EDA/Edikasyon a Distans pou Ayiti Project
Distance Education Inside and Beyond the Classroom

USAID Award #: 521-A-00-02-00069-00

2002-2003 Final Student Assessment Report

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September 15, 2003

Executive Summary

Purpose of the Evaluation Effort

To determine if second, third and fourth grade Haitian students receiving an interactive radio instruction treatment (called FAD) would make greater gains in reading and math performance than students receiving a traditional educational experience (Control).

Sampling Procedures

The development of the school sampling plan occurred in the period 10/13-10/15, 2002. Dr. Royer traveled to Port au Prince and he and Nicole Racine, Ludfort Ulysse, and several members of the FONHEP staff identified the treatment and control schools to participate in the evaluation effort. The school selection process was constrained by a budget that would allow sampling of 12 schools, 6 FAD and 6 Control. Given this, the sampling process attempted to balance out the school selection by urban or rural setting, by whether the schools were Protestant, Catholic, or Independent, and by whether they were from the Ouest or the Nord.

After pretests had been administered, one of the FAD schools dropped out of the project, leaving five FAD schools to be compared to 6 Control schools.

Measures and Participating Students

Students from the two treatment groups were administered pre and post reading and math tests written in Haitian Creole. The reading and math tests were developed in a workshop held the week of August 26, 2002 at the University of Massachusetts. Separate tests were developed for grades 2, 3 and 4. The workshop was directed by James Royer, and was attended by Yverose Luberisse, a Haitian educator who had previously worked on the predecessor to the current project (ED2004), and by Abdoul Houssien, an EDC employee who works on the Haiti project.

The content of the tests was based on a review of reading and math (in Creole) textbooks in use in Haitian schools, reviews of curriculum materials, and on Ms. Luberisse's long experience as a Haitian educator. Both Mr. Houssien and Ms. Luberisse also contributed to the development of posttests for the project and examined the posttests before they were administered in the Spring of 2003.

- The **reading and math pretests** were administered to 317 2nd grade students, 335 3rd grade students, and 290 4th grade students in November 2002. Broken down by treatment, 170 of the 2nd grade students taking the pretest were from the FAD group and 147 from the Control group, 164 of the 3rd grade students were from the FAD group and 171 from the Control group, and 145 of the 4th grade students were from the FAD group and 145 were from the Control group. mike
- The **reading and math posttests** were administered to 294 2nd grade students, 283 3rd grade students and 274 4th grade students in May and June of 2003. The distribution of students by treatments was that there were 140 2nd grade FAD students and 154 2nd

grade Control students, 122 3rd grade FAD students and 161 3rd grade Control students, and 123 grade 4 FAD students and 151 grade 4 Control students.

- A total of 246 2nd grade students, 241 3rd grade students, and 232 4th grade students completed **both the math and reading pretest and posttest**.

Test Scoring

The tests were hand-scored in Haiti and item level data was transferred to machine scorable answer sheets. These data sheets also contained demographic information about individual students and information about the characteristics of the schools participating in the evaluation effort. The answer sheets were sent to the University of Massachusetts where they were electronically scored and the data was then entered into a statistical analysis program.

Results Associated with the FAD and Control Treatments

The results reported in this summary will focus on the gain from pretest to posttest. Details about performance on pretests and posttests separately can be found in the body of the report. The outcomes reported below are reported first for overall reading and math scores, followed by results that pertain to performance on separate math and reading skills. The math tests contained items that measured number recognition, addition, subtraction, multiplication, division and decimal skills. The reading tests contained items that measured letter recognition, word recognition and sentence understanding.

Overall Math and Reading Performance

- **2nd Grade Overall Math:** The FAD and Control groups did not differ in the amount of pretest to posttest gain on the overall math test.
- **2nd Grade Overall Reading**: The FAD and Control groups did not differ in the amount of pretest to posttest gain on the overall reading test.
- **3rd Grade Math:** The FAD and Control groups did not differ in the amount of pretest to posttest gain on the overall math test.
- **3rd Grade Overall Reading**: The FAD and Control groups did not differ in the amount of pretest to posttest gain on the overall reading test.
- **4th Grade Overall Math:** The FAD and Control groups did not differ in the amount of pretest to posttest gain on the overall math test.
- **4th Grade Overall Reading**: The FAD group made significantly greater pretest to posttest gain than did the Control group.

