



Center for Research in Educational Policy

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STATISTICAL ANALYSES OF 2009-2010 GAINS IN ACHIEVEMENT ON THE IOWA TEST OF BASIC SKILLS, CORE/SURVEY BATTERY, FOR STUDENTS SERVED BY BRAIN HURRICANE





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Executive Summary

As part of an organizational self-study, Brain Hurricane, LLC, contracted with the Center for Research in Educational Policy (CREP) at The University of Memphis for an independent analysis of potential student achievement gains enabled by the supplementary educational services it provides. To this end, Brain Hurricane provided CREP personnel with a subset of observations taken from its 2009-2010 database of student achievement scores that were obtained on pre- and posttest administrations of age-appropriate assessments taken from the *Iowa Test of Basic Skills* (ITBS). This subset of observations contained 2009-2010 data only on those BH students who had both pretest and posttest scores on all ITBS assessments administered at that student's grade level.

When taken as a single group, for all students in the subset served by Brain Hurricane, statistically significant differences were observed between pretest and posttest standard score means obtained for all ITBS subtests at all grade levels. With the sole exception of Grade Eight Reading (where $p < .05$), the aforementioned differences were highly statistically significant (at $p < .001$) and were associated with mean-difference effect sizes that minimally exceeded one half of a standard deviation (that is, $d > .50$) and sometimes exceeded a full standard deviation ($d > 1.0$). Were one to collapse across grade levels and combine Brain Hurricane students into two large groups based on the level of the test administered—a lower school group (Kindergarten through Grade Two) and an upper school group (Grades Three through Eight)—the effect size associated with standard scores gains made by the 1,217 students in the lower school group would average out at $d = 1.10$ in Mathematics, $d = 0.92$ in Word Analysis, and $d = 0.74$ in Reading Comprehension (with $n = 1,007$, using Grades One and Two only), while the standard scores gains made by the 1,347 students in the upper school group would average out at roughly $d = 0.92$ in Mathematics and $d = 0.73$ in Reading. Expressing these gains in terms of Normal Curve Equivalents (N.C.E.s) reveals differences at the lower grade levels of roughly 6 N.C.E.s in Word Analysis, 4 N.C.E.s in Reading Comprehension and 7 N.C.E.s in Mathematics. Meanwhile, while there were no mean N.C.E.s at or above 50 (i.e., with 50 being average) at the pretest at the lower grade levels, the mean N.C.E. for Kindergarten students in Word Analysis was above average (52) at the posttest. While N.C.E. gains in reading tended to be marginal among upper school grades (i.e., 1 to 2 N.C.E.s), gains in mathematics proved to be substantial, however, averaging between six and seven

N.C.E.s. Moreover, while only Grades 4 and 5 had a mean N.C.E. at or above 50 on the pretest in Mathematics, all grades except Grade 7 had a mean N.C.E. at or above 50 on the posttest.

After dividing Brain Hurricane students into two groups by the number of hours that they had been tutored, independent *t*-tests were conducted for all ITBS subtests at each grade level on the pretest to posttest standard score gains made by students receiving fewer than 30 hours of tutoring ($M = 23.77$ hrs. in the lower grades, $M = 23.25$ hrs. in the upper grades), compared to those receiving 30 or more hours of tutoring ($M = 38.51$ hrs. in the lower grades, $M = 39.52$ hrs. in the upper grades). Although no statistically significant differences between group means emerged with respect to either ITBS subtest in Grades Four through Eight, statistically significant effects averaging about one-third of a standard deviation and favoring the group with 30 or more tutoring hours were observed for:

- Kindergarten Mathematics ($t(208) = 3.60, p < .001, g = 0.48$)
- Grade One Word Analysis ($t(481) = 2.52, p < .05, g = 0.24$)
- Grade One Reading ($t(481) = 3.41, p < .001, g = 0.32$)
- Grade Two Reading ($t(522) = 3.06, p < .001, g = 0.37$), and
- Grade Three Mathematics ($t(391) = 2.71, p < .01, g = 0.31$)

In summary, when looking at all Brain Hurricane participants as a group, students at all grade levels and in both subjects made statistically significant gains in scores from the pretest to the posttest. Effect sizes tended to be larger in Mathematics compared to Word Analysis and/or Reading. In terms of N.C.E. gains, effects were larger for the upper grades, with nearly all grade levels testing above average in Mathematics by the posttest. In terms of the impact of hours of attendance on achievement gains from the pretest to the posttest, effects were stronger for the lower grade levels, with more statistically significant differences favoring students with 30 or more hours compared to students with less than 30 hours of attendance. The results, while positive, should be treated with caution; however, as there was no control group available for comparison.

Introduction

As part of an organizational self-study, Brain Hurricane, LLC, contracted with the Center for Research in Educational Policy (CREP), University of Memphis, for an independent analysis of potential student achievement gains enabled by the supplementary educational services it provides. To this end,

Brain Hurricane provided CREP personnel with a subset of observations taken from its 2009-2010 database of student achievement scores that were obtained on pre- and posttest administrations of age-appropriate assessments taken from the *Iowa Test of Basic Skills* (ITBS). This subset of observations contained 2009-2010 data only on those BH students who had both pretest and posttest scores on all ITBS assessments administered at that student's grade level.

In the early elementary grades—Kindergarten, Grade One, and Grade Two—students served by Brain Hurricane (BH) took tests drawn from the *ITBS Complete/Core Battery* at Levels 5, 6, and 7 respectively. Both prior to and immediately after the tutoring interval, Kindergarten/ITBS Level 5 students were administered the same form of either a 30-item Word Analysis test, a 29-item Mathematics test, or as appropriate, both. Similarly, Grade One/ITBS Level Six students were administered identical forms of a 35-item Word Analysis test, a 35-item Mathematics test, and/or a 19-item Reading Comprehension test, while Grade Two/ITBS Level 7 students were administered identical forms of a 35-item Word Analysis test, a 29-item test in Mathematics Concepts, and/or a 34-item Reading test..

In Grades Three through Eight, Brain Hurricane students were pre- and post- assessed in reading and mathematics on subtests taken from the *ITBS Survey Battery*. At ITBS Level 9, students who were served in Grades Three and Four took identical versions of a 27-item reading subtest and/or 31-item mathematics subtest. Similarly, at ITBS Level 11, students who were served in Grades Five and Six took identical versions of a 32-item reading subtest and/or 37-item mathematics subtest. At ITBS Level 12, Seventh and Eighth Grade students served by Brain Hurricane were administered identical versions a 34-item test in Reading and/or a 40-item test in Mathematics.

Irrespective of ITBS test level, the interval between pre- and posttest assessments was typically between four and five months, with the pre-assessment usually administered in early to middle October and the posttest administered in late February or early March.

Derived from the two different *ITBS* batteries, the two datasets were imported as “lower school” (K through Grade Two) and “upper school” (Grades Three through Eight) data files into the Predictive Analysis Software package (PASW, formerly SPSS). Within these files, the “raw” achievement scores obtained by each student on the relevant pre- and posttests were provided, along with the norm-referenced transformations of these “raw” scores as Scale or Standard Scores (S.S.s), Grade Equivalent

Scores (G.E.s), and Normal Curve Equivalent Scores (N.C.E.s). In addition to the achievement data by test/grade level, also included within the files was information pertinent to the state, district, and school within which Brain Hurricane students were served, as well as information pertinent to the total number of hours for which a student was tutored.

Incorporating several of the “raw” score transformations previously mentioned, the tables below present analyses of student achievement data both within grades and within a number of important subgroups by grades. Organized into several series, the tables present achievement results for all Brain Hurricane students by:

- a) grade/test level (Table 1);
- b) grade level within the states of California, Illinois, and Wisconsin (Tables 2 through 4);
- c) grade level compared across the aforementioned states (Tables 5 through 13);
- d) grade level within four districts serving 200 or more Brain Hurricane students (Tables 14 through 17);
- e) grade level within districts serving 40 or more but fewer than 200 Brain Hurricane students (Tables 18 through 30);
- f) grade level within schools serving 40 or more Brain Hurricane students (Tables 31 through 43);
- g) grade level according to the number of hours tutored as either “less than 30” or “30 or more” (Tables 44 through 46)

In the number and types of analyses conducted, these last four series of tables depart from prior reports that CREP has prepared for Brain Hurricane. In the past, statistical analyses of the data were carried out on groups as small as ten students at a grade level. However, because these small groups of students tend to be scattered across many schools and districts, Brain Hurricane preferred that the analyses target those districts and schools that served, in the aggregate, the largest numbers of Brain Hurricane students. Thus, presented in Tables 14 through 17 are the results obtained for the four districts in which 200 or more Brain Hurricane students were served: Specifically, San Bernardino ($n = 385$), Chicago ($n = 351$), Stockton ($n = 274$), and Milwaukee ($n = 256$). This series of tables is in turn supplemented by two additional series of tables highlighting those districts (Tables 18 through 30) and those schools (Tables 31 through 43) at which 40 or more Brain Hurricane students were served.

A second departure from prior reports concerns analyses in which the performance of subgroups of students is contrasted. Although all students in the dataset can be said to have received an educational “treatment” (Brain Hurricane), its “dosage” can be said to have varied in terms of the number of hours the treatment was undergone. Hence, at the suggestion of Brain Hurricane, two groups of students were formed based on whether such students had been tutored fewer than 30 hours or 30 hours or more, and tables like those created for other subgroups of students were constructed for these two groups (Tables 44 and 45). A final table was constructed in which the gains made by these two groups of students by hours tutored are statistically compared (Table 46).

Data Presentation and Analysis

Standard Scores: Descriptive and Inferential Statistics

Reported in each of the tables outlined above are the means (*Ms*) and standard deviations (*SDs*) derived from the standard scores obtained on the pre- and posttest administrations of the relevant *ITBS* subtest by specific subgroups of Brain Hurricane students. Along with the computed difference between post-and pretest means (*M* difference), an effect size (*d* or *g*)¹ was also computed to assess whether the observed mean difference was substantively meaningful.

An indicator of the impact of treatment, the “effect size” is a descriptive statistic that indicates the magnitude of the difference (in units of standard deviations) between two measures. For example, a positive effect size would indicate a higher (i.e., better) posttest mean, while a negative effect size would indicate a higher (i.e., better) pretest mean. According to commonly accepted benchmarks (Cohen, 1988), positive or negative effect sizes of 0.20 are thought *small*, those at plus or minus 0.50 are regarded as *moderate*, and those that are equal to or surpass 0.80 are considered *large*. More recently, statisticians have argued that an effect size should be interpreted in light of what is typically observed in the literature in similar studies. Using guidelines proposed by Vernez and Zimmer (2007), effect sizes of

¹ For analyses involving pre- and posttest scores taken from the same student, a “correlated” effect size (*d*) that takes into account the strength of relationship between the pairs of scores was computed using a formula developed by Dunlap, Cortina, Vaslow, and Burke (1996). For analyses involving pretest to posttest *gains* made by two different groups of students categorized by the number of hours tutored (i.e., more or less than 30 hours), an “unbiased” version of *d* was computed that takes into account the differences in the sample sizes of the two groups and corrects for very small sample sizes. This effect size statistic is referred to as Hedges’s *g* (see Hedges, 1981, p. 110).

0.04 or less were classified as very small, between 0.05 and 0.10 were classified as small, between 0.11 and 0.24 were classified as moderate, and 0.25 and greater classified as large. This is also in keeping with guidelines from the What Works Clearinghouse, part of the research arm of the U.S. Department of Education, which considers an effect size of 0.25 as “substantively important” (U.S. Department of Education (2008)). However, given that SES tutoring is fairly limited in total hours per year, lower effect sizes might be expected and, according to recent research, have indeed been noted (see, for example, Burch, Heinrich, Cheng, Good, & Timberlake, (2011)).

Following these descriptive outcomes and appearing in a column marked “*t*” are the results of statistically testing the difference between pre- and posttest means. This test is referred to as a “dependent” or “correlated” *t*-test because the two measures involved were made on the same student. Where a *t*-value is “statistically significant,” it is accompanied by one or more asterisks in the column labeled “*p*”, with the number of asterisks denoting how likely it is that the observed difference is something other than chance (that is, due to the systematic influence of treatment). The last column (*d*) gives the effect size.

An independent *t*-test was employed to determine whether pretest to posttest gains by grade and subtest differed between Brain Hurricane students categorized by the number of hours tutored (i.e., less than 30 hours or 30 hours or more). This type of *t*-test is called “independent,” because the groups involved are distinct and the measures being compared (in this case, the gains made by students in the two groups) are not correlated (i.e., related). The effect size for these analyses (*g*) indicates the magnitude of the difference in scores between the two dosage groups, with a positive effect size indicating better performance by the group with 30 or more hours of tutoring, and a negative effect size indicating better performance by the group with less than 30 hours of tutoring.

Grade and Normal Curve Equivalent Scores Linked to Standard Scores

In addition to statistics pertinent to standard scores, each table also expresses Brain Hurricane students’ pre- and posttest scores in terms of two metrics that benchmark such scores against: (1) the achievement level attained on average by someone in the actual grade specified in the norm group for that domain by grade/time of year--Grade Equivalent (G.E.) scores—and (2) against a rank ordering of

student achievement scores for that domain for a particular grade and time of year—Normal Curve Equivalent (N.C.E.) scores.

Favored by practitioners, the Grade Equivalent metric expresses student outcomes in terms of the average performance level attained in a given subject by grade level and month. Using this metric, for example, “average” first grade students should be performing at levels represented by K.9, 1.0, or 1.1 (i.e., the 9th month of Kindergarten through the first month of first grade) when tested in early to late fall, while “average” first grade students should be performing at levels represented by 1.7, 1.8, or 1.9 (i.e., the 7th month of first grade through the 9th month of first grade) when tested in early to late spring. When students’ scores suggest pre- to posttest score differences of between 6 to 8 months, the gains observed are what one would typically expect given the additional months of classroom instruction and typical rates of student learning. However, should the difference in students’ fall to spring G.E. scores be something *other* than the expected number of months, that difference may be *positively interpreted* if it is *greater than* that the typical gain expected and *negatively interpreted* if it is *less than* the typical gain expected. It should be noted that Grade Equivalent scores, like all other kinds of norm-referenced scores, are not subject to direct mathematical manipulation, meaning they cannot be added and subtracted for example. CREP researchers employed *ITBS* conversion tables to link groups of students’ pre-and posttest mean standard scores to comparable pre- and posttest Grade Equivalent scores.

To complement the information previously described, also provided are the norm-referenced transformation of BH students’ standard scores into median Normal Curve Equivalents (N.C.E.s). A metric preferred by policymakers, Normal Curve Equivalents are both readily interpretable and, as “equal interval” scores, amenable to addition and subtraction. As with Grade Equivalent Scores, little or no difference in fall to spring Normal Curve Equivalent scores implies little or no change in achievement relative to the change in achievement of other students. While this sort of score difference does suggest some growth, the growth that it suggests is of a type that is simply being *maintained*: the student is not moving significantly up or down in the rank ordering of students by achievement, but largely remaining at the same place.

In contrast to this pattern, a robust *positive difference* in pre- to posttest N.C.E.s implies an *upward movement* in a student’s achievement rank order relative to that of other students and an

acceleration of growth, while a robust *negative difference* implies a *downward movement* in a student's achievement rank order relative to that of other students and a *deceleration* of growth. Upon observing a general tendency in the present data towards extreme (usually positive) skewness (i.e., with skewness indicating more scores at either the positive or negative end, and positive skewness indicating more scores at the lower end), CREP researchers decided upon reporting *median* Normal Curve Equivalents opposed to *mean* Normal Curve Equivalents, as the former measure of central tendency is, under these circumstances, a better indicator of typical student performance seeing that the mean (i.e., average) is affected by extreme scores at either end (such as with skewed data). The median is the point at which half of the scores fall above, and half of the scores fall below, and as opposed to the mean, is not affected by extreme scores. In interpreting N.C.E. scores for Brain Hurricane participants, a score of 50 would equal the average for the norm group. Therefore, a score below 50 would be below the average, and a score above 50 would be above the average of the norm group.

Results: All Brain Hurricane Students by Grade/ITBS Test Level

Pretest to Posttest Differences Expressed in ITBS Standard Score Units

When taken as a single group, for all students served by Brain Hurricane, statistically significant differences were observed between pretest and posttest standard score means obtained for all ITBS subtests at all grade levels. With the sole exception of Grade Eight Reading (where $p < .05$), the aforementioned differences were highly statistically significant (at $p < .001$) and were associated with mean-difference effect sizes that minimally exceeded one half of a standard deviation (that is, $d > .50$) and sometimes exceeded a full standard deviation ($d > 1.0$). Were one to collapse across grade levels and combine Brain Hurricane students into two large groups based on the level of the test administered—a lower school group (Kindergarten through Grade Two) and an upper school group (Grades Three through Eight)—the effect size associated with standard scores gains made by the 1,217 students in the lower school group would average out at $d = 1.10$ in Mathematics, $d = 0.92$ in Word Analysis, and $d = 0.74$ in Reading Comprehension (with $n = 1,007$, using Grades One and Two only), while the standard scores gains made by the 1,347 students in the upper school group would average out at roughly $d = 0.92$ in Mathematics and $d = 0.73$ in Reading.

When compared with results obtained in last year's report, the effects of Brain Hurricane for 2009-2010 appear systematically to exceed those for 2008-2009. For the preceding year, improvements in student achievement of *less than one-half* of a standard deviation ($d < .50$) were observed in *nearly half* of all the grade level comparisons made on all Brain Hurricane students and *only twice* did an improvement in student achievement observed for this set of comparisons *exceed three-fourths* of a standard deviation ($d = 0.75$). For the present year, *no* effect size for the aggregate comparisons was observed to *be less than* $d = 0.50$, while effect sizes *exceeding three-fourths* of a standard deviation occurred in fully fifteen out the twenty cases (or 75% of the times) these aggregate comparisons were made.

