Further Analysis of Gains Made by Interrupted Students

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Background

In the spring of 2013, many Indiana students experienced interruptions while taking online version of the Indiana State Tests of Educational Progress—Plus (ISTEP+). Subsequently, the National Center for the Improvement of Educational Assessment, Inc. (the Center for Assessment) was hired to examine the test results to help determine the extent to which the interruptions affected students' test scores.

On July 29, 2013, Center for Assessment staff presented a report on the interruptions to the Indiana Legislature's Commission on Education. That report showed that students who had been interrupted had gains almost identical to students who had not been interrupted. In the question and answer period that followed the presentation, some members of the committee suggested that the zero difference result might be a function of two effects balancing each other out—some students getting lower scores because of the interruptions, balanced by other students who got higher scores than they otherwise would have because the interruptions gave them an opportunity to review the questions outside the test administration session and then change their answers when they returned to the test. In addition, these members suggested that if this did truly happen, they would expect high socio-economic status (SES) students to take advantage of the opportunity more often than low SES students, resulting in higher-than-previous gains for high SES students, offset by lower-than-previous gains for low SES students. Although it was not stated by committee members at the time, it seems logical to presume that this effect would be stronger at the higher grades (where students would have more sophistication in test-taking) than at the lower grades. This report is an exploration of whether the opportunity that students had to change their answers is a significant factor in interpreting the results.

First Analysis of the Data

As an initial step, all students were classified as falling into one of four groups:
1. Those in schools where no one at their grade was interrupted
2. Those who were in schools where students at their grade were interrupted, but were not themselves interrupted
3. Students who were not reported as interrupted by CTB, but were reported by their local school system as interrupted
4. Students who were reported as interrupted by CTB.

For each group, we matched students' scores across the two years. The reporting statistic is the mean scaled score gain made by students, calculated by subtracting their prior year's scaled score from the current year's scaled score.

The first group provides baseline information. Since no students at their grade were interrupted in their school, they took the test under the same conditions as students who took the test in 2012. The gains for this group should be about the same as those made by students in 2012, unless there was more or less real progress made by this cohort than the previous one.

The second group consists of students whom we have classified as "potentially indirectly affected" by the interruptions—that is, the disruption created by direct interruption of their classmates could have caused them to underperform on the test. These students would not have had the additional opportunity to take advantage of the interruptions as their directly interrupted classmates—they finished their test session without interruption. On the other hand, some of these students had disruption in their classroom while taking the test. If the disruptions created by the interruptions had an effect on students, we would expect this group to have lower gains than the first one, since they were not directly interrupted, and therefore had no opportunity to check their answers with others during an interruption.

The third group consists of a range of students, depending on how local personnel chose to report them. The only thing we know for certain about these students is that CTB did not report that they were interrupted, so it is likely that this group had some negative impact from the interruptions (perhaps, on average, more that the students in Group 2), but should have had minimal opportunity to check their answers with others during the administration of the test. If the interruptions had a negative impact, this group should have the lower gains than any of the other three.

The fourth group includes only students reported by CTB as interrupted. Some portion of this group had time—in some cases as much as several days—between starting a session on the test and completing it, with ample opportunity in between to review the questions and their answers with others. If the hypothesis posited by the committee members were true, this is the group we would expect to have the highest mean gains, the highest gaps between gains made by low and high SES students, and the highest standard deviation of gains.

About half the students in Indiana receive free or reduced price lunch (FRL). Students are eligible to receive FRL if their family income is less than certain federal guidelines. This was the variable used as a proxy for SES.

If the interruptions generally had a negative effect, we would expect the gains of the interrupted 2013 students to be lower than the gains of the 2012 students, and we would expect the interrupted students to have lower gains than the students in non-interrupted schools. If students took advantage of the interruptions to learn the answers to questions so they could get a higher score to finish the test, we would expect the directly interrupted students to have higher gains than the indirectly interrupted students in the same school (especially if the indirectly interrupted students truly were affected by the interruptions going on around them), and we would expect the gains of the non-FRL interrupted students to be higher than those of the FRL interrupted students.

