56	*	-0.11
5	0.47	0.52	-0.05	0.01	-3.32	*	-0.10
6	0.70	0.70	0.00	0.01	-0.27		-0.01
7	0.54	0.56	-0.02	0.02	-1.12		-0.03
8	0.45	0.45	0.01	0.02	0.51		0.02
9	0.59	0.61	-0.02	0.01	-1.64		-0.04
10	0.50	0.53	-0.03	0.01	-1.89		-0.05
11	0.28	0.32	-0.04	0.01	-2.85	*	-0.08
12	0.53	0.53	-0.01	0.02	-0.42		-0.01
13	0.45	0.47	-0.02	0.02	-1.49		-0.05
14	0.52	0.54	-0.02	0.01	-1.37		-0.04
15	0.58	0.56	0.01	0.01	0.92		0.02
16	0.30	0.31	-0.01	0.01	-0.68		-0.02
17	0.39	0.40	-0.01	0.01	-0.63		-0.02
18	0.28	0.33	-0.05	0.01	-3.29	*	-0.11
19	0.73	0.73	0.00	0.01	-0.13		0.00
20	0.40	0.44	-0.03	0.01	-2.32	*	-0.07
21	0.41	0.41	0.00	0.02	-0.03		0.00
22	0.41	0.54	-0.13	0.01	-8.73	*	-0.26
23	0.26	0.27	-0.01	0.01	-0.88		-0.03
24	0.74	0.70	0.04	0.01	3.26	*	0.09
25	0.40	0.39	0.01	0.01	0.49		0.09
26	0.40	0.40	0.00	0.01	-0.14		0.01
27	0.28	0.28	0.01	0.01	0.51		0.01
28	0.34	0.37	-0.03	0.01	-1.97		-0.05
29	0.67	0.66	0.00	0.02	0.22		0.01
30	0.32	0.34	-0.03	0.02	-1.76		-0.06
31	0.62	0.63	-0.01	0.01	-0.50		-0.01
32	0.47	0.48	-0.01	0.02	-0.35		-0.01
33	0.53	0.49	0.04	0.01	2.57	*	0.07
34	0.37	0.37	0.00	0.02	0.21		0.01
35	0.73	0.73	0.00	0.01	0.18		0.01
36	0.79	0.79	0.00	0.01	0.13		0.00
37	0.26	0.24	0.01	0.01	1.16		0.03

**Table 22. Summary of Item-Level Analysis – March 2009 Exit Level Science  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.61	0.63	-0.01	0.01	-1.03		-0.03
39	0.33	0.34	-0.01	0.01	-0.82		-0.03
40	0.44	0.45	-0.01	0.02	-0.88		-0.03
41	0.47	0.46	0.02	0.01	1.12		0.03
42	0.40	0.41	0.00	0.01	-0.17		-0.01
43	0.52	0.51	0.01	0.01	0.91		0.02
44	0.38	0.41	-0.03	0.02	-1.98		-0.06
45	0.39	0.43	-0.04	0.01	-2.87	*	-0.07
46	0.59	0.59	0.01	0.02	0.48		0.01
47	0.59	0.59	0.00	0.02	0.24		0.01
48	0.74	0.77	-0.03	0.01	-2.37	*	-0.07
49	0.32	0.38	-0.05	0.02	-3.60	*	-0.11
50	0.52	0.53	-0.01	0.01	-0.51		-0.01
51	0.50	0.50	0.00	0.02	-0.01		0.00
52	0.54	0.54	0.00	0.02	0.04		0.00
53	0.59	0.59	0.00	0.01	-0.33		-0.01
54	0.79	0.79	0.00	0.01	0.33		0.01
55	0.66	0.71	-0.04	0.01	-3.04	*	-0.09