Pretest to Posttest Differences Expressed in Normal Curve Equivalent Units

Although comparison of students' standard scores suggests consistent and meaningful gains for all Brain Hurricane students, such gains did not always equate, in a norm-referenced sense, to either a full six to eight months of instruction, as reflected in students' Grade Equivalent, or in median Normal Curve Equivalent scores. As shown in Figures 1 through 3, the slightly more than 1,200 students served by Brain Hurricane in Kindergarten through Grade Two collectively gained 5 N.C.E.s in median performance on ITBS Word Analysis (pretest = 40, posttest = 45), with a similar gain of 6 N.C.E.s observed for the combined 1,007 Grade One and Grade Two students in ITBS Reading Comprehension (pretest = 34, posttest = 40). Commensurate with the previously-described very large effect sizes observed in comparing standard scores (averaging out at $d = 1.07$), also considerable is the N.C.E. gain made for students in Kindergarten through Grade Two in ITBS Mathematics (pretest = 32, posttest = 42).

At the same time, it is evident that such gains in median N.C.E. scores were not uniform by grade level across the three achievement domains. In the lower elementary grades, Grade Two Brain Hurricane students achieved a pretest to posttest median gain of between 9 and 10 N.C.E.s in Mathematics, Word Analysis and Reading Comprehension. While gains observed for Kindergarten Mathematics approached those generally observed for Grade Two, gains in N.C.E.s were much less robust in Word Analysis for Kindergarten (pretest = 47, posttest = 52 for a difference of 5 N.C.E. points) and Grade One (pretest = 41, posttest = 45 for a difference of 4 N.C.E. points) and declined for Grade One Reading Comprehension (pretest = 48, posttest = 47 for a difference of -1 N.C.E. points). For the lower grades, none of the pretest

median N.C.E. scores was above the average of 50, while only one (Word Analysis for Kindergarten (52.0)) exceeded the average of 50 at the posttest. Reckoned in terms of Grade Equivalent scores (G.E.s), Brain Hurricane students in the three lower grades could be said to have made on average about 4 to 7 months' gains across the three subject areas tested.

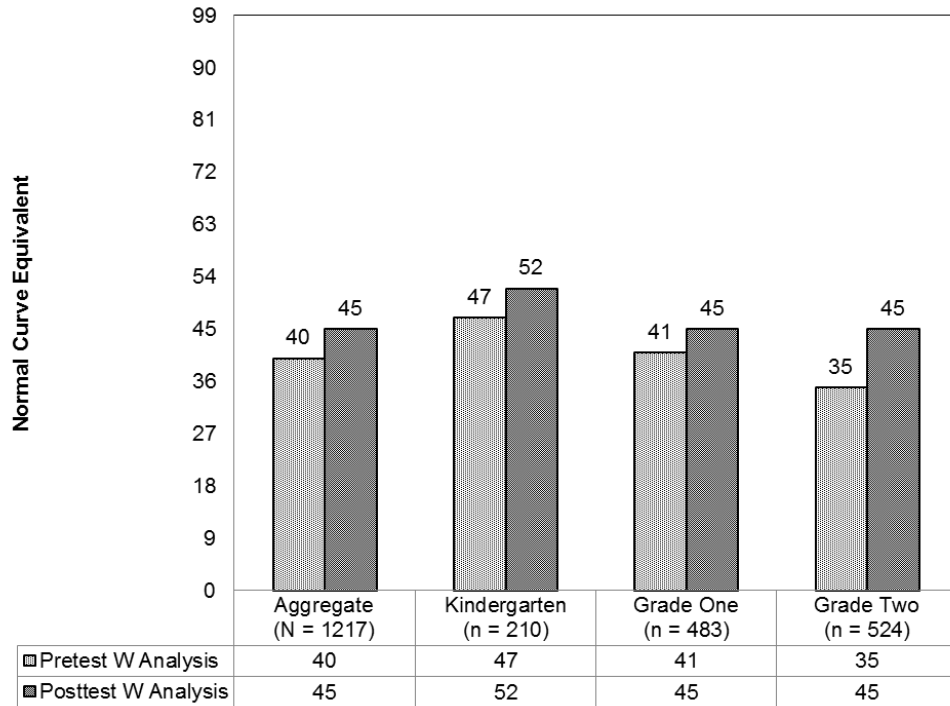


Figure 1: Pretest and Posttest Median Normal Curve Equivalent Scores in Word Analysis: Lower School Grades.

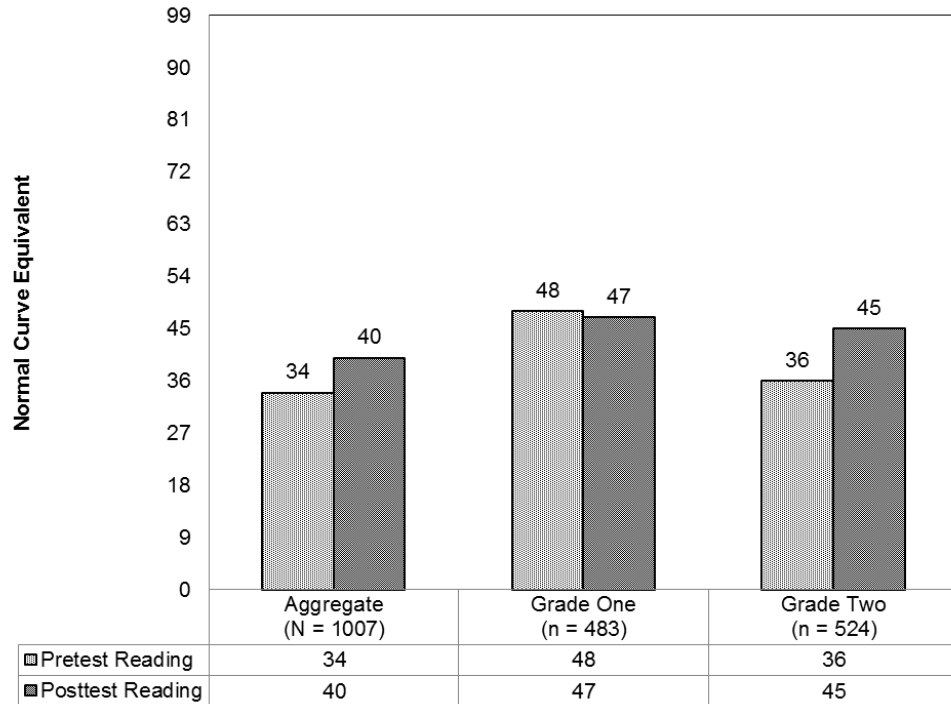


Figure 2: Pretest and Posttest Median Normal Curve Equivalent Scores in Reading: Lower School Grades.

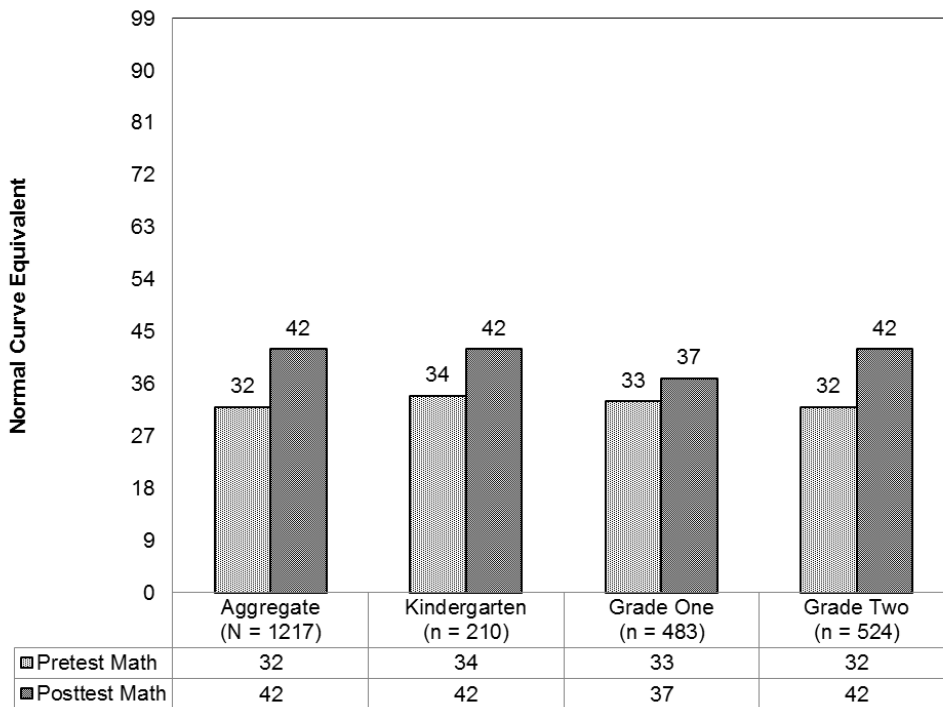


Figure 3: Pretest and Posttest Median Normal Curve Equivalent Scores in Mathematics: Lower School Grades.

Among the 1,347 students served by Brain Hurricane in Grade Three through Grade Eight, N.C.E. gains in Reading tended to be generally smaller than those obtained in Mathematics. As shown in Figure 4, absent a gain of 6 N.C.E.s for Grade Five Reading (pretest = 34, posttest = 40), gains in Reading at the other grades levels in the upper group varied only between 2 to 4 N.C.E.s, while N.C.E. at Grade Three declined slightly (pretest = 37, posttest = 36). At none of the upper grade levels did either the median pretest or posttest N.C.E. scores in reading approach the average of 50. In fact, at Grades Six (pretest = 28, posttest = 32), Seven (pretest = 29, posttest = 32), and Eight (pretest = 28, posttest = 30), the median N.C.E. scores were all observed to be in the upper twenties at the pretest and seen to be just meeting or barely exceeding an N.C.E. score of 30 at the posttest.

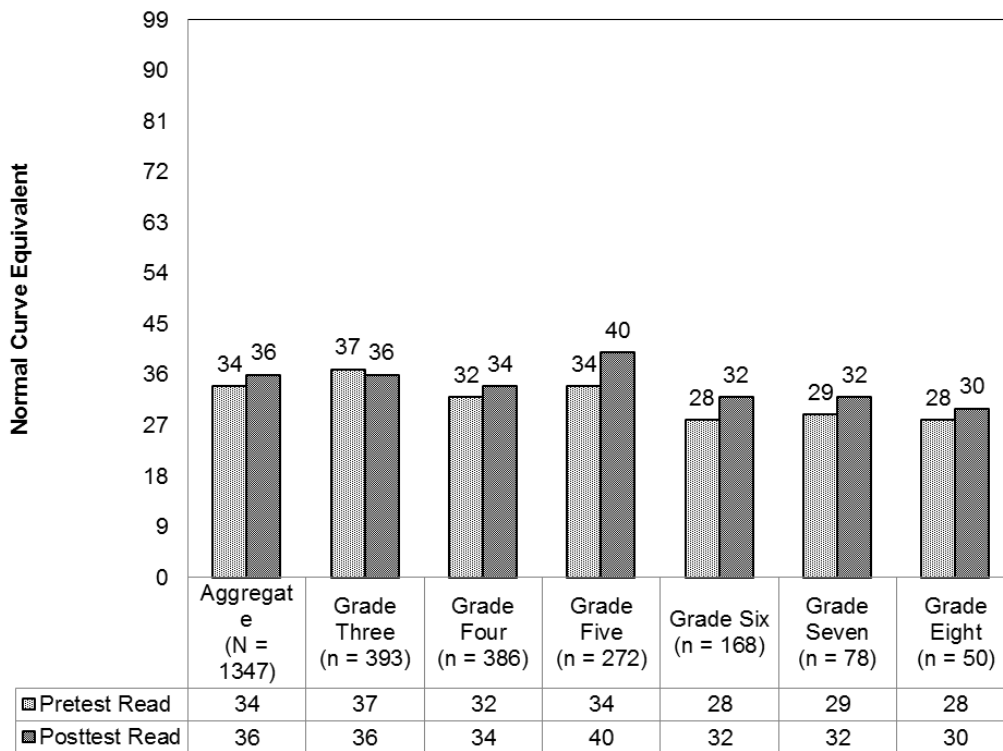


Figure 4: Pretest and Posttest Median Normal Curve Equivalent Scores in Reading: Upper School Grades.

As contrasted with these somewhat marginal gains in reading, the gain in median mathematics N.C.E scores of the upper school students served by Brain Hurricane tended to be much more substantial. As shown in Figure Five, the grade-level gains in median mathematics achievement averaged 6 N.C.E. s for all 1,347 upper school students taken together (pretest = 53, posttest = 59), with

larger increases seen in Grades Three (pretest = 49, posttest = 59 for a gain of 10 N.C.E.s), Four (pretest = 58, posttest = 81 for a gain of 22 N.C.E.s), and Eight (pretest = 41, posttest = 51 for a gain of 10 N.C.E.s); somewhat smaller increases seen in Grades Five (pretest = 54, posttest = 59), and Six (pretest = 48, posttest = 53) for a gain of 5 N.C.E.s each, and the smallest increase seen for Grade Seven (pretest = 47, posttest = 48). For the upper grades, only two of the pretest median N.C.E. scores in Math exceeded the average of 50 (Grades Four and Five), while at the posttest the median Math N.C.E. exceeded the average of 50 for all but one of the grades (Grade Seven).

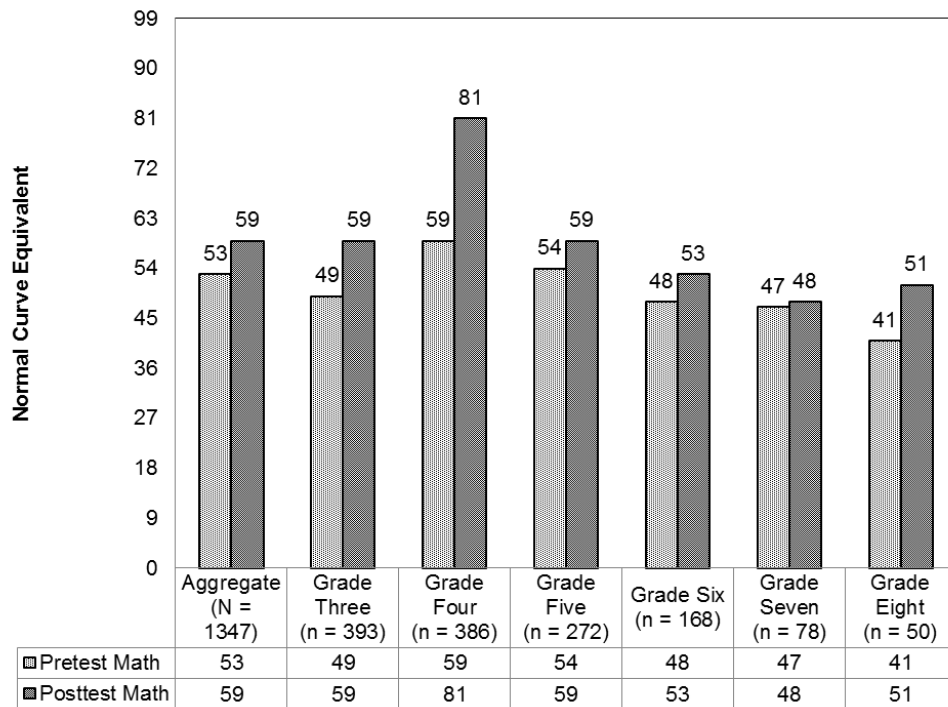


Figure 5: Pretest and Posttest Median Normal Curve Equivalent Scores in Mathematics: Upper School Grades.

In terms of Grade Equivalents (G.E.s), as shown in Table 1, gains averaged about six months in Reading for students in Grades 3 through Grade 8, while the gains in Math were consistently an entire grade level (1.0) or more.

Results: Additional Breakouts of Brain Hurricane Students by Grade/ITBS Test Level

Analysis of Data from Larger Districts

As previously noted in the Introduction, the inclusion of student-level identifiers by state and district facilitated analysis of other relevant ways to group and present student results. Although Brain Hurricane is headquartered in Chicago and provides supplemental educational services to a number of schools in the Chicago Public Schools, it also serves students in districts and schools across the state of Illinois as well in the states of California and Wisconsin.

In breaking out the previous results by grade/test levels into smaller units, the purpose of the attached supplementary tables is to present empirical results that will assist Brain Hurricane in its self-study. In a fashion similar to Table 1, the appended series of tables that follow highlight student performance by grade/test level in those places where the supplementary educational services provided by Brain Hurricane were most concentrated. Like Table 1, these tables provide both descriptive and inferential statistics for 1) large districts where the total number of students served by Brain Hurricane exceeded 200 (Tables 14 through 17), 2) smaller districts where the total number of students served by Brain Hurricane exceeded 40 (Tables 18 through 30), and 3) schools of varying sizes where the total number of students served by Brain Hurricane exceeded 40 (Tables 31 through 43). In all of these tables, the reader will note that it is quite often the case that the number of students served at particular grade levels—especially at the upper grade levels—is often quite small. Where there are a small number of paired scores (that is, fewer than 10), statistical significance is difficult to achieve; in those cases, attention is better focused on the magnitude of the mean-difference effect size.

Analyses of Students Grouped by Number of Hours Tutored

Finally, using data available on the number of hours that students were tutored, Brain Hurricane requested additional breakouts of the data with students categorized as having received either 30 or more hours or fewer than 30 hours of tutoring. For both of these groups, two tables comparable to other breakouts of the data, and including both descriptive and inferential statistics by grade level, were prepared (see Tables 44 and 45). To facilitate direct comparison of the performance of these two groups, pretest to posttest standard score gains made by students receiving fewer than 30 hours of tutoring ($M = 23.77$ in the lower grades, $M = 23.25$ hrs. in the upper grades), and those receiving 30 or more hours of

tutoring ($M = 38.51$ hrs. in the lower grades, $M = 39.52$ hrs. in the upper grades) were first computed and then subsequently compared at every grade level using independent t -tests. As shown in Table 46, no statistically significant differences between group means emerged with respect to either ITBS subtest at Grades Four through Eight. However, effects averaging about one-third of a standard deviation and favoring the group with more tutoring hours were observed for:

- Kindergarten Mathematics ($t(208) = 3.60, p < .001, g = 0.48$)
- Grade One Word Analysis ($t(481) = 2.52, p < .05, g = 0.24$)
- Grade One Reading ($t(481) = 3.41, p < .001, g = 0.32$)
- Grade Two Reading ($t(522) = 3.06, p < .001, g = 0.37$), and
- Grade Three Mathematics ($t(391) = 2.71, p < .01, g = 0.31$)

Conclusion

In summary, when looking at all Brain Hurricane participants as a group, students at all grade levels and in both subjects made statistically significant gains in scores from the pretest to the posttest. Effect sizes tended to be larger in Mathematics compared to Word Analysis and/or Reading. In terms of N.C.E. gains, effects were larger for the upper grades, with nearly all grade levels testing above average by the posttest. In terms of the impact of hours of attendance on achievement, effects were stronger for the lower grade levels, with more statistically significant differences favoring students with 30 or more hours compared to students with less than 30 hours of attendance. The results, while positive, should be treated with caution as there was no control group available for comparison.