Table 1 provides the difference in gains between various groups. The first column is the difference between the gains achieved by Group 3 (the locally-reported interrupted students) and Group 4 (the CTB-reported interrupted students). Positive values in that column would indicate that the students in Group 3 had, on average, greater gains in scaled scores between 2012 and 2013 than did the students in Group 4. The two groups scored much the same, although the students reported as interrupted by CTB had somewhat larger gains than those reported as interrupted by local school

personnel. As a frame of reference, the standard deviations of the student scores is 50-75 points depending on the test and grade, and the standard deviations of the gain scores range from 35 to 45 points. Given how close the gains for Groups 3 and 4 were, their results were averaged and used as the basis for the comparisons in the remaining four columns.

The second column compares the gains for this year's interrupted students against the gains made by students between 2011 to 2012 (the previous year's cohort). The 2013 cohort had higher gains for six of the 10 comparisons, the same gain for one, and lower gains for three, resulting in an average of slightly higher gains this year than last. That result is consistent with the finding of the previous report—the interruptions did not appear, on balance, to have a negative impact on test scores. This finding does not address the legislative concern for two factors balancing each other out—that concern will be addressed by the data in other columns. This column simply addresses whether, on average, the students interrupted in 2013 scored lower than the students in 2012, who were not interrupted. The largest negative value in the column is for grade 6 ELA, indicating that students in grade 6 this year had smaller gains in ELA than was true for the previous year's cohort. This might be a concern if it were not for the fact that this was the only grade of the five for which the ELA gains were lower than last year's group—that is, in four of the five grades, the interrupted students this year had higher gains in ELA than did last year's uninterrupted students.

The third column provides a comparison of the gains made by the interrupted students to those made by students in schools where no one at their grade was interrupted, while the fourth column compares the interrupted students to the non-interrupted (or perhaps indirectly interrupted) students in their school. Again, the differences are mostly small, and where they are non-zero, negative results are countered with positive results at another grade or content area.

The last column directly addresses the committee's concern. If their conjecture was correct, we would expect the gains for the high SES interrupted students to be greater than the gains for the low SES interrupted students. In this case, there are indeed some large differences between the two groups. Five of the 10 cells have differences of at least 5 points, and four of those five are positive—indicating that the high SES group had higher gains than the low SES group. Although not shown in the table, a check of these differences showed for every row, the differences between the SES groups were nearly the same for both the CTB- and the locally-reported interruptions.

So does this provide sufficient evidence that high-SES students took advantage of the interruptions? Probably not. Table 2 repeats the last column of Table 1, and places alongside it the comparable data for students in Groups 1 and 2—who had no opportunity to take advantage of the interruptions. The data for the two columns are very similar to each other, indicating that the differences between low and high SES gains in every case likely are due to statistical artifacts. It is not uncommon for students having high baseline scores to have very different gain scores than students with low baseline scores. In all the previous comparisons in this report, the two groups had highly similar baseline scores, and therefore their gains could be directly compared. However, low SES and high SES students have different baseline scores, and therefore can be expected to make different gains. When the differences between the low and high SES students in the baseline group are compared to those for the interrupted students, the gains are within one point of each other, with the exception of grade 8 math. In that case, the difference between the gains for the two groups of interrupted students were 4 points less than the difference for the non-interrupted students—the direction opposite from the one the hypothesis would support.

As an additional check, Table 3 provides the differences in the standard deviations among the various groups. Table 3 is the same as Table 1, except it reports on the standard deviations of the gains rather than their means. As was the case with Table 1, the values in Table 3 are consistently small with the exception of the last column—the differences between high and low SES students. As was true with Table 1, we need another frame of reference for interpreting those differences, because of the different mean starting points for those two groups. In all other comparisons, the mean starting points are quite close, but not in this case.