Table 23. Summary of Item-Level Analysis – April 2009 Exit Level Science

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.82	0.82	0.00	0.02	-0.07		0.00
2	0.59	0.58	0.01	0.02	0.55		0.02
3	0.80	0.79	0.01	0.02	0.63		0.03
4	0.71	0.70	0.01	0.02	0.67		0.03
5	0.55	0.56	-0.01	0.02	-0.31		-0.02
6	0.57	0.55	0.02	0.02	1.10		0.05
7	0.58	0.60	-0.02	0.02	-0.77		-0.04
8	0.72	0.76	-0.04	0.02	-2.18	*	-0.09
9	0.35	0.35	0.01	0.02	0.30		0.01
10	0.65	0.67	-0.02	0.02	-1.33		-0.05
11	0.38	0.37	0.01	0.02	0.29		0.01
12	0.48	0.48	0.00	0.02	-0.01		0.00
13	0.40	0.43	-0.04	0.02	-1.65		-0.07
14	0.51	0.51	0.00	0.02	0.21		0.01
15	0.37	0.40	-0.03	0.02	-1.28		-0.05
16	0.26	0.27	-0.01	0.02	-0.39		-0.02
17	0.36	0.41	-0.04	0.02	-2.05	*	-0.09
18	0.54	0.53	0.01	0.02	0.36		0.01
19	0.60	0.66	-0.06	0.02	-3.15	*	-0.12
20	0.34	0.35	-0.01	0.02	-0.59		-0.03
21	0.30	0.33	-0.03	0.02	-1.61		-0.07
22	0.81	0.82	0.00	0.02	-0.22		-0.01
23	0.25	0.27	-0.02	0.02	-1.26		-0.05
24	0.50	0.55	-0.04	0.02	-1.89		-0.09
25	0.30	0.30	0.00	0.02	0.00		0.00
26	0.29	0.31	-0.02	0.02	-0.98		-0.04
27	0.22	0.25	-0.02	0.02	-1.15		-0.05
28	0.41	0.43	-0.02	0.02	-0.93		-0.05
29	0.21	0.23	-0.02	0.02	-0.94		-0.04
30	0.20	0.21	-0.01	0.02	-0.35		-0.02
31	0.45	0.49	-0.04	0.02	-2.23	*	-0.09
32	0.54	0.54	0.01	0.02	0.31		0.01
33	0.29	0.28	0.01	0.02	0.52		0.03
34	0.41	0.38	0.04	0.02	1.56		0.08
35	0.22	0.24	-0.02	0.02	-1.17		-0.05
36	0.25	0.24	0.01	0.02	0.44		0.02
37	0.67	0.71	-0.05	0.02	-2.65	*	-0.11

**Table 23. Summary of Item-Level Analysis – April 2009 Exit Level Science  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.41	0.43	-0.02	0.02	-0.80		-0.04
39	0.58	0.60	-0.02	0.02	-0.98		-0.04
40	0.63	0.66	-0.03	0.02	-1.33		-0.06
41	0.69	0.72	-0.04	0.02	-1.89		-0.08
42	0.68	0.71	-0.03	0.02	-1.86		-0.08
43	0.38	0.36	0.02	0.02	0.97		0.04
44	0.48	0.48	-0.01	0.02	-0.24		-0.01
45	0.41	0.43	-0.02	0.02	-0.82		-0.04
46	0.68	0.69	-0.01	0.02	-0.35		-0.01
47	0.52	0.54	-0.02	0.02	-0.88		-0.04
48	0.41	0.43	-0.02	0.02	-0.95		-0.04
49	0.31	0.36	-0.05	0.02	-2.26	*	-0.10
50	0.49	0.47	0.02	0.02	0.78		0.03
51	0.27	0.29	-0.02	0.02	-1.09		-0.05
52	0.72	0.75	-0.03	0.02	-1.82		-0.07
53	0.74	0.76	-0.01	0.02	-0.68		-0.03
54	0.66	0.67	-0.01	0.02	-0.31		-0.01
55	0.69	0.71	-0.02	0.02	-1.06		-0.04