In the educational literature, discussions of the efficacy of Supplemental Educational Services (S.E.S) have pointed out how difficult it is to show gains in student performance given the small number of additional hours that students are provided with tutoring. In such discussions, many commentators regard as unrealistic the expectation that students should make a year or more of more of test score gains, given 30 or so hours of after-school instruction dispersed across as many weeks of the school year (see, for example, Burch, Heinrich, Cheng, Good, & Timberlake, (2011)).

In light of these commentaries and the number of hours of service that Brain Hurricane students received during 2009-2010 (i.e. between 30 and 33 hours on average in Kindergarten through Grade Two, and between 30 and 34 hours on average in Grades Three through Eight), it may set the efficacy

bar too high to interpret the posttest performance of Brain Hurricane students in terms of the “spring” or end-of-year ITBS norms, as opposed to ITBS-interpolated “midyear” norms. Even so, although spring ITBS norms were the ones referenced to determine N.C.E. gains in this report, Brain Hurricane students were still shown to have made consistently credible performance improvements in ITBS Mathematics and to have maintained, if not to some extent, improved their performance in ITBS Reading. Due to the fact that there is no control group for comparison, it is unknown whether any changes in scores (standard scores, grade equivalents, or N.C.E.’s), whether positive or negative, can be attributed to students attending Brain Hurricane. Students who participate in tutoring at Brain Hurricane are also attending their home school during the regular school day. Therefore, any changes in scores are due to combination of instruction at the home school and instruction at Brain Hurricane. Without a control group of students for comparison who attended the same schools, but did not attend BH, we can only know that changes in scores occurred, but we cannot know the impact that Brain Hurricane had on those scores.

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Table 1: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten (N pairs = 210)												
W Analysis	118.0	13.6	132.1	23.7	14.1	0.92	8.84	***	K.1	K.9	47.0	52.0
Mathematics	112.3	11.5	127.0	15.4	14.6	1.14	11.58	***	P.8	K.6	34.0	42.0
Grade One (N pairs = 483)												
W Analysis	133.1	14.3	145.3	16.7	12.2	1.04	16.06	***	1.0	1.5	41.0	45.0
Reading	135.7	16.3	146.4	15.1	10.7	0.76	11.77	***	1.1	1.6	48.0	47.0
Mathematics	129.5	14.5	144.4	17.5	14.9	1.15	17.70	***	K.7	1.5	33.0	37.0
Grade Two (N pairs = 524)												
W Analysis	144.8	19.6	155.7	19.5	10.9	0.79	12.76	***	1.5	2.1	35.0	45.0
Reading	147.0	13.8	153.2	14.2	6.2	0.71	11.46	***	1.6	2.0	36.0	45.0
Mathematics	140.8	13.8	150.8	14.0	10.0	1.00	16.28	***	1.3	1.9	32.0	42.0
Grade Three (N pairs = 393)												
Reading	162.8	22.3	173.3	24.2	10.5	0.53	7.46	***	2.5	3.0	37.0	36.0
Mathematics	180.8	25.5	201.6	30.6	20.8	1.17	16.15	***	3.6	4.9	49.0	59.0
Grade Four (N pairs = 386)												
Reading	170.8	15.4	180.6	20.1	9.9	0.85	11.41	***	2.9	3.5	32.0	34.0
Mathematics	203.1	30.5	215.0	28.5	11.9	0.74	10.27	***	5.0	5.9	59.0	81.0
Grade Five (N pairs = 272)												
Reading	187.8	18.7	198.6	20.5	10.7	0.85	9.84	***	4.0	4.7	34.0	40.0
Mathematics	215.3	31.1	234.1	35.0	18.8	0.93	10.82	***	5.9	7.4	54.0	59.0
Grade Six (N pairs = 168)												
Reading	189.6	18.2	199.6	21.9	10.1	0.80	7.21	***	4.1	4.8	28.0	32.0
Mathematics	220.2	34.0	238.2	36.7	18.1	0.90	8.28	***	6.3	7.8	48.0	53.0
Grade Seven (N pairs = 78)												
Reading	200.6	20.0	211.9	21.9	11.3	0.83	5.22	***	4.8	5.6	29.0	32.0
Mathematics	227.9	40.2	248.1	40.8	20.2	0.73	4.61	***	6.8	8.6	47.0	48.0
Grade Eight (N pairs = 50)												
Reading	207.1	25.4	214.1	25.8	7.0	0.51	2.60	*	5.3	5.8	28.0	30.0
Mathematics	236.3	36.3	257.5	43.2	21.2	1.05	5.18	***	7.6	9.5	41.0	51.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 2: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students Served by Brain Hurricane in California Districts, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten (N pairs = 84)												
W Analysis	115.2	13.2	127.4	30.0	12.3	0.61	3.66	***	P.9	K.6	44.0	44.0
Mathematics	106.4	12.9	126.6	12.8	20.2	1.42	9.29	***	P.6	K.6	19.5	38.0
Grade One (N pairs = 232)												
W Analysis	134.0	13.7	145.3	17.0	11.3	0.99	10.54	***	1.0	1.5	45.0	45.0
Reading	136.1	16.4	144.4	16.4	8.3	0.59	6.39	***	1.1	1.5	48.0	44.0
Mathematics	129.2	14.6	146.2	18.6	17.0	1.18	12.62	***	K.7	1.6	33.0	40.0
Grade Two (N pairs = 269)												
W Analysis	145.2	21.3	155.8	19.7	10.6	0.71	8.26	***	1.5	2.1	38.0	49.0
Reading	146.8	13.9	152.1	14.7	5.3	0.60	6.98	***	1.6	1.9	35.0	45.0
Mathematics	140.4	14.3	150.1	14.2	9.8	0.96	11.20	***	1.2	1.8	32.0	42.0
Grade Three (N pairs = 153)												
Reading	159.9	22.1	169.8	27.8	9.9	0.52	4.48	***	2.3	2.9	37.0	33.0
Mathematics	181.1	26.3	200.9	30.6	19.8	1.19	10.33	***	3.6	4.8	49.0	59.0
Grade Four (N pairs = 190)												
Reading	169.3	14.2	179.3	21.8	10.0	0.77	7.06	***	2.8	3.4	32.0	34.0
Mathematics	204.7	30.6	214.2	28.9	9.6	0.63	6.14	***	5.1	5.8	59.0	67.0
Grade Five (N pairs = 140)												
Reading	185.9	18.6	194.5	20.5	8.7	0.62	5.23	***	3.9	4.3	34.0	34.0
Mathematics	214.0	31.0	232.7	35.9	18.7	0.87	7.27	***	5.8	7.3	54.0	57.5
Grade Six (N pairs = 89)												
Reading	187.0	17.8	201.6	22.8	14.5	1.14	7.42	***	3.9	4.9	25.0	32.0
Mathematics	220.6	33.9	242.5	36.2	21.9	1.00	6.75	***	6.3	8.1	50.0	57.0
Grade Seven (N pairs = 42)												
Reading	199.4	19.4	214.3	20.4	14.9	1.08	5.04	***	4.7	5.8	30.5	35.0
Mathematics	229.2	39.5	257.5	41.1	28.2	0.99	4.63	***	7.0	9.5	45.5	56.0
Grade Eight (N pairs = 26)												
Reading	208.6	28.4	218.1	26.8	9.5	0.61	2.25	*	5.4	6.1	29.5	31.0
Mathematics	245.8	40.7	269.7	42.3	23.9	1.05	3.92	**	8.5	11.1	46.0	81.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 3: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students Served by Brain Hurricane in Illinois Districts, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten (N pairs = 63)												
W Analysis	120.9	13.4	138.3	16.1	17.4	1.75	9.81	***	K.2	1.2	49.0	59.0
Mathematics	116.8	9.2	126.0	19.8	9.2	0.82	4.04	***	K.0	K.5	45.0	42.0
Grade One (N pairs = 187)												
W Analysis	133.4	14.9	144.3	17.0	11.0	1.00	9.65	***	1.0	1.5	41.0	40.0
Reading	136.2	14.5	147.3	13.2	11.1	0.86	8.38	***	1.1	1.6	48.0	44.0
Mathematics	128.4	14.2	140.9	15.3	12.5	1.14	11.03	***	K.6	1.3	33.0	30.0
Grade Two (N pairs = 203)												
W Analysis	145.0	18.6	155.6	19.8	10.6	0.86	8.67	***	1.5	2.1	38.0	42.0
Reading	147.1	14.2	153.9	14.2	6.8	0.77	7.79	***	1.6	2.0	35.0	45.0
Mathematics	141.0	13.7	151.0	13.6	10.0	1.04	10.54	***	1.3	1.9	32.0	42.0
Grade Three (N pairs = 215)												
Reading	164.7	23.2	175.6	22.3	10.9	0.52	5.43	***	2.6	3.1	39.0	41.0
Mathematics	178.8	24.0	200.7	30.6	21.9	1.27	12.82	***	3.5	4.8	49.0	59.0
Grade Four (N pairs = 175)												
Reading	172.3	16.7	181.6	18.2	9.3	0.93	8.69	***	3.0	3.6	35.0	34.0
Mathematics	203.0	30.3	216.1	28.0	13.1	0.82	7.69	***	5.0	6.0	53.0	81.0
Grade Five (N pairs = 118)												
Reading	191.4	18.8	202.6	20.2	11.2	1.04	8.04	***	4.1	5.0	40.0	43.0
Mathematics	217.6	31.4	234.3	34.3	16.7	0.92	7.06	***	6.2	7.4	57.0	62.0
Grade Six (N pairs = 61)												
Reading	194.2	18.3	198.5	20.7	4.2	0.36	1.99		4.3	4.6	31.0	32.0
Mathematics	223.0	34.5	235.5	38.8	12.5	0.67	3.72	***	6.5	7.5	46.0	53.0
Grade Seven (N pairs = 29)												
Reading	202.0	20.9	206.1	22.1	4.1	0.34	1.34		4.9	5.2	29.0	28.0
Mathematics	226.1	38.3	235.9	38.5	9.8	0.45	1.78		6.7	7.6	49.0	43.0
Grade Eight (N pairs = 19)												
Reading	208.1	22.2	208.9	23.5	0.8	0.08	0.27		5.3	5.4	28.0	27.0
Mathematics	229.3	29.3	243.0	39.7	13.7	0.83	2.46	*	6.9	8.2	38.0	43.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 4: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students Served by Brain Hurricane in Wisconsin Districts, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten (N pairs = 63)												
W Analysis	118.9	13.7	132.0	19.0	13.2	1.07	5.87	***	K.1	K.9	52.0	55.0
Mathematics	115.8	7.8	128.5	13.5	12.7	1.32	7.14	***	P.9	K.6	34.0	47.0
Grade One (N pairs = 64)												
W Analysis	129.0	14.7	147.8	14.8	18.8	1.35	7.73	***	K.7	1.7	38.0	47.0
Reading	132.8	20.1	151.2	14.6	18.4	1.08	6.11	***	1.0	1.9	49.5	50.5
Mathematics	133.7	14.3	148.2	18.0	14.5	1.11	6.28	***	1.0	1.7	39.0	48.0
Grade Two (N pairs = 52)												
W Analysis	142.5	13.0	156.0	17.8	13.5	0.99	5.02	***	1.4	2.1	33.0	49.0
Reading	147.9	11.9	156.5	10.0	8.6	1.03	5.28	***	1.7	2.2	38.0	49.0
Mathematics	142.3	11.4	153.7	14.7	11.3	1.05	5.37	***	1.3	2.0	29.5	44.0
Grade Three (N pairs = 25)												
Reading	164.4	11.3	175.0	11.3	10.6	0.99	3.63	**	2.6	3.1	39.0	39.0
Mathematics	195.4	29.2	212.6	29.7	17.2	0.62	2.26	*	4.4	5.7	62.0	85.0
Grade Four (N pairs = 21)												
Reading	171.4	13.4	185.0	18.2	13.6	1.32	4.26	***	2.9	3.8	32.0	34.0
Mathematics	189.7	29.9	212.3	30.1	22.6	0.98	3.31	**	4.2	5.7	45.0	67.0
Grade Five (N pairs = 14)												
Reading	177.3	12.7	204.6	17.0	27.3	2.52	6.88	***	3.3	5.1	29.0	43.0
Mathematics	209.4	30.1	246.5	29.9	37.1	1.72	4.85	***	5.4	8.5	45.5	64.0
Grade Six (N pairs = 18)												
Reading	186.4	17.3	194.3	21.1	7.9	0.68	2.08		3.9	4.3	25.5	24.5
Mathematics	208.3	31.9	226.2	29.8	17.9	1.25	3.91	**	5.4	6.7	33.0	45.0
Grade Seven (N pairs = 7)												
Reading	202.4	23.2	222.3	26.6	19.9	1.07	2.35		4.9	6.4	34.0	45.0
Mathematics	228.0	56.4	242.9	39.1	14.9	0.32	0.68		6.8	8.2	34.0	48.0
Grade Eight (N pairs = 5)												
Reading	195.8	20.4	213.4	30.6	17.6	1.15	2.12		4.5	5.7	23.0	32.0
Mathematics	213.4	21.8	249.6	50.4	36.2	2.36	2.52		5.7	8.8	36.0	53.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 5: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Kindergarten Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten (N pairs = 210)												
W Analysis	118.0	13.6	132.1	23.7	14.1	0.92	8.84	***	K.1	K.9	47.0	52.0
Mathematics	112.3	11.5	127.0	15.4	14.6	1.14	11.58	***	P.8	K.6	34.0	42.0
Kindergarten < 30 Hours (N pairs = 96)												
W Analysis	116.3	12.4	129.1	21.3	12.8	0.93	6.07	***	K.0	K.7	44.0	44.0
Mathematics	112.0	10.2	121.8	16.6	9.8	0.78	5.23	***	P.8	K.2	30.0	35.0
Kindergarten >= 30 Hours (N pairs = 114)												
W Analysis	119.4	14.3	134.6	25.3	15.1	0.91	6.47	***	K.1	1.1	52.0	55.0
Mathematics	112.6	12.6	131.3	12.7	18.7	1.52	11.52	***	P.8	K.8	38.0	47.0
CA Kindergarten (N pairs = 84)												
W Analysis	115.2	13.2	127.4	30.0	12.3	0.61	3.66	***	P.9	K.6	44.0	44.0
Mathematics	106.4	12.9	126.6	12.8	20.2	1.42	9.29	***	P.6	K.6	19.5	38.0
IL Kindergarten (N pairs = 63)												
W Analysis	120.9	13.4	138.3	16.1	17.4	1.75	9.81	***	K.2	1.2	49.0	59.0
Mathematics	116.8	9.2	126.0	19.8	9.2	0.82	4.04	***	K.0	K.5	45.0	42.0
WI Kindergarten (N pairs = 63)												
W Analysis	118.9	13.7	132.0	19.0	13.2	1.07	5.87	***	K.1	K.9	52.0	55.0
Mathematics	115.8	7.8	128.5	13.5	12.7	1.32	7.14	***	P.9	K.6	34.0	47.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 6: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade One Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade One (N pairs = 483)												
W Analysis	133.1	14.3	145.3	16.7	12.2	1.04	16.06	***	1.0	1.5	41.0	45.0
Reading	135.7	16.3	146.4	15.1	10.7	0.76	11.77	***	1.1	1.6	48.0	47.0
Mathematics	129.5	14.5	144.4	17.5	14.9	1.15	17.70	***	K.7	1.5	33.0	37.0
Grade One < 30 Hours (N pairs = 174)												
W Analysis	134.9	15.9	144.5	18.8	9.6	0.77	7.13	***	1.1	1.5	45.0	45.0
Reading	137.1	15.5	143.7	16.9	6.6	0.51	4.76	***	1.2	1.5	48.0	44.0
Mathematics	129.3	14.0	142.5	17.3	13.2	1.00	9.29	***	K.7	1.4	33.0	37.0
Grade One >= 30 Hours (N pairs = 309)												
W Analysis	132.1	13.3	145.7	15.4	13.6	1.22	15.12	***	K.9	1.6	41.0	45.0
Reading	134.9	16.7	148.0	13.9	13.1	0.90	11.12	***	1.1	1.7	48.0	47.0
Mathematics	129.6	14.8	145.5	17.6	15.9	1.23	15.21	***	K.8	1.5	33.0	40.0
CA Grade One (N pairs = 232)												
W Analysis	134.0	13.7	145.3	17.0	11.3	0.99	10.54	***	1.0	1.5	45.0	45.0
Reading	136.1	16.4	144.4	16.4	8.3	0.59	6.39	***	1.1	1.5	48.0	44.0
Mathematics	129.2	14.6	146.2	18.6	17.0	1.18	12.62	***	K.7	1.6	33.0	40.0
Grade One (N pairs = 187)												
W Analysis	133.4	14.9	144.3	17.0	11.0	1.00	9.65	***	1.0	1.5	41.0	40.0
Reading	136.2	14.5	147.3	13.2	11.1	0.86	8.38	***	1.1	1.6	48.0	44.0
Mathematics	128.4	14.2	140.9	15.3	12.5	1.14	11.03	***	K.6	1.3	33.0	30.0
Grade One (N pairs = 64)												
W Analysis	129.0	14.7	147.8	14.8	18.8	1.35	7.73	***	K.7	1.7	38.0	47.0
Reading	132.8	20.1	151.2	14.6	18.4	1.08	6.11	***	1.0	1.9	49.5	50.5
Mathematics	133.7	14.3	148.2	18.0	14.5	1.11	6.28	***	1.0	1.7	39.0	48.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 7: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade Two Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Two (N pairs = 524)												
W Analysis	144.8	19.6	155.7	19.5	10.9	0.79	12.76	***	1.5	2.1	35.0	45.0
Reading	147.0	13.8	153.2	14.2	6.2	0.71	11.46	***	1.6	2.0	36.0	45.0
Mathematics	140.8	13.8	150.8	14.0	10.0	1.00	16.28	***	1.3	1.9	32.0	42.0
Grade Two < 30 Hours (N pairs = 190)												
W Analysis	147.0	22.2	157.8	20.8	10.8	0.70	6.83	***	1.6	2.2	38.0	49.0
Reading	147.7	15.6	151.7	14.8	4.0	0.48	4.64	***	1.7	1.9	36.0	45.0
Mathematics	140.3	14.8	149.6	14.2	9.2	0.87	8.53	***	1.2	1.8	32.0	42.0
Grade Two >= 30 Hours (N pairs = 334)												
W Analysis	143.6	17.9	154.5	18.7	10.9	0.85	11.01	***	1.5	2.0	35.0	42.0
Reading	146.7	12.7	154.1	13.7	7.4	0.84	10.89	***	1.6	2.0	35.0	46.0
Mathematics	141.1	13.2	151.5	13.9	10.4	1.09	14.07	***	1.3	1.9	32.0	42.0
CA Grade Two (N pairs = 269)												
W Analysis	145.2	21.3	155.8	19.7	10.6	0.71	8.26	***	1.5	2.1	38.0	49.0
Reading	146.8	13.9	152.1	14.7	5.3	0.60	6.98	***	1.6	1.9	35.0	45.0
Mathematics	140.4	14.3	150.1	14.2	9.8	0.96	11.20	***	1.2	1.8	32.0	42.0
IL Grade Two (N pairs = 203)												
W Analysis	145.0	18.6	155.6	19.8	10.6	0.86	8.67	***	1.5	2.1	38.0	42.0
Reading	147.1	14.2	153.9	14.2	6.8	0.77	7.79	***	1.6	2.0	35.0	45.0
Mathematics	141.0	13.7	151.0	13.6	10.0	1.04	10.54	***	1.3	1.9	32.0	42.0
WI Grade Two (N pairs = 52)												
W Analysis	142.5	13.0	156.0	17.8	13.5	0.99	5.02	***	1.4	2.1	33.0	49.0
Reading	147.9	11.9	156.5	10.0	8.6	1.03	5.28	***	1.7	2.2	38.0	49.0
Mathematics	142.3	11.4	153.7	14.7	11.3	1.05	5.37	***	1.3	2.0	29.5	44.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 8: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade Three Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Three (N pairs = 393)												
Reading	162.8	22.3	173.3	24.2	10.5	0.53	7.46	***	2.5	3.0	37.0	36.0
Mathematics	180.8	25.5	201.6	30.6	20.8	1.17	16.15	***	3.6	4.9	49.0	59.0
Grade Three < 30 Hours (N pairs = 104)												
Reading	160.5	26.5	172.2	18.8	11.7	0.52	3.75	***	2.3	3.0	37.0	33.0
Mathematics	185.0	27.9	200.0	30.5	15.0	0.86	6.24	***	3.8	4.8	54.0	56.5
Grade Three >= 30 Hours (N pairs = 289)												
Reading	163.6	20.6	173.7	25.9	10.1	0.55	6.49	***	2.6	3.1	37.0	39.0
Mathematics	179.2	24.4	202.1	30.7	22.9	1.29	15.19	***	3.5	4.9	49.0	59.0
CA Grade Three (N pairs = 153)												
Reading	159.9	22.1	169.8	27.8	9.9	0.52	4.48	***	2.3	2.9	37.0	33.0
Mathematics	181.1	26.3	200.9	30.6	19.8	1.19	10.33	***	3.6	4.8	49.0	59.0
IL Grade Three (N pairs = 215)												
Reading	164.7	23.2	175.6	22.3	10.9	0.52	5.43	***	2.6	3.1	39.0	41.0
Mathematics	178.8	24.0	200.7	30.6	21.9	1.27	12.82	***	3.5	4.8	49.0	59.0
WI Grade Three (N pairs = 25)												
Reading	164.4	11.3	175.0	11.3	10.6	0.99	3.63	**	2.6	3.1	39.0	39.0
Mathematics	195.4	29.2	212.6	29.7	17.2	0.62	2.26	*	4.4	5.7	62.0	85.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 9: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade Four Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Four (N pairs = 386)												
Reading	170.8	15.4	180.6	20.1	9.9	0.85	11.41	***	2.9	3.5	32.0	34.0
Mathematics	203.1	30.5	215.0	28.5	11.9	0.74	10.27	***	5.0	5.9	59.0	81.0
Grade Four < 30 Hours (N pairs = 117)												
Reading	171.9	15.9	181.4	24.3	9.5	0.63	4.60	***	3.0	3.5	35.0	34.0
Mathematics	204.5	29.8	215.9	28.7	11.5	0.79	6.04	***	5.1	6.0	59.0	81.0
Grade Four >= 30 Hours (N pairs = 269)												
Reading	170.3	15.1	180.3	18.0	10.0	1.02	11.69	***	2.9	3.4	32.0	34.0
Mathematics	202.5	30.8	214.6	28.4	12.1	0.72	8.37	***	4.9	5.9	59.0	67.0
CA Grade Four (N pairs = 190)												
Reading	169.3	14.2	179.3	21.8	10.0	0.77	7.06	***	2.8	3.4	32.0	34.0
Mathematics	204.7	30.6	214.2	28.9	9.6	0.63	6.14	***	5.1	5.8	59.0	67.0
IL Grade Four (N pairs = 175)												
Reading	172.3	16.7	181.6	18.2	9.3	0.93	8.69	***	3.0	3.6	35.0	34.0
Mathematics	203.0	30.3	216.1	28.0	13.1	0.82	7.69	***	5.0	6.0	53.0	81.0
WI Grade Four (N pairs = 21)												
Reading	171.4	13.4	185.0	18.2	13.6	1.32	4.26	***	2.9	3.8	32.0	34.0
Mathematics	189.7	29.9	212.3	30.1	22.6	0.98	3.31	**	4.2	5.7	45.0	67.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 10: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade Five Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Five (N pairs = 272)												
Reading	187.8	18.7	198.6	20.5	10.7	0.85	9.84	***	4.0	4.7	34.0	40.0
Mathematics	215.3	31.1	234.1	35.0	18.8	0.93	10.82	***	5.9	7.4	54.0	59.0
Grade Five < 30 Hours (N pairs = 98)												
Reading	187.3	19.5	196.5	21.9	9.3	0.63	4.44	***	3.9	4.5	34.0	36.0
Mathematics	209.6	31.6	224.9	35.5	15.3	0.82	5.73	***	5.5	6.6	47.0	54.5
Grade Five >= 30 Hours (N pairs = 174)												
Reading	188.1	18.3	199.7	19.7	11.6	1.00	9.36	***	4.0	4.8	36.0	40.0
Mathematics	218.5	30.4	239.3	33.7	20.7	0.99	9.22	***	6.2	7.9	57.0	66.0
CA Grade Five (N pairs = 140)												
Reading	185.9	18.6	194.5	20.5	8.7	0.62	5.23	***	3.9	4.3	34.0	34.0
Mathematics	214.0	31.0	232.7	35.9	18.7	0.87	7.27	***	5.8	7.3	54.0	57.5
IL Grade Five (N pairs = 118)												
Reading	191.4	18.8	202.6	20.2	11.2	1.04	8.04	***	4.1	5.0	40.0	43.0
Mathematics	217.6	31.4	234.3	34.3	16.7	0.92	7.06	***	6.2	7.4	57.0	62.0
Grade Five (N pairs = 14)												
Reading	177.3	12.7	204.6	17.0	27.3	2.52	6.88	***	3.3	5.1	29.0	43.0
Mathematics	209.4	30.1	246.5	29.9	37.1	1.72	4.85	***	5.4	8.5	45.5	64.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 11: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade Six Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Six (N pairs = 168)												
Reading	189.6	18.2	199.6	21.9	10.1	0.80	7.21	***	4.1	4.8	28.0	32.0
Mathematics	220.2	34.0	238.2	36.7	18.1	0.90	8.28	***	6.3	7.8	48.0	53.0
Grade Six < 30 Hours (N pairs = 61)												
Reading	186.4	17.0	199.1	21.1	12.8	0.93	5.13	***	3.9	4.7	23.0	35.0
Mathematics	221.6	35.1	236.0	34.6	14.5	0.73	4.07	***	6.4	7.6	53.0	53.0
Grade Six >= 30 Hours (N pairs = 107)												
Reading	191.4	18.7	199.9	22.4	8.5	0.71	5.13	***	4.1	4.8	28.0	32.0
Mathematics	219.4	33.5	239.5	38.0	20.1	1.00	7.30	***	6.2	7.9	46.0	53.0
CA Grade Six (N pairs = 89)												
Reading	187.0	17.8	201.6	22.8	14.5	1.14	7.42	***	3.9	4.9	25.0	32.0
Mathematics	220.6	33.9	242.5	36.2	21.9	1.00	6.75	***	6.3	8.1	50.0	57.0
IL Grade Six (N pairs = 61)												
Reading	194.2	18.3	198.5	20.7	4.2	0.36	1.99		4.3	4.6	31.0	32.0
Mathematics	223.0	34.5	235.5	38.8	12.5	0.67	3.72	***	6.5	7.5	46.0	53.0
WI Grade Six (N pairs = 18)												
Reading	186.4	17.3	194.3	21.1	7.9	0.68	2.08		3.9	4.3	25.5	24.5
Mathematics	208.3	31.9	226.2	29.8	17.9	1.25	3.91	**	5.4	6.7	33.0	45.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 12: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade Seven Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Seven (N pairs = 78)												
Reading	200.6	20.0	211.9	21.9	11.3	0.83	5.22	***	4.8	5.6	29.0	32.0
Mathematics	227.9	40.2	248.1	40.8	20.2	0.73	4.61	***	6.8	8.6	47.0	48.0
Grade Seven < 30 Hours (N pairs = 33)												
Reading	201.7	16.0	217.6	19.2	15.9	1.13	4.68	***	4.9	6.1	34.0	37.0
Mathematics	232.1	36.1	256.1	40.4	24.0	0.71	2.96	**	7.2	9.4	49.0	54.0
Grade Seven >= 30 Hours (N pairs = 45)												
Reading	199.8	22.7	207.8	23.0	8.0	0.60	2.90	**	4.8	5.3	27.0	30.0
Mathematics	224.9	43.1	242.3	40.5	17.4	0.76	3.66	**	6.6	8.1	41.0	46.0
CA Grade Seven (N pairs = 42)												
Reading	199.4	19.4	214.3	20.4	14.9	1.08	5.04	***	4.7	5.8	30.5	35.0
Mathematics	229.2	39.5	257.5	41.1	28.2	0.99	4.63	***	7.0	9.5	45.5	56.0
IL Grade Seven (N pairs = 29)												
Reading	202.0	20.9	206.1	22.1	4.1	0.34	1.34		4.9	5.2	29.0	28.0
Mathematics	226.1	38.3	235.9	38.5	9.8	0.45	1.78		6.7	7.6	49.0	43.0
WI Grade Seven (N pairs = 7)												
Reading	202.4	23.2	222.3	26.6	19.9	1.07	2.35		4.9	6.4	34.0	45.0
Mathematics	228.0	56.4	242.9	39.1	14.9	0.32	0.68		6.8	8.2	34.0	48.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 13: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Grade Eight Students Served by Brain Hurricane, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Eight (N pairs = 50)												
Reading	207.1	25.4	214.1	25.8	7.0	0.51	2.60	*	5.3	5.8	28.0	30.0
Mathematics	236.3	36.3	257.5	43.2	21.2	1.05	5.18	***	7.6	9.5	41.0	51.0
Grade Eight < 30 Hours (N pairs = 21)												
Reading	201.5	22.9	210.1	26.6	8.6	0.53	1.78		4.8	5.4	23.0	27.0
Mathematics	223.9	27.9	247.8	45.3	23.9	1.27	3.61	**	6.6	8.6	41.0	38.0
Grade Eight >= 30 Hours (N pairs = 29)												
Reading	211.2	26.7	217.1	25.3	5.9	0.48	1.88		5.5	6.0	31.0	30.0
Mathematics	245.2	39.4	264.6	40.9	19.3	0.94	3.66	**	8.4	10.4	44.0	56.0
CA Grade Eight (N pairs = 26)												
Reading	208.6	28.4	218.1	26.8	9.5	0.61	2.25	*	5.4	6.1	29.5	31.0
Mathematics	245.8	40.7	269.7	42.3	23.9	1.05	3.92	**	8.5	11.1	46.0	81.0
IL Grade Eight (N pairs = 19)												
Reading	208.1	22.2	208.9	23.5	0.8	0.08	0.27		5.3	5.4	28.0	27.0
Mathematics	229.3	29.3	243.0	39.7	13.7	0.83	2.46	*	6.9	8.2	38.0	43.0
WI Grade Eight (N pairs = 5)												
Reading	195.8	20.4	213.4	30.6	17.6	1.15	2.12		4.5	5.7	23.0	32.0
Mathematics	213.4	21.8	249.6	50.4	36.2	2.36	2.52		5.7	8.8	36.0	53.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 14: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 200 or More Students were Served by BH, 2009-2010: San Bernardino (N = 385)