Therefore, Table 4 is provided. As with Table 2, it shows the differences between the low SES and the high SES students for those who were interrupted with an opportunity to return to the test after a break (Groups 3 and 4) with those who did not have that opportunity (Groups 1 and 2). As was true for Table 2, those comparisons show that the differences between the standard deviations between the low SES and the high SES students who were interrupted are very similar to the differences between those two groups for students who were not interrupted.

Table 1

Differences in Gains on ISTEP+ Scaled Score
Made by Various Groups in 2013

Grade Change	Content Area	Comparison Groups				
		Group 3 vs. Group 4	Groups 3 and 4 vs. All Students in 2012	Groups 3 and 4 vs. Group 1	Groups 3 and 4 vs. Group 2	High vs. Low SES within Groups 3 and 4
3 to 4	ELA	-1	0	-1	-3	+6
	Math	-1	+13	+1	0	+1
4 to 5	ELA	0	+3	+4	+3	-3
	Math	-2	+4	+3	+1	-1
5 to 6	ELA	-3	-6	-3	-4	+12
	Math	-1	-1	0	+1	0
6 to 7	ELA	+5	+1	+5	+5	-10
	Math	-1	-2	+1	-1	+5
7 to 8	ELA	-2	+5	0	-3	+7
	Math	0	+1	+4	+1	-4

Table 2

Differences in Gains on ISTEP+ Scaled Score
Made by Various Groups in 2013

Grade Change	Content Area	Comparison Groups	
		High vs. Low SES within Groups 3 and 4	High vs. Low SES within Groups 1 and 2
3 to 4	ELA	+6	+5
	Math	+1	+2
4 to 5	ELA	-3	-2
	Math	-1	-2
5 to 6	ELA	+12	+11
	Math	0	0
6 to 7	ELA	-10	-9
	Math	+5	+4
7 to 8	ELA	+7	+6
	Math	-4	0

Table 3

Differences in Standard Deviations of Gains on ISTEP+ Scaled Score
Made by Various Groups in 2013

Grade Change	Content Area	Comparison Groups				
		Group 3 vs. Group 4	Groups 3 and 4 vs. All Students in 2012	Groups 3 and 4 vs. Group 1	Groups 3 and 4 vs. Group 2	High vs. Low SES within Groups 3 and 4
3 to 4	ELA	0	+3	+3	-2	+4
	Math	0	+3	+1	+1	+4
4 to 5	ELA	0	+1	+1	+1	+1
	Math	-1	0	+2	+1	-1
5 to 6	ELA	0	0	0	-1	+5
	Math	0	0	+1	+2	-1
6 to 7	ELA	0	-2	0	+1	+3
	Math	0	-1	+2	+2	-4
7 to 8	ELA	+2	-1	0	-1	+5
	Math	-1	+1	+2	+1	-1

Table 4

Differences in Standard Deviations of Gain Scores on ISTEP+ Scaled Score
Made by Various Groups in 2013

Grade Change	Content Area	Comparison Groups	
		High vs. Low SES within Groups 3 and 4	High vs. Low SES within Groups 1 and 2
3 to 4	ELA	+4	+5
	Math	+4	+2
4 to 5	ELA	+1	+3
	Math	-1	+2
5 to 6	ELA	+5	+4
	Math	-1	0
6 to 7	ELA	+3	+4
	Math	-4	+1
7 to 8	ELA	+5	+5
	Math	-1	0

Second Analysis of the Data

The above analyses indicate the effect that concerned the legislators—that students might have used the interruption time to learn the answers to questions and then changed their answers from wrong to right when the testing resumed—had a minimal impact on the overall statewide results. After completing them, however, we realized there was a more direct way to determine the extent to which that happened. We asked CTB to calculate the number of items each student had changed from wrong to right. They were able to do that and provided us with the data.