Table 24. Summary of Item-Level Analysis – July 2009 Exit Level Science

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.74	0.75	-0.02	0.01	-1.28		-0.04
2	0.66	0.66	-0.01	0.01	-0.39		-0.01
3	0.75	0.76	-0.01	0.01	-0.65		-0.02
4	0.67	0.68	-0.02	0.01	-1.36		-0.04
5	0.55	0.56	-0.01	0.01	-0.63		-0.02
6	0.57	0.57	0.00	0.01	-0.03		0.00
7	0.83	0.80	0.03	0.01	2.37	*	0.07
8	0.31	0.30	0.01	0.01	0.64		0.02
9	0.64	0.65	-0.01	0.02	-0.94		-0.03
10	0.44	0.46	-0.02	0.02	-0.96		-0.03
11	0.61	0.60	0.01	0.01	0.61		0.02
12	0.52	0.52	0.00	0.02	-0.04		0.00
13	0.58	0.58	0.00	0.02	0.03		0.00
14	0.26	0.26	-0.01	0.01	-0.54		-0.02
15	0.66	0.65	0.01	0.01	0.80		0.02
16	0.45	0.46	-0.01	0.02	-0.58		-0.02
17	0.79	0.79	-0.01	0.01	-0.46		-0.01
18	0.36	0.36	0.00	0.02	-0.12		0.00
19	0.46	0.46	0.00	0.01	0.24		0.01
20	0.38	0.39	-0.01	0.01	-0.77		-0.02
21	0.27	0.26	0.01	0.01	0.44		0.01
22	0.46	0.46	0.00	0.02	0.31		0.01
23	0.19	0.20	0.00	0.01	-0.34		-0.01
24	0.15	0.18	-0.03	0.01	-2.14	*	-0.07
25	0.48	0.46	0.02	0.02	1.27		0.04
26	0.33	0.34	-0.01	0.01	-0.61		-0.02
27	0.32	0.30	0.02	0.01	1.17		0.03
28	0.26	0.27	-0.01	0.02	-0.50		-0.02
29	0.49	0.48	0.01	0.02	0.60		0.02
30	0.28	0.30	-0.01	0.01	-1.06		-0.03
31	0.47	0.42	0.04	0.02	2.53	*	0.09
32	0.29	0.28	0.01	0.01	0.88		0.03
33	0.35	0.32	0.03	0.01	2.39	*	0.06
34	0.45	0.45	0.00	0.01	-0.21		-0.01
35	0.24	0.23	0.01	0.01	0.72		0.02
36	0.47	0.50	-0.03	0.02	-1.76		-0.05
37	0.46	0.42	0.04	0.02	2.95	*	0.09

**Table 24. Summary of Item-Level Analysis – July 2009 Exit Level Science  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.33	0.34	0.00	0.01	-0.34		-0.01
39	0.39	0.42	-0.03	0.01	-1.89		-0.06
40	0.55	0.55	0.00	0.01	-0.07		0.00
41	0.53	0.55	-0.01	0.02	-0.89		-0.03
42	0.41	0.44	-0.03	0.02	-1.84		-0.06
43	0.29	0.31	-0.02	0.01	-1.28		-0.03
44	0.30	0.28	0.03	0.02	1.64		0.06
45	0.40	0.40	0.00	0.01	0.07		0.00
46	0.29	0.30	-0.01	0.01	-0.96		-0.03
47	0.61	0.61	0.00	0.02	-0.27		-0.01
48	0.61	0.61	0.00	0.02	-0.05		0.00
49	0.64	0.63	0.01	0.02	0.67		0.02
50	0.75	0.77	-0.01	0.01	-1.18		-0.03
51	0.70	0.71	-0.01	0.01	-0.98		-0.03
52	0.65	0.64	0.00	0.01	0.09		0.00
53	0.63	0.66	-0.03	0.01	-1.99		-0.06
54	0.80	0.78	0.02	0.01	1.69		0.05
55	0.60	0.62	-0.02	0.01	-1.18		-0.04