ITBS Subtest	SS Pre	M Pre	SS Post	SD Post	SS Post	M Post	SS Diff	SD Diff	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade One, District: San Bernardino Schools (N = 115)																
W Analysis	136.3	12.5	144.8	15.7	8.4	0.95	7.1	***	1.1	1.5	48.0	40.0				
Reading	138.2	15.6	145.8	13.4	7.6	0.71	5.3	***	1.2	1.6	56.0	40.0				
Mathematics	132.7	14.5	148.8	20.3	16.1	1.14	8.4	***	K.9	1.7	37.0	40.0				
Grade Two, District: San Bernardino Schools (N = 108)																
W Analysis	147.2	15.0	156.3	20.2	9.1	0.69	5.0	***	1.6	2.1	38.0	49.0				
Reading	148.8	9.3	154.3	14.0	5.6	0.67	4.7	***	1.7	2.0	36.0	46.0				
Mathematics	143.8	9.6	150.3	15.1	6.4	0.70	4.9	***	1.5	1.8	32.0	42.0				
Grade Three, District: San Bernardino Schools (N = 52)																
Reading	157.6	24.7	171.6	18.1	14.0	0.57	2.9	**	2.2	3.0	37.0	37.5				
Mathematics	181.4	26.7	197.2	29.6	15.8	0.93	4.8	***	3.6	4.6	54.0	59.0				
Grade Four, District: San Bernardino Schools (N = 50)																
Reading	171.6	12.5	182.5	13.7	10.9	1.34	6.8	***	3.0	3.7	33.5	37.0				
Mathematics	204.5	29.8	215.2	27.5	10.6	0.72	3.6	**	5.1	5.9	59.0	74.0				
Grade Five, District: San Bernardino Schools (N = 38)																
Reading	187.4	17.2	191.1	19.3	3.7	0.3	1.4		3.9	4.1	34.0	32.5				
Mathematics	212.7	29.1	226.6	29.6	13.9	0.8	3.4	**	5.7	6.8	54.0	54.5				
Grade Six, District: San Bernardino Schools (N = 18)																
Reading	190.5	14.2	200.5	21.9	10.0	0.84	2.4	*	4.1	4.8	26.5	35.0				
Mathematics	210.9	19.5	239.3	33.5	28.4	1.80	4.9	***	5.6	7.9	45.0	53.5				
Grade Seven, District: San Bernardino Schools (N = 2)																
Reading	200.0	2.8	193.0	2.8	-7.0	-0.12	-1.8		4.8	4.3	30.5	21.5				
Mathematics	220.5	21.9	243.0	17.0	22.5	0.45	6.4		6.3	8.2	43.5	52.0				
Grade Eight, District: San Bernardino Schools (N = 1)																
Reading	202.0		221.0						4.9	6.3	26.0	34.0				
Mathematics	217.0		209.0						6.1	5.4	36.0	27.0				

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 15: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 200 or More Students were Served by BH, 2009-2010: Chicago Public Schools (N = 357)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade One, District: Chicago Schools (N = 22)												
W Analysis	133.3	19.8	147.7	21.0	14.4	0.81	2.8	*	1.0	1.7	38.0	49.0
Reading	145.3	13.2	149.0	11.8	3.8	0.43	1.5		1.5	1.7	72.0	44.0
Mathematics	123.0	19.0	144.3	16.1	21.3	1.43	4.9	***	K.3	1.5	23.5	30.0
Grade Two, District: Chicago Schools (N = 52)												
W Analysis	143.8	21.4	150.7	21.8	6.9	0.55	2.8	**	1.4	1.9	35.0	39.0
Reading	141.6	17.4	148.2	12.3	6.6	0.67	3.3	**	1.4	1.7	29.5	34.5
Mathematics	138.9	14.5	146.7	14.7	7.8	0.65	3.4	**	1.2	1.6	25.0	38.0
Grade Three, District: Chicago Schools (N = 122)												
Reading	164.4	14.1	175.4	16.8	11.0	1.17	9.0	***	2.6	3.1	37.0	41.0
Mathematics	177.2	23.6	198.4	29.7	21.2	1.25	9.6	***	3.3	4.6	47.5	54.0
Grade Four, District: Chicago Schools (N = 47)												
Reading	168.9	17.7	176.2	18.0	7.3	0.68	3.4	**	2.8	3.2	29.0	33.0
Mathematics	186.4	26.9	203.6	31.7	17.2	1.01	4.9	***	3.9	5.1	41.0	49.0
Grade Five, District: Chicago Schools (N = 36)												
Reading	187.8	19.5	198.4	22.5	10.7	1.1	4.6	***	4.0	4.6	40.0	42.0
Mathematics	216.8	32.1	232.6	35.7	15.8	1.1	4.5	***	6.1	7.3	57.0	60.5
Grade Six, District: Chicago Schools (N = 44)												
Reading	192.5	17.1	196.5	21.1	4.1	0.32	1.5		4.3	4.6	31.0	30.5
Mathematics	223.2	35.9	234.7	40.2	11.5	0.60	2.8	**	6.5	7.4	46.0	51.5
Grade Seven, District: Chicago Schools (N = 14)												
Reading	201.2	18.4	209.6	25.6	8.4	0.59	1.6		4.8	5.4	28.0	33.5
Mathematics	226.4	45.7	239.9	38.2	13.5	0.61	1.7		6.7	8.0	41.5	50.0
Grade Eight, District: Chicago Schools (N = 14)												
Reading	206.8	23.6	207.1	26.7	0.3	0.03	0.1		5.3	5.3	29.5	23.5
Mathematics	227.1	31.9	242.1	42.3	15.1	0.88	2.3	*	6.8	8.1	39.5	40.5