Performance on Individual Math Skills

- **2nd Grade Number Recognition:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the number recognition items.
- **2nd Grade Addition:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the addition items.
- **2nd Grade Subtraction:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the subtraction items.

- **2nd Grade Multiplication:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the multiplication items.
- **2nd Grade Division:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the division items.
- **2nd Grade Decimals:** The Control group made significantly greater gains on the decimal items than did the FAD group.
- **3rd Grade Number Recognition:** The Control group made significantly greater gains on the number items than did the FAD group.
- **3rd Grade Addition:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the addition items.
- **3rd Grade Subtraction:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the subtraction items.
- **3rd Grade Multiplication:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the mulitplication items.
- **3rd Grade Division:** The Control group made significantly greater gains on the division items than did the FAD group.
- **3rd Grade Decimals:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the decimal items.
- **4th Grade Addition:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the addition items.
- **4th Grade Subtraction:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the subtraction items.
- **4th Grade Multiplication:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the mulitplication items.
- **4th Grade Division:** The Control group made significantly greater gains on the division items than did the FAD group.
- **4th Grade Decimals:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the decimal items.

Performance on Individual Reading Skills

- **2nd Grade Letter Recognition:** The FAD group made significantly greater gains on the letter recognition items than did the Control group.
- **2nd Grade Word Recognition:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the word recognition items.
- **2nd Grade Sentence Understanding:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the sentence understanding items.
- **3rd Grade Letter Recognition:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the letter recognition items.
- **3rd Grade Word Recognition:** The FAD group made significantly greater gains on the word recognition items than did the Control group.
- **3rd Grade Sentence Understanding:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the sentence understanding items.

- **4th Grade Word Recognition:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the word recognition items.
- **4th Grade Sentence Understanding:** The FAD and Control groups did not differ in the amount of pretest to posttest gain they made on the sentence understanding items.

In addition to results regarding the treatment conditions, analyses were conducted that examined differences associated with gender, with whether the schools were Catholic, Independent, or Protestant, school location (urban or rural) and geographical region of the school. Some differences attributable to these variables were found, but these differences were not consistent across the two types of tests, and they did not systematically relate to the treatment conditions.

Final Project Results for the EDA/Edikasyon a Distans pou Ayiti 2002-2003 Project

Goals

The EDA/Edikasyon a Distans pou Ayiti educational intervention consists of a distance education intervention that provides instruction over the radio in reading and math. Children who listen to the radios programs will henceforth be referred to as being in the FAD condition. The primary goal of the evaluation effort is to determine if children in the FAD treatment improve their math and reading skills above and beyond the skill improvement that occurs in the normal classroom environment (control).

A secondary goal of the evaluation effort is to determine if the impact of the radio intervention varies as a function of characteristics of children and schools. The evaluation design allows an examination of the reading and math performance of participating children as a function of the following factors:

- Treatment Condition (Treatment, Control)
- Sex of Student
- Type of School (Catholic, Protestant, Independent)
- School (12 participating schools)
- School Setting (urban v. rural)
- Political Department (Ouest, Nord)
- Grade (2nd, 3rd or 4th)

In addition to examining the impact of each of the above factors, where possible, the evaluation effort will also examine the interaction between geographical and demographic factors, and treatment conditions (FAD, Control).

Reading and Math Tests

The reading and math tests in Creole were developed during a test development workshop held the week of August 26, 2002 at the University of Massachusetts. Separate tests were developed for grades 2, 3 and 4. The workshop was directed by James Royer, and was attended by Yverose Luberisse, a Haitian educator who had previously worked on the predecessor to the current project (ED2004), and by Abdoul Houssien, an EDC employee who works on the Haiti project. Dr. Royer was assisted by Rachel Wing, one of Royer's graduate students. The workshop was conducted in English, though a good deal of the interaction between Ms. Luberisse and Mr. Houssien occurred in French.