The exact effect the legislators were concerned about would be an item that was presented before the interruption occurred, answered incorrectly before the interruption, and then changed from wrong to right after testing resumed for that student. Table 5 illustrates the information we are seeking.

Table 5

Visual Model of Effect Being Investigated

Time of Initial Presentation	Time of Change		Total
	Before Interruption	After Interruption	
Before Interruption	A	B	A+B
After Interruption	C	D	C+D

The events of interest are those that fall into Cell B—items that were presented to the student before interruption, but were changed from wrong to right after the interruption was over. Collecting the information for each of the four cells would have required CTB to integrate the item location information with the item timing information, which would have been a fairly complex operation. It was much more straightforward for them to provide us with the presentation information (the totals A+B and C+D in Table 5) and fortunately, that is sufficient information to estimate the amount of the effect.

Cell D is baseline data against which all the other cells can be compared. That is, if an item was first presented to a student after the interruption, the student had no opportunity to learn the answer to the question from outside sources. The rate of changes from wrong to right in Cell D is the rate that students normally would make such changes, and therefore serves as a baseline. Cell C is, by definition, zero (students could not make a change to an item before the interruption if they first saw the item after returning from the interruption), so knowing the rate of changes on items presented after the interruption (C+D) gives us the value for Cell D.

Further, it is reasonable to assume that Cell A equals Cell D: the rate of changes from wrong to right before the interruption occurred should have been no different from the rate of change after the interruption. Therefore, if we know the values for A+B and C+D, we can estimate the value for Cell B by (A+B) – (C+D).

Tables 6A – 6D provide those data for all the students who were identified by CTB as having been interrupted. This portion of the study had to be limited to those students, because they were the only ones for whom we knew which items they had completed before and after interruption. For the students who were reported as interrupted by local school personnel, we only knew they were interrupted somewhere within the test, but not the exact location.

Tables 6A through 6D all contain the same information, but differ by the grades and content areas included in them. Data are reported for each session of each test, since a student who was interrupted in Session 1, for example, did not have an opportunity to learn the answers to Session 2 questions during the interruption because those items had not yet been presented to the student. And conversely, a student who was interrupted during Session 2 had no opportunity to change the answers to Session 1 questions, because those were locked out after Session 1 was complete.

Taking Grade 3 mathematics, Session 1, as an example from Table 5A, we see that for students who were interrupted between Items 1 and 5 on that test, 4.6 percent of the items presented before the interruption were changed from wrong to right, whereas 1.7 percent of the items presented after the interruption were changed from wrong to right. The difference between these two statistics—2.9 percent—is now presumed to be the increased rate at which students made changed answers from wrong to right after the interruption, presumably because of the opportunity to learn the answers to the questions that had been presented to them before the interruption.

Thus, there is evidence that the effect that the legislators were concerned about likely happened at a detectable rate. The remainder of the calculations allows us to estimate the impact this effect had on the statewide results. If students were interrupted between Item 1 and Item 5, they had an average of 3 items they could have changed from wrong to right when they returned to the test (they had not yet been exposed to the remainder of the items in that session). If they changed 2.9% of the three items, they increased their raw score by an average of .087 points.

Thus, we estimate that 1,283 students increased their raw score by .087 points. Looking at the other interruptions, we get a total of 7,373 students who increased their raw scores by an average of 0.16 points (out of a total of 23 within that session, and a total of 46 items across the two sessions). One raw score point translates into 8-9 scale score points in mathematics, so it appears that those students increased their scaled score by an average of less than 1.5 scaled score points by changing wrong answers to right after returning from their interruption. This group comprised about 10 percent of the total tested population, so their impact on the statewide average was about .15 scaled score points. For those interrupted during Session 2, the impact was about .01 scaled score points (.02 * 9 * 5 percent), so the total across the two groups is a value well less than .2 scaled score points. Since the changes in the statewide results in the earlier reports were reported only to the nearest whole scale score point, the effect of concern had a negligible impact on the results. Thus, this analysis shows us that some students may very well have used the opportunity of the interruption to learn the answers to questions while they were interrupted, changed some of those answers when they returned to the test, and therefore scored higher than they would have scored without the interruption. But the analysis shows that this happened infrequently enough that its impact on the overall interpretation of the results was negligible.