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 16: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 200 or More Students were Served by BH, 2009-2010: Stockton (N = 274)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: Stockton Schools (N = 49)												
W Analysis	114.0	14.9	129.0	32.1	14.9	0.70	3.2	**	P.9	K.7	40.0	52.0
Mathematics	100.7	11.9	129.4	13.9	28.7	2.13	10.7	***	P.4	K.7	7.0	42.0
Grade One, District: Stockton Schools (N = 41)												
W Analysis	128.5	14.2	150.6	17.8	22.1	1.53	7.0	***	K.7	1.9	41.0	51.0
Reading	128.5	17.6	151.6	14.4	23.1	1.57	7.2	***	K.6	1.9	34.0	51.0
Mathematics	123.3	16.5	151.5	18.6	28.2	1.65	7.6	***	K.3	1.9	27.0	52.0
Grade Two, District: Stockton Schools (N = 60)												
W Analysis	131.6	25.7	150.9	19.6	19.3	1.12	6.1	***	K.9	1.9	22.0	41.0
Reading	137.1	17.2	147.3	14.9	10.2	1.07	5.9	***	1.2	1.6	23.5	32.0
Mathematics	133.8	18.7	149.6	14.6	15.8	1.50	8.1	***	1.0	1.8	21.5	36.0
Grade Three, District: Stockton Schools (N = 23)												
Reading	162.1	12.4	171.0	49.7	9.0	0.42	1.0		2.4	2.9	37.0	32.0
Mathematics	176.9	29.0	209.5	33.6	32.6	1.58	5.5	***	3.3	5.5	38.0	99.0
Grade Four, District: Stockton Schools (N = 26)												
Reading	167.0	14.2	177.5	46.1	10.5	0.41	1.2		2.7	3.3	27.5	31.5
Mathematics	196.7	29.3	208.5	34.6	11.8	0.60	2.2	*	4.6	5.4	53.0	74.0
Grade Five, District: Stockton Schools (N = 28)												
Reading	181.2	19.3	200.2	25.0	19.0	1.1	4.2	***	3.5	4.8	32.0	36.0
Mathematics	212.6	33.6	250.8	38.3	38.2	1.3	5.2	***	5.7	8.9	54.0	80.0
Grade Six, District: Stockton Schools (N = 21)												
Reading	178.8	15.9	203.6	26.9	24.8	1.59	4.9	***	3.4	5.0	20.0	35.0
Mathematics	220.1	36.6	240.2	45.7	20.0	0.58	1.9		6.3	8.0	50.0	57.0
Grade Seven, District: Stockton Schools (N = 14)												
Reading	207.9	13.6	221.8	26.5	13.9	0.74	1.9		5.3	6.4	34.0	42.0
Mathematics	240.5	39.9	274.4	43.9	33.9	0.85	2.4	*	8.1	11.7	51.0	93.0
Grade Eight, District: Stockton Schools (N = 12)												
Reading	206.4	28.1	226.3	22.2	19.9	1.33	3.4	**	5.2	6.7	31.5	34.0
Mathematics	250.4	42.2	292.1	30.8	41.7	1.75	4.4	**	8.8	13+	56.5	81.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 17: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 200 or More Students were Served by BH, 2009-2010: Milwaukee (N = 256)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: Milwaukee Schools (N = 61)												
W Analysis	118.9	13.9	131.7	19.2	12.9	1.03	5.6	***	K.1	K.9	52.0	55.0
Mathematics	115.6	7.9	128.5	13.8	12.8	1.32	7.0	***	P.9	K.7	34.0	47.0
Grade One, District: Milwaukee Schools (N = 64)												
W Analysis	129.0	14.7	147.8	14.8	18.8	1.35	7.7	***	K.7	1.7	38.0	47.0
Reading	132.8	20.1	151.2	14.6	18.4	1.08	6.1	***	1.0	1.9	49.5	50.5
Mathematics	133.7	14.3	148.2	18.0	14.5	1.11	6.3	***	1.0	1.7	39.0	48.0
Grade Two, District: Milwaukee Schools (N = 48)												
W Analysis	142.7	13.4	155.5	18.2	12.8	0.91	4.4	***	1.4	2.1	33.0	49.0
Reading	148.6	12.1	156.5	10.3	7.9	0.93	4.6	***	1.7	2.2	39.0	47.5
Mathematics	142.8	11.8	153.6	15.2	10.9	0.99	4.8	***	1.4	2.0	32.0	44.0
Grade Three, District: Milwaukee Schools (N = 25)												
Reading	164.4	11.3	175.0	11.3	10.6	0.99	3.6	**	2.0	3.1	39.0	39.0
Mathematics	195.4	29.2	212.6	29.7	17.2	0.62	2.3	*	4.4	5.7	62.0	85.0
Grade Four, District: Milwaukee Schools (N = 19)												
Reading	170.9	13.9	184.8	19.1	13.9	1.29	4.0	**	2.9	3.8	32.0	34.0
Mathematics	190.8	31.2	211.5	30.9	20.7	0.90	2.9	**	4.2	5.7	53.0	67.0
Grade Five, District: Milwaukee Schools (N = 12)												
Reading	178.2	12.6	203.0	18.0	24.8	2.5	6.3	***	3.3	5.0	29.0	41.0
Mathematics	210.9	32.3	249.7	31.2	38.8	1.7	4.4	**	5.6	8.8	45.5	68.5
Grade Six, District: Milwaukee Schools (N = 18)												
Reading	186.4	17.3	194.3	21.1	7.9	0.68	2.1		3.9	4.3	25.5	24.5
Mathematics	208.3	31.9	226.2	29.8	17.9	1.25	3.9	**	5.4	6.7	33.0	45.0
Grade Seven, District: Milwaukee Schools (N = 6)												
Reading	208.0	19.7	220.8	28.8	12.8	1.42	2.3		5.3	6.3	35.0	41.0
Mathematics	236.0	57.3	244.0	42.7	8.0	0.15	0.3		7.6	8.3	43.5	45.5
Grade Eight, District: Milwaukee Schools (N = 3)												
Reading	208.0	9.5	222.7	17.2	14.7	1.88	1.9		5.3	6.5	31.0	32.0
Mathematics	220.0	5.2	254.3	33.0	34.3	4.75	2.1		6.3	9.2	36.0	53.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 18: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Waukegan (N = 153)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade One, District: Waukegan Schools (N = 32)												
W Analysis	125.4	11.2	136.2	14.6	10.8	1.0	4.1	***	K.5	1.1	31.0	30.5
Reading	133.8	11.7	144.6	13.4	10.8	1.0	4.0	***	1.0	1.5	43.0	44.0
Mathematics	125.4	14.4	136.7	15.4	11.3	1.0	4.1	***	K.4	1.1	25.0	25.0
Grade Two, District: Waukegan Schools (N = 48)												
W Analysis	140.1	17.3	152.8	16.8	12.6	1.1	5.5	***	1.3	2.0	28.0	40.0
Reading	147.5	12.6	156.4	14.0	8.9	1.1	5.6	***	1.7	2.1	35.5	46.0
Mathematics	136.8	11.8	149.6	11.8	12.8	1.5	7.5	***	1.1	1.8	25.0	38.0
Grade Three, District: Waukegan Schools (N = 27)												
Reading	166.7	21.1	176.4	22.5	9.7	1.1	3.9	**	2.7	3.2	38.0	40.0
Mathematics	173.8	22.7	202.1	36.1	28.4	1.4	4.4	***	3.1	4.9	46.0	56.5
Grade Four, District: Waukegan Schools (N = 26)												
Reading	166.5	15.2	174.7	17.6	8.2	0.7	2.6	*	2.7	3.1	25.0	28.5
Mathematics	199.5	26.7	210.2	26.4	10.8	0.6	2.3	*	4.8	5.5	51.0	58.0
Grade Five, District: Waukegan Schools (N = 22)												
Reading	195.9	15.4	214.4	14.1	18.5	1.6	5.6	***	4.5	5.8	41.0	52.5
Mathematics	218.9	20.0	247.4	28.2	28.5	1.4	4.6	***	6.2	8.6	63.0	68.5
Grade Six, District: Waukegan Schools (N = 3)												
Reading	199.7	41.0	201.3	30.2	1.7	0.0	0.3		4.8	4.8	20.0	23.0
Mathematics	210.3	12.5	212.0	21.1	1.7	0.1	0.3		5.5	5.7	44.0	42.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 19: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Peoria (N = 128)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: Peoria Schools (N = 27)												
W Analysis	120.9	10.0	134.8	15.7	13.9	1.61	5.6	***	K.2	1.1	49.0	59.0
Mathematics	116.0	9.8	117.2	25.0	1.3	0.09	0.3		P.9	K.0	38.0	32.0
Grade One, District: Peoria Schools (N = 31)												
W Analysis	140.3	16.7	148.5	15.1	8.3	1.10	4.4	***	1.3	1.7	48.0	47.0
Reading	137.7	10.3	142.8	12.6	5.1	0.51	2.0		1.2	1.4	48.0	38.0
Mathematics	136.3	10.7	142.7	14.6	6.5	0.70	2.7	*	1.1	1.4	44.0	40.0
Grade Two, District: Peoria Schools (N = 19)												
W Analysis	146.9	20.6	156.4	17.2	9.5	0.55	1.8		1.6	2.1	38.0	45.0
Reading	144.9	13.3	148.4	14.3	3.5	0.60	1.9		1.5	1.7	31.0	32.0
Mathematics	141.6	8.7	149.7	8.3	8.1	1.19	3.8	**	1.3	1.8	32.0	38.0
Grade Three, District: Peoria Schools (N = 15)												
Reading	168.3	20.0	171.7	20.5	3.4	0.43	1.3		2.8	3.0	41.0	29.0
Mathematics	187.7	30.3	197.7	33.7	10.0	0.71	2.0		4.0	4.6	58.0	51.0
Grade Four, District: Peoria Schools (N = 17)												
Reading	171.5	18.8	177.9	13.6	6.5	0.91	2.5	*	3.0	3.3	29.0	30.0
Mathematics	205.4	29.8	211.3	30.6	5.9	0.36	1.1		5.1	5.6	53.0	67.0
Grade Five, District: Peoria Schools (N = 14)												
Reading	185.9	19.7	190.8	17.2	4.9	0.4	1.2		3.9	4.1	36.0	28.0
Mathematics	215.0	37.4	212.5	32.6	-2.5	-0.2	-0.5		5.9	5.7	51.0	43.0
Grade Six, District: Peoria Schools (N = 1)												
Reading	199.0		206.0						4.7	5.2	36.0	37.0
Mathematics	232.0		223.0						7.2	6.5	58.0	47.0
Grade Seven, District: Peoria Schools (N = 1)												
Reading	224.0		224.0						6.6	6.6	45.0	41.0
Mathematics	236.0		231.0						7.6	7.1	53.0	46.0
Grade Eight, District: Peoria Schools (N = 3)												
Reading	204.7	14.2	212.7	10.0	8.0	0.18	3.2		5.1	5.7	23.0	27.0
Mathematics	246.7	22.7	252.7	46.3	6.0	0.12	0.3		8.6	9.1	56.0	43.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 20: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Santa Ana (N = 106)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Two District: Santa Ana Schools (N = 6)												
W Analysis	151.3	12.7	151.2	10.7	-0.2	0.0	0.0		1.9	1.9	43.5	44.5
Reading	149.7	10.2	150.8	9.1	1.2	0.3	0.6		1.8	1.9	34.5	35.0
Mathematics	144.2	11.8	153.2	7.4	9.0	1.6	2.9 *		1.5	2.0	27.0	42.0
Grade Three, District: Santa Ana Schools (N = 25)												
Reading	158.4	9.6	165.6	11.5	7.2	0.9	3.3 **		2.2	2.7	37.0	29.0
Mathematics	169.5	13.9	191.2	26.0	21.7	1.4	4.7 ***		2.9	4.2	46.0	51.0
Grade Four, District: Santa Ana Schools (N = 52)												
Reading	167.4	14.3	176.3	13.3	8.9	1.2	6.0 ***		2.7	3.2	30.5	30.0
Mathematics	214.9	28.4	221.2	24.5	6.3	0.5	2.6 **		5.9	6.3	88.0	81.0
Grade Five, District: Santa Ana Schools (N = 22)												
Reading	184.9	17.7	191.0	19.2	6.1	0.5	1.8		3.8	4.1	32.0	28.5
Mathematics	214.2	31.5	234.5	38.8	20.3	1.0	3.5 **		5.8	7.5	52.5	64.0
Grade Six, District: Santa Ana Schools (N = 1)												
Reading	195.0		180.0						4.4	3.4	22.0	7.0
Mathematics	201.0		213.0						4.8	5.7	25.0	30.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 21: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: District #149 (N = 89)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade One, District: District #149 (N = 17)												
W Analysis	134.9	7.4	149.6	16.6	14.7	1.76	4.4	***	1.1	1.8	48.0	51.0
Reading	145.6	12.0	147.6	14.0	2.0	0.34	1.0		1.6	1.7	56.0	44.0
Mathematics	126.5	13.0	141.5	11.8	15.0	1.25	3.8	**	K.6	1.4	33.0	40.0
Grade Two, District: District #149 (N = 23)												
W Analysis	153.5	16.4	167.7	18.2	14.2	1.32	4.6	***	2.0	2.8	45.0	56.0
Reading	155.7	13.3	157.3	16.4	1.7	0.21	0.7		2.1	2.2	46.0	49.0
Mathematics	144.1	17.5	154.3	15.5	10.2	1.07	3.7	***	1.5	2.0	38.0	46.0
Grade Three, District: District #149 (N = 12)												
Reading	151.6	74.3	175.6	59.9	24.0	0.27	0.7		1.9	3.2	44.0	48.5
Mathematics	192.0	22.2	215.8	31.5	23.8	1.35	3.4	**	4.3	6.0	74.0	99.0
Grade Four, District: District #149 (N = 22)												
Reading	180.2	14.7	191.0	17.7	10.8	1.04	3.5	**	3.4	4.1	40.5	40.0
Mathematics	220.9	25.2	232.4	17.7	11.5	0.96	3.1	**	6.3	7.2	99.0	81.0
Grade Five, District: District #149 (N = 15)												
Reading	197.9	13.8	203.8	16.1	5.9	0.6	1.7		4.6	5.0	48.0	44.0
Mathematics	225.1	34.9	236.1	33.9	10.9	0.5	1.6		6.6	7.6	57.0	71.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 22: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Lynwood (N = 87)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Two, District: Lynwood (N = 34)												
W Analysis	156.9	16.1	164.5	16.5	7.6	0.76	3.2	**	2.2	2.6	49.0	56.0
Reading	155.1	8.5	157.4	9.9	2.4	0.53	2.2	*	2.1	2.2	46.0	50.5
Mathematics	144.3	8.2	153.1	9.5	8.8	1.63	6.8	***	1.5	2.0	34.0	42.0
Grade Three, District: Lynwood (N = 10)												
Reading	168.8	15.0	177.4	15.7	8.6	1.15	2.8	*	2.8	3.3	41.5	39.0
Mathematics	201.5	23.8	216.0	28.1	14.5	0.72	1.8		4.9	6.0	74.0	92.0
Grade Four, District: Lynwood (N = 17)												
Reading	176.5	12.6	183.1	14.0	6.5	2.10	6.1	***	3.3	3.7	38.0	39.0
Mathematics	213.2	30.3	222.6	24.9	9.4	0.84	2.4	*	5.7	6.5	77.0	81.0
Grade Five, District: Lynwood (N = 10)												
Reading	189.1	10.8	199.9	20.5	10.8	0.7	1.6		4.0	4.8	37.0	42.0
Mathematics	218.8	31.4	230.0	30.1	11.2	0.7	1.8		6.2	7.0	57.0	56.0
Grade Six, District: Lynwood (N = 14)												
Reading	199.4	17.5	205.7	13.9	6.4	0.94	2.5	*	4.7	5.2	37.5	35.0
Mathematics	242.0	32.4	249.9	27.3	7.9	0.59	1.6		8.1	8.8	62.0	60.0
Grade Eight, District: Lynwood (N = 2)												
Reading	200.0	43.8	193.0	12.7	-7.0	-0.99	-0.3		4.8	4.3	25.0	16.5
Mathematics	217.5	12.0	217.0	5.7	-0.5	-0.23	0.0		6.2	6.1	36.0	32.5