Table 25. Summary of Item-Level Analysis – March 2009 Exit Level Social Studies

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
1	0.66	0.67	-0.01	0.02	-0.43		-0.02
2	0.82	0.83	-0.01	0.02	-0.46		-0.03
3	0.83	0.84	-0.01	0.02	-0.58		-0.03
4	0.74	0.77	-0.03	0.03	-1.37		-0.08
5	0.66	0.63	0.03	0.02	1.34		0.07
6	0.70	0.72	-0.03	0.02	-1.12		-0.06
7	0.65	0.70	-0.06	0.02	-2.56	*	-0.12
8	0.71	0.72	-0.01	0.03	-0.34		-0.02
9	0.65	0.70	-0.05	0.02	-1.92		-0.10
10	0.69	0.72	-0.03	0.03	-1.09		-0.06
11	0.73	0.73	0.00	0.02	0.05		0.00
12	0.59	0.59	-0.01	0.02	-0.41		-0.02
13	0.66	0.69	-0.03	0.02	-1.20		-0.06
14	0.66	0.72	-0.06	0.03	-2.33	*	-0.13
15	0.64	0.70	-0.06	0.03	-2.14	*	-0.12
16	0.44	0.44	0.00	0.03	-0.05		0.00
17	0.65	0.65	0.01	0.03	0.20		0.01
18	0.67	0.64	0.03	0.02	1.19		0.06
19	0.62	0.60	0.02	0.03	0.74		0.04
20	0.63	0.62	0.00	0.02	0.10		0.00
21	0.53	0.50	0.03	0.03	1.19		0.06
22	0.56	0.55	0.01	0.03	0.29		0.02
23	0.60	0.59	0.00	0.03	0.02		0.00
24	0.55	0.51	0.04	0.03	1.41		0.08
25	0.52	0.58	-0.05	0.03	-1.89		-0.10
26	0.57	0.56	0.02	0.03	0.66		0.04
27	0.47	0.52	-0.05	0.02	-2.28	*	-0.11
28	0.51	0.55	-0.04	0.03	-1.71		-0.09
29	0.62	0.62	0.00	0.02	-0.16		-0.01
30	0.41	0.40	0.01	0.03	0.54		0.03
31	0.60	0.59	0.01	0.03	0.30		0.02
32	0.49	0.48	0.01	0.03	0.35		0.02
33	0.30	0.31	-0.01	0.02	-0.39		-0.02
34	0.61	0.59	0.02	0.03	0.68		0.04
35	0.40	0.39	0.01	0.02	0.35		0.02
36	0.67	0.67	0.00	0.03	0.11		0.01
37	0.61	0.59	0.02	0.03	0.84		0.05



**Table 25. Summary of Item-Level Analysis – March 2009 Exit Level Social Studies  
(Continued)**

ITEM	CBT_PVAL	PAP_PVAL	DIF_PVAL	DIF_STD	Z_DIF	SIG	EFFECT_SIZE
38	0.69	0.70	0.00	0.02	-0.11		-0.01
39	0.63	0.60	0.03	0.02	1.16		0.06
40	0.59	0.60	-0.01	0.03	-0.29		-0.02
41	0.58	0.57	0.01	0.03	0.25		0.01
42	0.55	0.56	-0.01	0.03	-0.29		-0.01
43	0.65	0.62	0.02	0.02	0.98		0.05
44	0.70	0.71	-0.01	0.02	-0.54		-0.03
45	0.39	0.43	-0.04	0.02	-1.57		-0.08
46	0.71	0.74	-0.03	0.03	-1.29		-0.07
47	0.50	0.55	-0.05	0.02	-2.12	*	-0.10
48	0.61	0.67	-0.06	0.02	-2.64	*	-0.13
49	0.69	0.72	-0.03	0.02	-1.27		-0.07
50	0.55	0.66	-0.11	0.03	-4.14	*	-0.22
51	0.58	0.63	-0.05	0.02	-1.98		-0.10
52	0.74	0.73	0.01	0.02	0.63		0.03
53	0.66	0.64	0.01	0.02	0.56		0.03
54	0.74	0.72	0.03	0.03	1.05		0.06
55	0.64	0.66	-0.02	0.02	-0.83		-0.04