Table 6A

Data on Wrong-to-Right Changes for Students Reported as Interrupted by CTB,

Grades 3-5 Mathematics

Grade	Session	Items	Percentage of Wrong-to-Right Changes			Average Number of Items	Product	Number of Students	Weighted Average Raw Score Impact
			Before Interruption	After Interruption	Difference				
3	1	1-5	4.6	1.7	2.9	3	0.087	1283	
		6-15	2.6	1.5	1.1	10	0.110	2307	
		16-23	2.4	1.3	1.1	20	0.220	3783	
								7373	0.16
	2	1-5	1.6	1.3	0.3	3	0.009	732	
		6-15	1.9	1.6	0.3	10	0.030	1017	
		16-23	1.7	1.6	0.1	20	0.020	1611	
								3360	0.02
4	1	1-5	3.0	1.4	1.6	3	0.048	1077	
		6-15	2.1	1.3	0.8	10	0.080	2534	
		16-23	2.2	1.3	0.9	20	0.180	3287	
								6898	0.12
	2	1-5	2.0	1.0	1.0	3	0.030	543	
		6-15	1.2	1.0	0.2	10	0.020	993	
		16-23	1.4	1.4	0.0	20	0.000	1704	
								3240	0.01
5	1	1-5	2.8	1.3	1.5	3	0.045	1980	
		6-15	1.8	1.2	0.6	10	0.060	2765	
		16-23	2.0	1.5	0.5	20	0.100	2880	
								7625	0.07
	2	1-5	2.4	1.2	1.2	3	0.036	605	
		6-15	1.9	1.4	0.5	10	0.050	984	
		16-23	2.0	2.2	-0.2	20	-0.040	1694	
								3283	0.00

Table 6B

Data on Wrong-to-Right Changes for Students Reported as Interrupted by CTB,

Grades 6-8 Mathematics

Grade	Session	Items	Percentage of Wrong-to-Right Changes			Average Number of Items	Product	Number of Students	Weighted Average Raw Score Impact
			Before Interruption	After Interruption	Difference				
6	1	1-5	3.0	1.4	1.6	3	0.048	1280	
		6-15	2.2	1.4	0.8	10	0.080	2119	
		16-23	2.9	1.2	1.7	20	0.340	2081	
								5480	0.17
	2	1-5	2.1	1.0	1.1	3	0.033	773	
		6-15	1.4	1.0	0.4	10	0.040	1395	
		16-23	1.7	1.0	0.7	20	0.140	1691	
								3859	0.08
7	1	1-5	2.3	0.9	1.4	3	0.042	1712	
		6-15	1.4	0.8	0.6	10	0.060	2153	
		16-23	1.6	0.7	0.9	20	0.180	2154	
								6019	0.10
	2	1-5	1.7	1.1	0.6	3	0.018	656	
		6-15	1.7	1.1	0.6	10	0.060	1205	
		16-23	1.5	1.0	0.5	20	0.100	1004	
								2865	0.06
8	1	1-5	2.9	1.2	1.7	3	0.051	1160	
		6-15	1.6	1.0	0.6	10	0.060	1689	
		16-23	2.6	1.1	1.5	20	0.300	2032	
								4881	0.16
	2	1-5	2.1	1.0	1.1	3	0.033	711	
		6-15	1.2	0.9	0.3	10	0.030	869	
		16-23	1.5	1.1	0.4	20	0.080	1186	
								2766	0.05