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 23: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: North Chicago (N = 81)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: North Chicago Schools (N = 12)												
W Analysis	112.4	18.9	130.3	14.4	17.8	1.34	3.5	**	P.8	K.8	43.5	46.0
Mathematics	110.6	10.4	127.5	7.9	16.9	2.69	6.9	***	K.2	K.6	25.0	42.0
Grade One District: North Chicago Schools (N = 32)												
W Analysis	125.3	10.5	141.8	15.7	16.5	1.75	6.8	***	K.5	1.4	29.0	36.0
Reading	121.9	15.2	154.8	15.0	32.9	1.99	8.2	***	K.2	2.1	12.0	57.0
Mathematics	122.7	12.0	136.8	12.3	14.1	1.63	6.7	***	K.6	1.1	21.0	25.5
Grade Two District: North Chicago Schools (N = 14)												
W Analysis	140.9	23.5	154.9	20.5	14.0	0.74	2.1		1.3	2.1	36.5	40.0
Reading	139.8	13.6	157.4	15.0	17.6	1.17	3.3	**	1.3	2.2	29.5	54.0
Mathematics	138.6	15.1	150.0	15.0	11.4	0.85	2.4	*	1.2	1.8	25.0	46.0
Grade Three District: North Chicago Schools (N = 8)												
Reading	163.0	15.4	172.6	16.8	9.6	0.78	1.8		2.5	3.0	38.0	42.5
Mathematics	182.4	26.8	208.8	26.0	26.4	0.98	2.3		3.6	5.9	52.0	72.0
Grade Four District: North Chicago Schools (N = 6)												
Reading	173.5	13.2	181.8	5.8	8.3	0.9	1.7		3.1	3.6	39.0	36.0
Mathematics	221.7	24.5	228.2	18.6	6.5	0.5	1.0		6.4	6.8	88.0	81.0
Grade Five District: North Chicago Schools (N = 9)												
Reading	187.2	18.8	198.7	16.5	11.4	0.94	2.2		3.9	4.7	34.0	34.0
Mathematics	201.2	19.0	234.3	25.4	33.1	2.28	5.2	**	4.8	7.4	47.0	59.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 24: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Paramount Unified (N = 81)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: Paramount Unified (N = 14)												
W Analysis	117.3	7.6	122.9	6.0	5.6	0.88	2.4 *		K.0	K.3	46.5	37.0
Mathematics	117.6	5.0	118.3	10.7	0.6	0.07	0.2		K.0	K.0	41.5	27.0
Grade One District: Paramount Unified (N = 24)												
W Analysis	138.7	10.7	141.3	17.4	2.6	0.27	0.9		1.2	1.3	50.5	45.0
Reading	141.3	11.8	124.3	22.1	-17.0	-1.21	-4.0 **		1.4	K.3	53.5	7.0
Mathematics	132.9	7.1	140.3	17.9	7.4	0.88	2.4 *		K.9	1.3	39.0	38.5
Grade Two District: Paramount Unified (N = 23)												
W Analysis	161.9	18.6	163.2	23.0	1.3	0.09	0.3		2.5	2.5	52.0	64.0
Reading	156.4	11.1	157.4	16.8	1.0	0.11	0.4		2.1	2.2	49.0	52.0
Mathematics	144.5	8.6	150.9	14.1	6.3	0.90	2.8 *		1.5	1.9	34.0	46.0
Grade Three District: Paramount Unified (N = 7)												
Reading	167.7	11.5	171.0	14.2	3.3	0.32	0.7		2.8	2.9	44.0	39.0
Mathematics	198.9	34.9	203.7	35.0	4.9	0.40	0.9		4.7	5.1	87.0	59.0
Grade Four District: Paramount Unified (N = 8)												
Reading	178.8	7.7	187.3	16.2	8.5	1.9	2.4 *		3.4	3.9	40.5	43.0
Mathematics	210.8	29.0	223.0	21.8	12.3	0.9	1.9		5.6	6.5	68.0	74.0
Grade Five District: Paramount Unified (N = 5)												
Reading	196.4	14.8	193.2	9.6	-3.2	-0.35	-0.7		4.5	4.3	48.0	36.0
Mathematics	218.4	33.5	231.2	38.5	12.8	1.02	2.1		6.2	7.1	54.0	45.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 25: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: District #365 (N = 64)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: District #365 (N = 16)												
W Analysis	127.3	11.2	148.9	12.5	21.7	3.77	11.1	***	K.6	1.7	57.0	74.0
Mathematics	121.3	6.4	137.4	9.5	16.2	2.83	8.0	***	K.5	1.1	48.0	69.0
Grade One District: District #365 (N = 12)												
W Analysis	143.7	12.4	154.8	19.7	11.1	1.44	3.1	**	1.5	2.1	58.5	55.0
Reading	145.2	10.2	149.3	11.9	4.2	0.90	2.3	*	1.5	1.7	67.5	48.5
Mathematics	139.1	17.9	153.8	22.2	14.7	1.06	2.8	*	1.2	2.0	44.0	50.0
Grade Two District: District #365 (N = 13)												
W Analysis	154.2	10.9	163.2	20.6	8.9	0.88	2.0		2.0	2.5	45.0	56.0
Reading	154.8	8.1	162.5	14.6	7.7	1.37	2.9	*	2.1	2.5	49.0	58.0
Mathematics	150.5	16.7	162.8	12.2	12.3	1.19	3.1	**	1.9	2.5	42.0	66.0
Grade Three, District: District #365 (N = 4)												
Reading	166.0	4.8	190.3	10.7	24.3	2.41	3.8	*	2.7	4.1	38.0	52.0
Mathematics	189.8	9.2	228.5	23.0	38.8	1.52	4.6	*	4.2	6.8	66.5	99.0
Grade Four District: District #365 (N = 16)												
Reading	181.0	11.8	189.8	17.2	8.8	0.57	2.5	*	3.5	4.1	44.0	40.0
Mathematics	217.3	25.5	224.9	22.1	7.7	0.32	2.0		6.1	6.6	77.0	81.0
Grade Five District: District #365 (N = 3)												
Reading	196.3	4.6	198.7	7.5	2.3	0.28	1.0		4.5	4.7	45.0	40.0
Mathematics	200.7	6.1	206.3	17.8	5.7	0.14	0.4		4.9	5.2	47.0	50.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 26: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Berwyn North (N = 63)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade Three, District: Berwyn North (N = 22)												
Reading	162.5	13.8	171.0	13.8	8.5	1.01	3.5	**	2.5	2.9	35.5	34.5
Mathematics	171.3	17.3	193.5	28.8	22.2	1.58	4.8	***	3.0	4.4	41.0	49.0
Grade Four, District: Berwyn North (N = 22)												
Reading	171.3	16.5	184.4	19.2	13.0	1.48	5.0	***	2.9	3.7	35.0	40.0
Mathematics	204.8	31.7	219.1	26.1	14.3	1.15	3.8	**	5.1	6.2	56.0	81.0
Grade Five, District: Berwyn North (N = 8)												
Reading	194.8	26.1	210.6	22.9	15.9	0.9	2.0		4.4	5.5	37.0	51.5
Mathematics	209.0	35.8	229.6	40.9	20.6	1.2	2.6	*	5.4	7.0	47.5	53.5
Grade Six, District: Berwyn North (N = 4)												
Reading	208.0	20.3	205.0	21.0	-3.0	-0.49	-1.2		5.3	5.1	47.5	42.5
Mathematics	237.8	38.8	262.8	37.2	25.0	0.63	1.6		7.8	10.1	60.5	82.0
Grade Seven, District: Berwyn North (N = 6)												
Reading	210.8	23.7	209.0	20.9	-1.8	-0.50	-0.9		5.5	5.4	33.0	26.5
Mathematics	236.7	40.0	252.7	48.3	16.0	0.48	1.0		7.7	9.1	52.5	54.5
Grade Eight, District: Berwyn North (N = 1)												
Reading	202.0	0.0	205.0	0.0	3.0	0.00			4.9	5.1	26.0	25.0
Mathematics	217.0	0.0	248.0	0.0	31.0	0.00			6.1	8.6	36.0	49.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 27: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Montebello Unified (N = 63)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: Montebello Unified (N = 6)												
W Analysis	119.2	10.9	144.2	26.0	25.0	2.12	3.2 *		K.1	1.5	47.0	59.0
Mathematics	117.0	7.8	127.5	9.9	10.5	1.07	2.3		K.0	K.7	41.5	41.0
Grade One, District: Montebello Unified (N = 10)												
W Analysis	127.2	6.6	149.6	16.2	22.4	1.52	3.6 **		K.6	1.8	31.0	40.0
Reading	117.8	13.3	136.2	16.7	18.4	0.98	2.4 *		K.1	1.1	7.0	34.0
Mathematics	129.9	3.9	138.7	8.5	8.8	1.16	2.7 *		K.8	1.2	37.0	34.0
Grade Two, District: Montebello Unified (N = 9)												
W Analysis	129.7	25.8	151.1	16.2	21.4	1.50	3.2 *		K.8	1.9	25.0	38.0
Reading	142.2	14.1	147.3	17.5	5.1	0.55	1.3		1.4	1.6	38.0	43.0
Mathematics	147.4	6.5	154.9	8.9	7.4	2.30	4.8 **		1.6	2.1	42.0	51.0
Grade Three, District: Montebello Unified (N = 12)												
Reading	164.8	13.6	169.4	13.9	4.6	0.53	1.4		2.6	2.8	39.0	30.5
Mathematics	191.9	27.0	208.4	30.2	16.5	1.32	3.4 **		4.3	5.4	56.0	65.5
Grade Four, District: Montebello Unified (N = 12)												
Reading	167.7	16.8	173.0	22.5	5.3	0.75	1.7		2.8	3.0	28.0	26.5
Mathematics	189.7	28.0	190.8	28.0	1.2	0.10	0.3		4.2	4.2	40.0	39.5
Grade Five, District: Montebello Unified (N = 7)												
Reading	180.3	19.4	182.9	13.2	2.6	0.4	0.7		3.4	3.7	32.0	31.0
Mathematics	198.7	14.1	196.3	11.3	-2.4	-0.4	-0.8		4.7	4.5	41.0	32.0
Grade Six, District: Montebello Unified (N = 3)												
Reading	179.7	12.1	194.0	14.7	14.3	1.07	1.0		3.4	4.3	23.0	26.0
Mathematics	209.0	15.7	236.7	4.0	27.7	2.80	3.5		5.4	7.7	38.0	57.0
Grade Seven, District: Montebello Unified (N = 2)												
Reading	188.5	34.6	204.0	12.7	15.5	2.62	1.0		4.0	5.0	23.0	29.0
Mathematics	209.0	46.7	257.0	67.9	48.0	3.35	3.2		5.4	9.5	31.5	63.0
Grade Eight, District: Montebello Unified (N = 2)												
Reading	200.5	29.0	191.0	5.7	-9.5	-2.19	-0.6		4.8	4.1	24.0	16.0
Mathematics	263.0	59.4	265.5	55.9	2.5	0.17	1.0		10.1	10.5	62.5	59.5

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 28: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Community Consolidated #15 (N = 53)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: Community Consolidated #15 (N = 2)												
W Analysis	127.5	29.0	164.0	15.6	36.5	1.64	1.2		K.7	2.6	58.5	90.0
Mathematics	120.5	0.7	139.5	7.8	19.0	4.48	3.8		K.1	1.3	48.0	69.0
Grade One District: Community Consolidated #15 (N = 20)												
W Analysis	138.1	12.8	146.0	13.7	7.9	0.69	2.2 *		1.2	1.6	49.0	46.0
Reading	136.1	12.2	147.2	8.0	11.1	1.22	3.7 **		1.1	1.6	49.5	48.5
Mathematics	130.2	6.2	141.2	11.1	11.0	1.61	4.7 ***		K.8	1.3	35.0	37.0
Grade Two District: Community Consolidated #15 (N = 15)												
W Analysis	145.1	13.2	156.6	16.8	11.5	1.08	2.9 *		1.5	2.2	38.0	49.0
Reading	153.7	7.7	156.3	9.5	2.5	0.56	1.5		2.0	2.1	46.0	49.0
Mathematics	147.6	6.8	154.7	11.8	7.1	1.10	2.7 *		1.7	2.1	38.0	46.0
Grade Three District: Community Consolidated #15 (N = 2)												
Reading	188.0	0.0	209.0	5.7	21.0	7.42	5.3		4.0	5.4	63.0	70.5
Mathematics	211.0	41.0	207.5	46.0	-3.5	-0.08	-1.0		5.6	5.4	78.5	69.5
Grade Four District: Community Consolidated #15 (N = 8)												
Reading	179.8	19.6	189.5	24.8	9.8	1.1	2.0		3.4	4.1	37.5	33.5
Mathematics	210.5	33.9	218.4	29.9	7.9	1.0	2.0		5.6	6.2	83.0	81.0
Grade Five District: Community Consolidated #15 (N = 4)												
Reading	193.5	21.7	209.8	26.0	16.3	1.82	2.4		4.3	5.4	39.0	42.0
Mathematics	222.0	46.7	255.3	46.7	33.3	1.01	1.4		6.4	9.3	48.5	87.0
Grade Six District: Community Consolidated #15 (N = 2)												
Reading	212.0	2.8	226.5	6.4	14.5	3.15	2.2		5.6	6.8	45.0	50.0
Mathematics	208.5	14.8	238.5	51.6	30.0	0.90	1.2		5.4	7.9	43.0	57.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 29: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: Bassett Unified (N = 46)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: Community Consolidated #15 (N = 2)												
W Analysis	127.5	29.0	164.0	15.6	36.5	1.64	1.2		K.7	2.6	58.5	90.0
Mathematics	120.5	0.7	139.5	7.8	19.0	4.48	3.8		K.1	1.3	48.0	69.0
Grade One District: Community Consolidated #15 (N = 20)												
W Analysis	138.1	12.8	146.0	13.7	7.9	0.69	2.2 *		1.2	1.6	49.0	46.0
Reading	136.1	12.2	147.2	8.0	11.1	1.22	3.7 **		1.1	1.6	49.5	48.5
Mathematics	130.2	6.2	141.2	11.1	11.0	1.61	4.7 ***		K.8	1.3	35.0	37.0
Grade Two District: Community Consolidated #15 (N = 15)												
W Analysis	145.1	13.2	156.6	16.8	11.5	1.08	2.9 *		1.5	2.2	38.0	49.0
Reading	153.7	7.7	156.3	9.5	2.5	0.56	1.5		2.0	2.1	46.0	49.0
Mathematics	147.6	6.8	154.7	11.8	7.1	1.10	2.7 *		1.7	2.1	38.0	46.0
Grade Three District: Community Consolidated #15 (N = 2)												
Reading	188.0	0.0	209.0	5.7	21.0	7.42	5.3		4.0	5.4	63.0	70.5
Mathematics	211.0	41.0	207.5	46.0	-3.5	-0.08	-1.0		5.6	5.4	78.5	69.5
Grade Four District: Community Consolidated #15 (N = 8)												
Reading	179.8	19.6	189.5	24.8	9.8	1.1	2.0		3.4	4.1	37.5	33.5
Mathematics	210.5	33.9	218.4	29.9	7.9	1.0	2.0		5.6	6.2	83.0	81.0
Grade Five District: Community Consolidated #15 (N = 4)												
Reading	193.5	21.7	209.8	26.0	16.3	1.82	2.4		4.3	5.4	39.0	42.0
Mathematics	222.0	46.7	255.3	46.7	33.3	1.01	1.4		6.4	9.3	48.5	87.0
Grade Six District: Community Consolidated #15 (N = 2)												
Reading	212.0	2.8	226.5	6.4	14.5	3.15	2.2		5.6	6.8	45.0	50.0
Mathematics	208.5	14.8	238.5	51.6	30.0	0.90	1.2		5.4	7.9	43.0	57.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 30: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Districts in which 40 or More Students were Served by BH, 2009-2010: District #46 (N = 42)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, District: District #46 (N = 3)												
W Analysis	118.3	6.4	127.3	4.7	9.0	0.35	7.8 *		K.1	K.6	52.0	48.0
Mathematics	117.3	2.5	115.7	10.3	-1.7	-0.21	-0.3		K.0	P.6	38.0	13.0
Grade One, District: District #46 (N = 19)												
W Analysis	134.8	12.2	136.1	13.8	1.2	0.09	0.4		1.1	1.1	45.0	29.0
Reading	135.2	11.4	141.3	11.2	6.1	0.05	1.7		1.1	1.4	48.0	40.0
Mathematics	130.0	6.3	136.7	14.9	6.7	0.54	2.1 *		K.8	1.1	33.0	26.0
Grade Two, District: District #46 (N = 12)												
W Analysis	144.1	15.3	151.1	22.1	7.0	0.32	1.90		1.5	1.9	30.5	40.0
Reading	148.6	8.6	154.9	14.2	6.3	0.46	2.37 *		1.7	2.1	35.5	44.0
Mathematics	144.8	11.7	151.3	11.6	6.5	0.56	2.27 *		1.5	1.9	29.5	46.0
Grade Three, District: District #46 (N = 1)												
Reading	165.0		148.0		-17.0				2.6	1.7	39.0	10.0
Mathematics	164.0		240.0		76.0				2.5	8.0	38.0	99.0
Grade Four, District: District #46 (N = 2)												
Reading	171.5	2.1	189.0	22.6	17.5	0.12	1.2		3.0	4.0	33.5	40.5
Mathematics	240.0	0.0	240.0	0.0	0.0	0.00	0.0		8.0	8.0	99.0	81.0
Grade Five, District: District #46 (N = 2)												
Reading	174.0	5.7	181.5	24.7	7.5	0.02	0.6		3.1	3.6	24.5	23.5
Mathematics	218.5	29.0	218.0	39.6	-0.5	0.00	-0.1		6.2	6.2	59.5	51.5
Grade Six, District: District #46 (N = 3)												
Reading	198.7	16.9	200.0	7.9	1.3	0.09	0.2		4.7	4.8	31.0	35.0
Mathematics	255.3	38.1	254.0	49.0	-1.3	-0.03	-0.1		9.3	9.2	68.0	80.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 31: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Glen Oak (N = 81)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Glen Oak (N = 18)												
W Analysis	117.9	9.1	128.8	15.2	1.28	0.8	3.6 **		K.1	K.7	45.5	42.5
Mathematics	116.2	8.8	122.1	7.1	1.39	0.7	4.2 **		P.9	K.2	38.0	33.5
Grade One, School: Glen Oak (N = 23)												
W Analysis	138.1	14.0	144.4	11.4	0.9	0.48	3.0 **		1.2	1.5	48.0	47.0
Reading	135.9	6.5	142.8	10.8	1.1	0.74	3.5 **		1.1	1.4	43.0	38.0
Mathematics	136.7	10.1	140.9	9.0	0.6	0.44	2.1 *		1.1	1.3	44.0	37.0
Grade Two, School: Glen Oak (N = 15)												
W Analysis	149.7	15.2	153.7	16.5	0.7	0.25	2.0		1.8	2.0	40.0	42.0
Reading	148.9	11.3	152.3	11.7	0.7	0.30	1.9		1.7	1.9	34.0	43.0
Mathematics	144.1	8.1	149.8	9.3	0.9	0.65	2.5 *		1.5	1.8	34.0	38.0
Grade Three, School: Glen Oak (N = 11)												
Reading	170.0	20.9	174.5	21.4	0.5	0.21	1.3		2.9	3.1	41.0	29.0
Mathematics	186.4	33.5	188.3	30.1	0.3	0.05	0.8		3.8	4.8	54.0	47.0
Grade Four, School: Glen Oak (N = 6)												
Reading	164.8	9.4	172.2	8.6	1.0	0.8	2.1		2.6	3.0	27.5	25.5
Mathematics	188.2	15.0	193.3	24.5	0.2	0.3	0.4		4.0	4.3	49.0	39.5
Grade Five, School: Glen Oak (N = 8)												
Reading	182.0	16.4	188.3	13.9	0.6	0.41	1.4		3.6	4.0	37.0	28.0
Mathematics	217.1	34.0	210.0	36.4	-1.2	-0.19	-2.7 *		6.1	5.5	54.0	40.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 32: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Forest Home (N = 68)

ITBS Subtest	SS	M	SS	SD	SS	M	SS	SD	M	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Forest Home (N = 20)																
W Analysis	109.8		14.6		121.7		21.0		12.0	0.65	2.7	*	P.7	K.3	35.5	19.0
Mathematics	113.7		7.4		129.0		8.5		15.3	1.89	13.4	**	P.9	K.7	30.0	47.0
Grade One, School: Forest Home (N = 23)																
W Analysis	124.2		18.3		148.7		11.2		24.5	1.55	6.9	***	K.4	1.7	22.0	51.0
Reading	138.3		13.6		155.2		9.2		16.8	1.43	5.8	***	1.2	2.1	63.0	57.0
Mathematics	133.9		10.9		154.2		13.2		20.3	1.62	12.0	***	1.0	2.0	41.0	52.0
Grade Two, School: Forest Home (N = 24)																
W Analysis	142.5		13.4		159.3		18.7		16.8	1.00	5.2	***	1.4	2.3	32.0	49.0
Reading	150.9		9.4		160.0		11.6		9.1	0.85	4.4	***	1.9	2.3	41.5	52.0
Mathematics	142.2		10.9		150.3		15.6		8.1	0.59	2.6	*	1.3	1.8	29.5	42.0
Grade Three, School: Forest Home (N = 1)																
Reading	167.0				167.0								2.7	2.7	41.0	33.0
Mathematics	240.0				240.0								8.0	8.0	99.0	99.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 33: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Irene King (N = 64)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Irene King (N = 16)												
W Analysis	127.3	11.2	148.9	12.5	21.7	1.8	11.1	***	K.6	1.7	57.0	74.0
Mathematics	121.3	6.4	137.4	9.5	16.2	1.9	8.0	***	K.1	1.1	48.0	69.0
Grade One, School: Irene King (N = 12)												
W Analysis	143.7	12.4	154.8	19.7	11.1	0.6	3.1	**	1.5	2.1	58.5	55.0
Reading	145.2	10.2	149.3	11.9	4.2	0.4	2.3	*	1.5	1.7	67.5	48.5
Mathematics	139.1	17.9	153.8	22.2	14.7	0.7	2.8	*	1.2	2.0	44.0	50.0
Grade Two, School: Irene King (N = 13)												
W Analysis	154.2	10.9	163.2	20.6	8.9	0.5	2.0		2.0	2.5	45.0	56.0
Reading	154.8	8.1	162.5	14.6	7.7	0.5	2.9	*	2.1	2.5	49.0	58.0
Mathematics	150.5	16.7	162.8	12.2	12.3	0.8	3.1	**	1.9	2.5	42.0	66.0
Grade Three, School: Irene King (N = 4)												
Reading	166.0	4.8	190.3	10.7	24.3	3.0	3.8	*	2.7	4.1	38.0	52.0
Mathematics	189.8	9.2	228.5	23.0	38.8	1.5	4.6	*	4.2	6.9	66.5	99.0
Grade Four, School: Irene King (N = 16)												
Reading	181.0	11.8	189.8	17.2	8.8	0.6	2.5	*	3.5	4.1	44.0	40.0
Mathematics	217.3	25.5	224.9	22.1	7.7	0.3	2.0		6.1	6.6	77.0	81.0
Grade Five, School: Irene King (N = 3)												
Reading	196.3	4.6	198.7	7.5	2.3	0.277	1.0		4.5	4.7	45.0	40.0
Mathematics	200.7	6.1	206.3	17.8	5.7	0.469	0.4		4.8	5.2	47.0	50.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 34: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Bradley (N = 58)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade One School: Bradley (N = 20)												
W Analysis	139.6	15.0	146.3	15.9	6.7	1.99	15.9	**	1.3	1.7	54.5	42.5
Reading	135.0	14.4	145.4	11.5	10.4	2.06	11.5	**	1.1	1.5	51.0	40.0
Mathematics	127.2	18.4	143.1	19.0	15.9	4.89	19.0	**	K.6	1.4	27.0	25.0
Grade Two School: Bradley (N = 13)												
W Analysis	139.0	14.2	151.0	19.6	12.0	0.62	4.0	**	1.2	1.9	33.0	40.0
Reading	145.2	5.7	150.1	5.8	4.9	0.86	4.4	**	1.5	1.8	31.0	40.0
Mathematics	137.2	9.9	149.4	14.7	12.2	0.84	5.1	***	1.1	1.7	17.0	42.0
Grade Three School: Bradley (N = 9)												
Reading	158.8	10.4	173.0	19.6	14.2	0.81	2.7	*	2.3	3.0	37.0	44.0
Mathematics	166.7	17.0	203.0	41.1	36.3	0.95	3.3	*	2.7	5.0	38.0	72.0
Grade Four School: Bradley (N = 8)												
Reading	167.1	9.9	185.1	6.5	18.0	2.2	3.3	*	2.7	3.8	30.5	37.0
Mathematics	204.0	25.3	218.9	29.3	14.9	0.5	1.7		5.1	6.2	60.0	81.0
Grade Five School: Bradley (N = 5)												
Reading	187.2	20.9	201.6	19.2	14.4	0.71	2.0		3.9	4.9	29.0	47.0
Mathematics	225.6	40.7	259.2	25.7	33.6	0.89	2.6		6.7	9.7	66.0	85.0
Grade Six School: Bradley (N = 4)												
Reading	185.5	12.4	193.5	16.9	8.0	0.39	2.6		3.9	4.3	24.0	23.0
Mathematics	204.0	15.1	214.8	28.2	10.8	0.20	1.5		5.1	5.9	43.5	47.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 35: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: North (N = 52)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: North (N = 5)												
W Analysis	113.4	17.2	137.6	12.7	24.2	1.6	3.8 *		P.9	1.2	40.0	55.0
Mathematics	113.2	14.6	129.6	9.3	16.4	1.1	4.2 *		P.8	K.8	34.0	42.0
Grade One, School: North (N = 27)												
W Analysis	123.7	10.2	140.0	16.3	16.3	1.2	5.7 ***		K.4	1.3	27.0	36.0
Reading	119.2	15.1	153.4	15.7	34.3	2.2	7.3 ***		K.1	2.0	7.0	51.0
Mathematics	122.5	12.7	137.4	13.3	14.9	1.1	6.2 ***		K.3	1.1	23.0	26.0
Grade Two, School: North (N = 10)												
W Analysis	145.0	17.1	156.1	20.7	11.1	0.6	1.4		1.5	2.1	36.5	43.5
Reading	140.7	13.4	162.6	11.8	21.9	1.7	3.1 *		1.4	2.5	31.5	56.0
Mathematics	137.2	14.8	149.3	15.2	12.1	0.8	2.0		1.1	1.7	25.0	46.0
Grade Three, School: North (N = 2)												
Reading	155.5	10.6	179.0	12.7	23.5	1.4	1.4		2.1	3.4	28.5	44.5
Mathematics	179.0	9.9	209.0	0.0	30.0	4.3	4.3		3.5	5.4	54.0	72.0
Grade Four, School: North (N = 4)												
Reading	170.8	16.2	181.5	6.9	10.8	0.8	1.5		2.9	3.6	36.5	36.0
Mathematics	220.3	28.8	222.3	20.8	2.0	0.1	0.3		6.3	6.4	88.0	69.5
Grade Five, School: North (N = 4)												
Reading	186.5	14.8	193.5	17.2	7.0	0.4	0.7		3.9	4.3	37.0	32.5
Mathematics	201.0	16.1	229.8	11.5	28.8	2.0	3.4 *		4.8	7.0	50.5	59.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 36: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Rogers Street Academy (N = 48)

ITBS Subtest	SS Pre	M Pre	SS Post	SD Post	SS Post	M Post	SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Rogers Street (N = 17)															
W Analysis	120.8	10.5	136.6	13.4	15.9	1.32	4.17	**	K.2	1.1	52	59			
Mathematics	113.5	8.2	126.1	18.0	12.5	0.91	2.47	*	P.9	K.5	30	35			
Grade One, School: Rogers Street (N = 15)															
W Analysis	130.6	12.6	139.2	10.0	8.6	0.76	2.1		K.9	1.2	38	32			
Reading	120.1	24.9	147.4	14.8	27.3	1.33	3.8	**	K.2	1.6	7	47			
Mathematics	132.4	14.8	145.5	15.9	13.1	0.85	2.4	*	K.9	1.6	41	34			
Grade Two, School: Rogers Street (N = 16)															
W Analysis	141.0	15.8	146.6	16.2	5.6	0.35	0.9		1.3	1.6	32.0	42.0			
Reading	150.5	8.5	152.9	8.1	2.4	0.29	1.0		1.9	2.0	39.0	45.5			
Mathematics	141.8	11.3	155.7	15.3	13.9	1.03	3.5	**	1.3	2.1	33.0	44.0			
Grade Three, School: Rogers Street (N = 9)															
Reading	168.0	10.8	173.7	9.1	5.7	0.56	1.7		2.8	3.1	39.0	41.0			
Mathematics	191.9	31.8	208.9	25.9	17.0	0.58	1.6		4.3	5.4	62.0	85.0			
Grade Four, School: Rogers Street (N = 4)															
Reading	180.0	8.5	182.5	9.1	2.5	0.28	0.4		3.4	3.7	41.5	34.0			
Mathematics	213.0	19.3	219.8	24.6	6.8	0.30	0.6		5.7	6.3	67.0	69.5			
Grade Five, School: Rogers Street (N = 2)															
Reading	162.5	16.3	185.5	2.1	23.0	1.7	1.8		2.5	3.9	16.0	29.5			
Mathematics	214.5	12.0	226.5	17.7	12.0	2.8	3.0		5.9	6.8	57.0	58.0			
Grade Six, School: Rogers Street (N = 5)															
Reading	173.2	10.3	177.6	6.4	4.4	0.52	0.7		3.0	3.3	17.0	15.0			
Mathematics	190.6	23.5	198.0	11.7	7.4	0.38	0.7		4.2	4.6	30.0	28.0			
Grade Seven, School: Rogers Street (N = 1)															
Reading	205.0		231.0		26.0	0			5.1	7.1	34.0	45.0			
Mathematics	193.0		305.0		112.0	0			4.3	13+	24.0	93.0			

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 37: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Don Julian (N = 46)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Don Julian (N = 7)												
W Analysis	113.6	8.2	130.4	16.4	16.9	1.2	2.8 *		P.9	K.8	40.0	44.0
Mathematics	111.4	6.7	121.7	5.2	10.3	1.7	4.2 **		P.8	K.2	30.0	27.0
Grade One, School: Don Julian (N = 12)												
W Analysis	133.9	15.4	137.8	19.7	3.9	0.20	1.5		1.0	1.2	43.0	30.5
Reading	139.1	9.0	142.3	12.6	3.3	0.26	1.6		1.3	1.4	45.5	30.0
Mathematics	132.2	9.1	138.4	17.5	6.3	0.41	1.4		K.9	1.2	37.0	25.5
Grade Two, School: Don Julian (N = 3)												
W Analysis	150.3	18.1	134.7	22.0	-15.7	-0.78	-0.8		1.8	1.1	45.0	25.0
Reading	139.7	15.0	136.7	25.8	-3.0	-0.14	-0.2		1.3	1.2	25.0	31.0
Mathematics	125.7	22.3	120.0	20.0	-5.7	-0.27	-0.3		K.7	K.5	23.0	7.0
Grade Three, School: Don Julian (N = 8)												
Reading	164.1	22.2	171.5	18.0	7.4	0.32	2.5 *		2.6	3.0	33.5	33.0
Mathematics	182.0	34.5	196.3	31.9	14.3	0.42	3.1 *		3.6	4.5	51.5	54.0
Grade Four, School: Don Julian (N = 5)												
Reading	163.8	16.5	177.4	5.8	13.6	0.4	2.7		2.6	3.3	24.0	30.0
Mathematics	186.0	31.3	188.4	31.5	2.4	0.1	0.5		3.9	4.0	39.0	38.0
Grade Five, School: Don Julian (N = 7)												
Reading	187.3	21.9	192.7	14.7	5.4	0.27	0.9		3.9	4.3	36.0	34.0
Mathematics	198.1	18.2	219.7	27.1	21.6	0.86	3.0 *		4.6	6.3	37.0	56.0
Grade Six, School: Don Julian (N = 4)												
Reading	169.5	8.7	183.5	13.8	14.0	0.98	3.6 *		2.9	3.7	11.5	18.0
Mathematics	187.5	28.7	223.5	29.6	36.0	1.24	2.9		4.0	6.6	22.5	44.5

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 38: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Taylor (N = 44)

ITBS Subtest	SS	M	SS	SD	SS	M	SS	SD	M	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Taylor (N = 2)																
W Analysis	125.5	16.3	127.0	9.9	1.5	0.0	0.3						K.5	K.6	57.5	44.5
Mathematics	116.0	12.7	114.0	15.6	-2.0	0.1	-1.0						P.6	P.9	38.0	22.5
Grade One, School: Taylor (N = 9)																
W Analysis	125.8	8.9	137.8	13.4	12.0	1.0	3.2 *						K.5	1.2	34.0	29.0
Reading	127.4	12.1	142.6	10.0	15.1	1.4	3.4 **						K.6	1.4	25.0	28.0
Mathematics	131.6	7.5	154.1	27.9	22.6	1.0	2.6 *						K.9	2	33.0	43.0
Grade Two, School: Taylor (N = 14)																
W Analysis	143.7	8.2	144.6	15.8	0.9	0.1	0.2						1.5	1.5	33.0	29.5
Reading	142.0	11.1	147.0	13.2	5.0	0.4	1.4						1.4	1.6	28.5	33.0
Mathematics	135.8	13.4	147.1	12.0	11.4	0.9	3.3 **						1.1	1.6	25.0	34.0
Grade Three, School: Taylor (N = 4)																
Reading	155.8	6.9	160.8	8.7	5.0	0.6	2.0						2.1	2.4	29.5	30.5
Mathematics	171.8	34.6	192.3	33.1	20.5	0.6	2.6						3.0	4.3	34.5	47.5
Grade Four, School: Taylor (N = 9)																
Reading	163.3	17.5	170.8	17.9	7.4	0.4	2.0						2.5	2.9	24.0	19.0
Mathematics	198.9	30.0	192.8	36.6	-6.1	-0.2	-1.2						4.7	4.3	53.0	32.0
Grade Five, School: Taylor (N = 2)																
Reading	183.0	22.6	196.5	13.4	13.5	0.2	2.1						3.7	4.6	31.0	37.5
Mathematics	236.0	24.0	260.5	40.3	24.5	0.2	2.1						7.6	9.9	72.5	80.5
Grade Six, School: Taylor (N = 1)																
Reading	206.0		231.0		25.0								5.2	7.1	41.0	53.0
Mathematics	214.0		232.0		18.0								5.8	7.2	46.0	53.0
Grade Seven, School: Taylor (N = 3)																
Reading	226.7	7.4	235.7	7.8	9.0	1.2	3.6						6.8	7.6	45.0	49.0
Mathematics	305.0	0.0	305.0	0.0	0.0								13+	13+	99.0	93.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 39: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Virginia Lake (N = 44)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Virginia Lake (N = 2)												
W Analysis	127.5	29.0	164.0	15.6	36.5	0.1	1.2		K.7	2.6	58.5	90.0
Mathematics	120.5	0.7	139.5	7.8	19.0	0.4	3.8		K.1	1.3	48.0	69.0
Grade One, School: Virginia Lake (N = 20)												
W Analysis	138.1	12.8	146.0	13.7	7.9	0.60	2.2 *		1.2	1.6	49.0	46.0
Reading	136.1	12.2	147.2	8.0	11.1	1.06	3.7 **		1.1	1.6	49.5	48.5
Mathematics	130.2	6.2	141.2	11.1	11.0	1.17	4.7 ***		K.8	1.3	35.0	37.0
Grade Two, School: Virginia Lake (N = 15)												
W Analysis	145.1	13.2	156.6	16.8	11.5	0.75	2.9 *		1.5	2.2	38.0	49.0
Reading	153.7	7.7	156.3	9.5	2.5	0.28	1.5		2.0	2.1	46.0	49.0
Mathematics	147.6	6.8	154.7	11.8	7.1	0.70	2.7 *		1.7	2.1	38.0	46.0
Grade Three, School: Virginia Lake (N = 2)												
Reading	188.0	0.0	209.0	5.7	21.0	5.25	5.3		4.0	5.4	63.0	70.5
Mathematics	211.0	41.0	207.5	46.0	-3.5	-0.10	-1.0		5.6	5.4	78.5	69.5
Grade Four, School: Virginia Lake (N = 3)												
Reading	167.7	17.2	183.7	20.1	16.0	0.8	1.9		2.8	3.7	26.0	34.0
Mathematics	194.3	39.7	201.7	33.4	7.3	0.1	1.3		4.4	4.9	35.0	38.0
Grade Five, School: Virginia Lake (N = 2)												
Reading	191.0	5.7	196.5	13.4	5.5	0.10	1.0		4.1	4.6	39.0	37.5
Mathematics	204.5	20.5	221.5	44.5	17.0	0.10	1.0		5.1	6.4	48.5	53.5