Table 6C

Data on Wrong-to-Right Changes for Students Reported as Interrupted by CTB,

Grades 3-5 ELA

| Grade | Session | Items | Percentage of Wrong-to-Right Changes | | | Average Number of Items | Product | Number of Students | Weighted Average Raw Score Impact |
			Before Interruption	After Interruption	Difference				
3	1	1-5	2.3	1.9	0.4	3	0.012	121	
		6-15	2.2	1.5	0.7	10	0.070	274	
		16-21	3.1	2.8	0.3	20	0.060	366	
								761	0.06
	2	1-5	2.4	1.7	0.7	3	0.021	104	
		6-15	1.6	1.9	-0.3	10	-0.030	238	
		16-24	2.4	2.2	0.2	20	0.040	480	
								822	0.02
4	1	1-5	1.5	2.4	-0.9	3	-0.027	98	
		6-15	2.9	1.8	1.1	10	0.110	235	
		16-23	2.4	2.2	0.2	20	0.040	596	
								929	0.05
	2	1-5	4.9	2.1	2.8	3	0.084	92	
		6-15	2.5	2.6	-0.1	10	-0.010	121	
		16-22	3.4	1.9	1.5	20	0.300	282	
								495	0.18
5	1	1-5	1.5	1.7	-0.2	3	-0.006	144	
		6-15	2.0	1.7	0.3	10	0.030	237	
		16-23	4.1	1.2	2.9	20	0.580	423	
								804	0.31
	2	1-5	2.0	0.7	1.3	3	0.039	150	
		6-15	2.0	1.4	0.6	10	0.060	232	
		16-22	2.1	1.7	0.4	20	0.080	421	
								803	0.07

Table 6D

Data on Wrong-to-Right Changes for Students Reported as Interrupted by CTB,

Grades 6-8 ELA

| Grade | Session | Items | Percentage of Wrong-to-Right Changes | | | Average Number of Items | Product | Number of Students | Weighted Average Raw Score Impact |
			Before Interruption	After Interruption	Difference				
6	1	1-5	3.3	1.0	2.3	3	0.069	232	
		6-15	1.4	1.3	0.1	10	0.010	400	
		16-23	3.1	1.3	1.8	20	0.360	623	
								1255	0.19
	2	1-5	1.7	1.4	0.3	3	0.009	163	
		6-15	1.9	1.3	0.6	10	0.060	356	
		16-22	2.1	1.7	0.4	20	0.080	474	
								993	0.06
7	1	1-5	2.7	1.7	1.0	3	0.030	194	
		6-15	1.5	0.9	0.6	10	0.060	352	
		16-22	1.8	0.6	1.2	20	0.240	244	
								790	0.11
	2	1-5	2.3	1.2	1.1	3	0.033	193	
		6-15	1.3	0.7	0.6	10	0.060	341	
		16-23	1.6	1.0	0.6	20	0.120	357	
								891	0.08
8	1	1-5	2.7	1.1	1.6	3	0.048	151	
		6-15	1.1	1.1	0.0	10	0.000	456	
		16-23	1.8	1.8	0.0	20	0.000	393	
								1000	0.01
	2	1-5	4.6	1.6	3.0	3	0.090	149	
		6-15	2.0	1.4	0.6	10	0.060	398	
		16-22	2.5	2.5	0.0	20	0.000	449	
								996	0.04

There are some trends in Tables 6A-D that are consistent enough to be worthy of note. First, the average effects for ELA are quite similar to those for mathematics. Since many fewer students were interrupted in ELA than in mathematics, the impact of this effect on the interpretation of ELA results is that much smaller than it is for mathematics.

Second, while there are some exceptions, the increased rate of change ("Difference" in the table) is generally higher for students interrupted in the beginning of the test than for those interrupted later.

A reasonable presumption is that students could remember and learn the answers to just so many questions during their interruption. If they were interrupted early in the test, that would be a larger percentage of the items available to change. That is, suppose a student could effectively remember and change two items. If that student was interrupted after the fifth item on the test and changed two items upon the resumption of testing, that would be 40 percent of the items before interruption for that student. On the other hand, if the student had been interrupted after the twentieth item and changed two items upon the resumption of testing, that would be just 10 percent of the items before interruption.