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 40: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Linne (N = 43)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Grade One, School: Linne (N = 1)												
W Analysis	151.0	0.0	114.0	0.0					1.9	P.9	67.0	7.0
Reading	170.0	0.0	155.0	0.0					2.9	2.1	93.0	57.0
Mathematics	95.0	0.0	134.0	0.0					P.2	1.0	7.0	25.0
Grade Two, School: Linne (N = 11)												
W Analysis	150.4	20.5	155.6	25.6	5.3	0.22	1.1		1.8	2.1	35.0	42.0
Reading	148.4	13.4	150.7	14.4	2.4	0.17	0.8		1.7	1.9	34.0	43.0
Mathematics	140.6	9.1	146.4	9.8	5.7	0.60	3.5 **		1.3	1.6	23.0	32.0
Grade Three, School: Linne (N = 13)												
Reading	159.9	13.5	168.5	13.7	8.5	0.63	3.2 **		2.3	2.8	37.0	36.0
Mathematics	171.0	12.2	193.5	28.8	22.5	0.87	3.4 **		3.0	4.4	41.0	51.0
Grade Four, School: Linne (N = 5)												
Reading	158.0	14.1	165.4	9.5	7.4	0.6	1.7		2.2	2.6	10.0	19.0
Mathematics	181.8	35.3	188.4	31.5	6.6	0.2	0.8		3.6	4.0	28.0	38.0
Grade Five, School: Linne (N = 5)												
Reading	178.8	14.8	181.4	25.0	2.6	0.11	0.3		3.4	3.5	20.0	19.0
Mathematics	192.8	22.3	203.4	42.5	10.6	0.18	1.0		4.3	5.0	31.0	36.0
Grade Six, School: Linne (N = 8)												
Reading	190.4	16.7	188.6	22.7	-1.8	-0.07	-0.5		4.1	4.0	29.5	26.0
Mathematics	224.5	42.8	213.5	51.3	-11.0	-0.21	-1.8		6.6	5.8	43.5	25.5

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 41: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Los Cerritos (N = 43)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Los Cerritos (N = 10)												
W Analysis	118.2	7.5	121.9	5.2	3.7	0.6	1.4		K.1	K.3	46.5	37.0
Mathematics	117.9	4.6	117.9	11.6	0.0	0.0	0.0		K.0	K.0	45.0	25.0
Grade One, School: Los Cerritos (N = 13)												
W Analysis	135.6	9.1	135.3	17.8	-0.3	-0.02	-0.1		1.1	1.1	48.0	32.0
Reading	139.1	12.7	106.0	0.0	-33.1	-3.67	-9.4	***	1.3	K.0	56.0	7.0
Mathematics	133.2	7.3	136.6	16.7	3.4	0.18	1.0		K.9	1.1	41.0	37.0
Grade Two, School: Los Cerritos (N = 11)												
W Analysis	156.2	17.3	152.5	27.3	-3.6	-0.14	-0.6		3.1	2.0	45.0	42.0
Reading	152.6	13.2	150.8	21.8	-1.8	-0.09	-0.4		2.0	1.9	43.0	34.0
Mathematics	142.8	9.8	147.5	12.8	4.6	0.39	1.7		1.4	1.7	32.0	38.0
Grade Three, School: Los Cerritos (N = 3)												
Reading	172.0	6.2	180.0	7.5	8.0	0.77	8.0	*	3.0	3.4	44.0	44.0
Mathematics	208.0	32.5	217.3	39.3	9.3	0.24	0.9		5.4	6.1	87.0	99.0
Grade Four, School: Los Cerritos (N = 3)												
Reading	178.7	2.5	192.7	4.0	14.0	2.8	12.1	**	3.4	4.3	40.0	46.0
Mathematics	208.7	28.0	234.0	10.4	25.3	0.9	2.0		5.4	7.4	59.0	81.0
Grade Five, School: Los Cerritos (N = 3)												
Reading	199.3	16.8	199.0	4.0	-0.3	0.00	0.0		4.7	4.7	48.0	40.0
Mathematics	234.7	35.2	249.3	41.6	14.7	0.36	1.3		7.5	8.7	60.0	75.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 42: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Henry (N = 42)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Henry (N = 10)												
W Analysis	117.9	12.1	147.2	16.1	29.3	2.07	4.1	**	K.1	1.6	47.0	81.0
Mathematics	90.8	1.7	141.6	8.3	50.8	9.04	18.0	***	P.0	1.4	7.0	80.0
Grade One, School: Henry (N = 4)												
W Analysis	121.3	7.6	159.5	6.1	38.3	5.21	19.4	***	K.2	2.4	28.0	61.5
Reading	131.3	2.9	153.5	5.2	22.3	5.47	6.0	**	K.9	2	29.5	54.0
Mathematics	124.0	11.8	157.3	23.4	33.3	1.59	3.5	*	K.3	2.1	30.0	51.5
Grade Two, School: Henry (N = 8)												
W Analysis	121.8	21.6	151.3	13.9	29.5	1.63	3.0	*	K.3	1.9	8.5	50.5
Reading	145.5	17.9	156.3	9.2	10.8	0.61	2.4	*	1.6	2.1	33.5	47.5
Mathematics	136.1	20.9	157.6	18.1	21.5	1.09	3.5	*	1.1	2.2	30.5	42.0
Grade Three, School: Henry (N = 2)												
Reading	165.0	0.0	240.0	0.0	75.0				2.6	7.9	39.0	99.0
Mathematics	186.5	31.8	240.0	0.0	53.5	2.38	2.4		3.9	8.0	62.5	99.0
Grade Four, School: Henry (N = 2)												
Reading	177.0	9.9	240.0	0.0	63.0	9.00	9.0		3.3	7.9	38.0	81.0
Mathematics	231.0	12.7	240.0	0.0	9.0	1.00	1.0		7.1	8.0	88.0	81.0
Grade Five, School: Henry (N = 4)												
Reading	190.8	26.2	198.5	18.1	7.8	0.3	0.5		4.1	4.7	42.0	38.0
Mathematics	216.8	52.3	263.8	41.7	47.0	1.0	1.3		6.1	10.2	48.5	96.0
Grade Six, School: Henry (N = 5)												
Reading	181.6	20.5	216.4	16.5	34.8	1.86	3.6	*	3.6	6.0	20.0	47.0
Mathematics	240.2	31.6	264.8	27.5	24.6	0.83	1.4		8.0	10.4	67.0	80.0
Grade Eight School: Henry (N = 7)												
Reading	211.4	28.4	228.3	25.9	16.9	0.62	2.0		5.5	6.9	39.0	36.0
Mathematics	254.0	41.6	296.0	23.8	42.0	1.17	3.0	*	9.2	13+	60.0	81.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 43: Comparison of Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students within Schools in which 40 or More Students were Served by BH, 2009-2010: Grantosa (N = 40)

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten, School: Grantosa (N = 14)												
W Analysis	125.6	9.4	144.8	12.0	19.2	1.76	6.43	***	K.5	1.5	64	67
Mathematics	121.1	4.4	133.0	11.5	11.9	1.34	3.74	**	K.1	K.9	52	44.5
Grade One, School: Grantosa (N = 9)												
W Analysis	129.3	9.7	158.6	20.2	29.2	1.67	5.0	**	K.7	2.3	38	64
Reading	120.0	15.1	158.8	11.0	38.8	2.96	4.6	**	K.2	2.3	7	57
Mathematics	128.4	12.7	155.6	19.2	27.1	1.62	4.4	**	K.6	2.1	25	56
Grade Two, School: Grantosa (N = 1)												
W Analysis	146.0	0.0	179.0	0.0	33.0				1.6	3.4	38.0	69.0
Reading	156.0	0.0	154.0	0.0	-2.0				2.1	2.0	49.0	46.0
Mathematics	151.0	0.0	157.0	0.0	6.0				1.9	2.2	42.0	51.0
Grade Three, School: Grantosa (N = 3)												
Reading	158.0	11.1	177.3	9.1	19.3	1.87	3.9		2.2	3.3	30.0	46.0
Mathematics	175.7	22.7	220.7	33.5	45.0	1.56	2.1		3.3	6.3	46.0	99.0
Grade Four, School: Grantosa (N = 5)												
Reading	168.2	15.9	195.4	16.7	27.2	1.67	5.2	**	2.8	4.4	32.0	43.0
Mathematics	187.4	33.5	222.0	31.2	34.6	1.07	2.5		3.9	6.4	35.0	81.0
Grade Five, School: Grantosa (N = 4)												
Reading	184.5	11.1	200.8	12.7	16.3	1.3	6.7	**	3.8	4.8	32.5	42.0
Mathematics	216.0	27.0	247.0	31.5	31.0	0.4	12.5	**	6.0	8.6	52.0	67.0
Grade Six, School: Grantosa (N = 2)												
Reading	201.0	2.8	222.5	12.0	21.5	0.33	3.3		4.8	6.5	37.5	47.5
Mathematics	246.0	9.9	269.0	8.5	23.0	2.30	23.0	*	8.5	11.0	67.0	75.5
Grade Seven, School: Grantosa (N = 2)												
Reading	198.5	20.5	205.5	46.0	7.0	0.04	0.4		4.7	5.2	29.0	28.0
Mathematics	238.5	94.0	216.5	27.6	-22.0	-0.05	-0.5		7.9	6.1	53.0	36.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Note: Pairs with less than 10 students were not tested for statistical significance. The t values were only used to calculate the effect size (d).

Table 44: Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students Served by Brain Hurricane Who Were Tutored Fewer than 30 Hours, 2009-2010

ITBS Subtest	SS M Pre	SS SD Pre	SS M Post	SS SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten < 30 Hours (N pairs = 96)												
W Analysis	116.3	12.4	129.1	21.3	12.8	0.93	6.07	***	K.0	K.7	44.0	44.0
Mathematics	112.0	10.2	121.8	16.6	9.8	0.78	5.23	***	P.8	K.2	30.0	35.0
Grade One < 30 Hours (N pairs = 174)												
W Analysis	134.9	15.9	144.5	18.8	9.6	0.77	7.13	***	1.1	1.5	45.0	45.0
Reading	137.1	15.5	143.7	16.9	6.6	0.51	4.76	***	1.2	1.5	48.0	44.0
Mathematics	129.3	14.0	142.5	17.3	13.2	1.00	9.29	***	K.7	1.4	33.0	37.0
Grade Two < 30 Hours (N pairs = 190)												
W Analysis	147.0	22.2	157.8	20.8	10.8	0.70	6.83	***	1.6	2.2	38.0	49.0
Reading	147.7	15.6	151.7	14.8	4.0	0.48	4.64	***	1.7	1.9	36.0	45.0
Mathematics	140.3	14.8	149.6	14.2	9.2	0.87	8.53	***	1.2	1.8	32.0	42.0
Grade Three < 30 Hours (N pairs = 104)												
Reading	160.5	26.5	172.2	18.8	11.7	0.52	3.75	***	2.3	3.0	37.0	33.0
Mathematics	185.0	27.9	200.0	30.5	15.0	0.86	6.24	***	3.8	4.8	54.0	56.5
Grade Four < 30 Hours (N pairs = 117)												
Reading	171.9	15.9	181.4	24.3	9.5	0.63	4.60	***	3.0	3.5	35.0	34.0
Mathematics	204.5	29.8	215.9	28.7	11.5	0.79	6.04	***	5.1	6.0	59.0	81.0
Grade Five < 30 Hours (N pairs = 98)												
Reading	187.3	19.5	196.5	21.9	9.3	0.63	4.44	***	3.9	4.5	34.0	36.0
Mathematics	209.6	31.6	224.9	35.5	15.3	0.82	5.73	***	5.5	6.6	47.0	54.5
Grade Six < 30 Hours (N pairs = 61)												
Reading	186.4	17.0	199.1	21.1	12.8	0.93	5.13	***	3.9	4.7	23.0	35.0
Mathematics	221.6	35.1	236.0	34.6	14.5	0.73	4.07	***	6.4	7.6	53.0	53.0
Grade Seven < 30 Hours (N pairs = 33)												
Reading	201.7	16.0	217.6	19.2	15.9	1.13	4.68	***	4.9	6.1	34.0	37.0
Mathematics	232.1	36.1	256.1	40.4	24.0	0.71	2.96	**	7.2	9.4	49.0	54.0
Grade Eight < 30 Hours (N pairs = 21)												
Reading	201.5	22.9	210.1	26.6	8.6	0.53	1.78		4.8	5.4	23.0	27.0
Mathematics	223.9	27.9	247.8	45.3	23.9	1.27	3.61	**	6.6	8.6	41.0	38.0

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 45: Pre- and Posttest Performance on the Iowa Test of Basic Skills for All Students Served by Brain Hurricane Who Were Tutored 30 Hours or More, 2009-2010

ITBS Subtest	SS Pre	M Pre	SS Post	SD Post	SS Post	M Post	SD Post	M Diff	E.S. (d)	t	p	G.E. Pre	G.E. Post	N.C.E. Pre	N.C.E. Post
Kindergarten >= 30 Hours (N pairs = 114)															
W Analysis	119.4	14.3	134.6	25.3	15.1	0.91	6.47	***	K.1	1.1	52.0	55.0			
Mathematics	112.6	12.6	131.3	12.7	18.7	1.52	11.52	***	P.8	K.8	38.0	47.0			
Grade One >= 30 Hours (N pairs = 309)															
W Analysis	132.1	13.3	145.7	15.4	13.6	1.22	15.12	***	K.9	1.6	41.0	45.0			
Reading	134.9	16.7	148.0	13.9	13.1	0.90	11.12	***	1.1	1.7	48.0	47.0			
Mathematics	129.6	14.8	145.5	17.6	15.9	1.23	15.21	***	K.8	1.5	33.0	40.0			
Grade Two >= 30 Hours (N pairs = 334)															
W Analysis	143.6	17.9	154.5	18.7	10.9	0.85	11.01	***	1.5	2.0	35.0	42.0			
Reading	146.7	12.7	154.1	13.7	7.4	0.84	10.89	***	1.6	2.0	35.0	46.0			
Mathematics	141.1	13.2	151.5	13.9	10.4	1.09	14.07	***	1.3	1.9	32.0	42.0			
Grade Three >= 30 Hours (N pairs = 289)															
Reading	163.6	20.6	173.7	25.9	10.1	0.55	6.49	***	2.6	3.1	37.0	39.0			
Mathematics	179.2	24.4	202.1	30.7	22.9	1.29	15.19	***	3.5	4.9	49.0	59.0			
Grade Four >= 30 Hours (N pairs = 269)															
Reading	170.3	15.1	180.3	18.0	10.0	1.02	11.69	***	2.9	3.4	32.0	34.0			
Mathematics	202.5	30.8	214.6	28.4	12.1	0.72	8.37	***	4.9	5.9	59.0	67.0			
Grade Five >= 30 Hours (N pairs = 174)															
Reading	188.1	18.3	199.7	19.7	11.6	1.00	9.36	***	4.0	4.8	36.0	40.0			
Mathematics	218.5	30.4	239.3	33.7	20.7	0.99	9.22	***	6.2	7.9	57.0	66.0			
Grade Six >= 30 Hours (N pairs = 107)															
Reading	191.4	18.7	199.9	22.4	8.5	0.71	5.13	***	4.1	4.8	28.0	32.0			
Mathematics	219.4	33.5	239.5	38.0	20.1	1.00	7.30	***	6.2	7.9	46.0	53.0			
Grade Seven >= 30 Hours (N pairs = 45)															
Reading	199.8	22.7	207.8	23.0	8.0	0.60	2.90	**	4.8	5.3	27.0	30.0			
Mathematics	224.9	43.1	242.3	40.5	17.4	0.76	3.66	**	6.6	8.1	41.0	46.0			
Grade Eight >= 30 Hours (N pairs = 29)															
Reading	211.2	26.7	217.1	25.3	5.9	0.48	1.88		5.5	6.0	31.0	30.0			
Mathematics	245.2	39.4	264.6	40.9	19.3	0.94	3.66	**	8.4	10.4	44.0	56.0			

***p < .001, **p < .01, *p < .05

Table 46: Results of Independent t-test Comparisons of Pretest to Post gains in Standard Scores on ITBS Subtests for BH Students Tutored Fewer than 30 hours and Students Tutored 30 or More Hours by Grade Level

ITBS Subtest	Hours < 30			Hours >= 30			t	p	g
	n	M	SD	n	M	SD			
Kindergarten									
W Analysis	96	12.82	20.69	114	15.14	24.97	0.72		0.10
Mathematics	96	9.81	18.38	114	18.70	18.70	3.60	***	0.48
Grade One									
W Analysis	174	9.63	17.80	309	13.59	15.80	2.52	*	0.24
Reading	174	6.63	18.37	309	13.06	20.63	3.41	**	0.32
Mathematics	174	13.18	18.72	309	15.86	18.33	1.53		0.14
Grade Two									
W Analysis	190	10.78	21.75	334	10.95	18.17	0.09		0.01
Reading	190	4.02	11.93	334	7.44	7.44	3.06	**	0.37
Mathematics	190	9.24	14.93	334	10.43	13.55	0.93		0.08
Grade Three									
Reading	104	11.67	31.75	289	10.06	26.36	-0.51		-0.06
Mathematics	104	15.03	24.55	289	22.90	25.63	2.71	**	0.31
Grade Four									
Reading	117	9.51	22.37	269	10.03	14.08	0.27		0.03
Mathematics	117	11.45	20.52	269	12.10	23.70	0.26		0.03
Grade Five									
Reading	98	9.27	20.66	174	11.57	16.30	0.95		0.13
Mathematics	98	15.29	26.39	174	20.74	29.68	1.51		0.19
Grade Six									
Reading	61	12.79	19.46	107	8.53	17.22	-1.47		-0.23
Mathematics	61	14.46	27.72	107	20.10	28.48	1.25		0.20
Grade Seven									
Reading	33	15.94	19.57	45	7.96	18.39	-1.84		-0.42
Mathematics	33	23.97	46.58	45	17.40	31.85	-0.70		-0.17
Grade Eight									
Reading	21	8.62	22.19	29	5.90	16.91	-0.49		-0.14
Mathematics	21	23.90	30.32	29	19.31	28.40	-0.55		-0.15

*** $p < .001$, ** $p < .01$, * $p < .05$