As noted earlier, the above analyses included only those students that CTB identified as interrupted, because we could not identify the location of interruption for students reported as interrupted by local school personnel. However, if those students also took advantage of the interruptions to learn the answers to questions, they would add to the effect and possibly affect the interpretation of the statewide results. In order to determine whether this indeed did occur, we looked at the rate of change from wrong to right for the entire test for three groups of students:

1. Those who were not interrupted (and therefore establish a baseline rate of change).
2. Those who were reported as interrupted by CTB
3. Those who were reported as interrupted by local school personnel.

Those data are presented in Table 7A (mathematics) and Table 7B (ELA). For each session of each test, we show the percentage of students who made no changes from wrong to right and the average percentage of changes from wrong to right. As would be expected, the groups that have a higher percentage of students who made no changes generally have a *lower* average percentage of changes from wrong to right.

For almost every session, grade and test, the rate of change from wrong to right for the students who were reported as interrupted by CTB is higher than that for the non-interrupted students. That is consistent with the data reported in Tables 6A-D, and indeed, confirms the magnitude of the effect estimated from the data in those tables (that is, a maximum impact of less than 0.2 scaled score points). But another highly consistent result is that the students reported as interrupted by local school personnel had a *lower* rate of changes from wrong to right than the non-interrupted students. Thus, is it reasonable to presume that the impact of students learning the answers to questions during interruption is limited to the estimate reported above—less than 0.2 scaled score points.

In summary, the students reported as interrupted by CTB did indeed have wrong-to-right data that support the concern that some students likely took advantage of the interruptions to increase their test scores—but that happened so infrequently that the impact of this effect on the statewide results is negligible. Students reported as interrupted by local school personnel, on the other hand, had smaller rates of wrong-to-right changes than non-interrupted students, and therefore there is no evidence that these students took advantage of the interruptions to raise their scores.

Table 7A

Statistics on Changes from Wrong to Right, by Who Reported the Interruption,
Mathematics

Grade	Session	Percentage of Students Who Made No Changes from Wrong to Right			Average Percentage of Changes from Wrong to Right		
		Not Interrupted	Reported by CTB	Reported Locally	Not Interrupted	Reported by CTB	Reported Locally
3	1	71	68	74	0.45	0.50	0.34
	2	78	75	80	0.30	0.38	0.24
4	1	76	71	79	0.34	0.43	0.26
	2	79	77	82	0.30	0.29	0.23
5	1	79	74	81	0.30	0.37	0.23
	2	77	72	78	0.32	0.41	0.28
6	1	72	69	76	0.38	0.49	0.31
	2	77	76	80	0.29	0.31	0.23
7	1	82	78	83	0.22	0.29	0.20
	2	79	76	79	0.26	0.31	0.25
8	1	80	73	80	0.26	0.43	0.23
	2	79	77	81	0.27	0.29	0.23

Table 7B

Statistics on Changes from Wrong to Right, by Who Reported the Interruption,
ELA

Grade	Session	Percentage of Students Who Made No Changes from Wrong to Right			Average Percentage of Changes from Wrong to Right		
		Not Interrupted	Reported by CTB	Reported Locally	Not Interrupted	Reported by CTB	Reported Locally
3	1	72	69	73	0.38	0.52	0.37
	2	73	68	74	0.36	0.51	0.36
4	1	70	66	72	0.42	0.54	0.39
	2	66	63	66	0.48	0.66	0.49
5	1	72	62	74	0.39	0.68	0.35
	2	76	72	79	0.31	0.38	0.28
6	1	78	70	79	0.30	0.51	0.26
	2	77	73	79	0.29	0.39	0.27
7	1	80	78	81	0.26	0.33	0.24
	2	80	78	80	0.25	0.30	0.24
8	1	75	74	76	0.32	0.33	0.30
	2	74	67	74	0.34	0.46	0.32