The content of the tests was based on a review of reading and math (in Creole) textbooks in use in Haitian schools, reviews of curriculum materials, and on Ms. Luberisse's long experience as a Haitian educator. Both Mr. Houssien and Ms. Luberisse also contributed to the development of posttests for the project and examined the posttests before they were administered in the Spring of 2003.

Pilot Testing the Reading and Math Tests

The tests developed in the August 2002 workshop were pilot tested by Ludfort Ulysse in September 2002. The primary purpose of the pilot effort was to evaluate several psychometric properties of the tests. In particular, we were interested in the relative difficulty of the items and the distribution of scores that resulted from a test administration. Ideally, tests should contain items that span a range of difficulty from very difficult to relatively easy, and the distribution of scores from a score administration should be relatively normal. Graphs showing each of these properties for the piloted tests were appended to the pretest report which was submitted in March 2003. In general, the piloted tests showed an excellent distribution of performance with an appropriate mix of items that were in the low, medium and high difficulty range.

Sampling of Schools to Participate in Evaluation Effort

The development of the school sampling plan occurred in the period 10/13-10/15, 2002. Dr. Royer traveled to Port au Prince and he and Nicole Racine, Ludfort Ulysse, and several members of the FONHEP staff identified the treatment and control schools to participate in the evaluation effort. The process of identifying participating schools is described below.

Sampling Considerations

Several factors were considered when selecting the schools that participated in the evaluation effort:

- The primary goal of the evaluation effort; which is to determine if students receiving the EDA/Edikasyon treatment made greater educational gains than students enrolled in control schools.
- The possibility of including other factors in the analysis plan that were thought to be related to student performance. Factors that were thought to be important were: 1) Secteur, whether schools were Catholic, Protestant, or Independent, 2) Milieu, whether the schools were in an urban or rural setting, and 3) Department, whether the schools were in the North or the West of the country.
- The evaluation budget. The EDA/Edikasyon effort targeted children in grades 2, 3, and 4. The team that was to administer the academic tests had three members and given that three grades had to be tested at each school, it was only possible to test one school per day. In addition, data collection in the North involved overnight stays and per diem expenditures. Nicole Racine, the EDC project Director in Port au Prince estimated that her budget would only support 12 days of testing. Given that one school per day could be tested, it meant that only 12 schools would be tested.
- Distribution of treatment and control schools. Where possible, an attempt was made to balance out treatment conditions and the "additional factors" such as Secteur, milieu and department. However, this was not always possible. For example, there were no Independent or Protestant schools in the rural north of the country that could serve as control schools.

- School characteristics. An effort was made to select schools that were "representative" of a particular collection of schools. For instance, schools that were thought to be the best or the worst of the collection of schools (e.g., Protestant urban schools in the West) were avoided in an attempt to select schools that were nearer the norm for the group.

Sampling Process

Considerations mentioned in the above section led to the decision to test 12 schools, 6 receiving the EDA/Edikasyon treatment and 6 serving as controls for the treatment schools. This would provide a sample of approximately 360 students tested at each grade level (total approximately 1080 students tested). These students would be divided approximately evenly between treatment and control schools and between grades 2, 3, and 4.

The sampling process began with an examination of a list of 146 schools receiving the EDA/Edikasyon treatment. This list divided the schools by secteur, milieu and geographical region. The selection team also examined enrollment at each grade level for each school and whether the schools were mixed or single sexed. Single sex schools were eliminated from consideration so that the relative impact of the EDA/Edikasyon treatment could be determined separately for boys and girls. The FONHEP staff was particularly helpful in the selection process given their knowledge of the characteristics of both treatment and potential control schools.

The restrictions imposed by the considerations listed in the above section resulted in the initial decision to sample representative schools according to criteria listed in the table below:

	Catholic		Independent		Protestant	
Treatment	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**
FAD	1 Nord	1 Ouest	1 Nord	1 Ouest	1 Nord	1 Ouest
Control	1 Nord	1 Ouest	1 Nord	1 Ouest	1 Nord	1 Ouest

However, after the initial selection of schools was made, for a variety of reasons, originally selected schools could not participate and the eventual selection of schools was as follows.

	Catholic		Independent		Protestant	
Treatment	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**
FAD	0	1 Nord 1 Ouest	1 Ouest	1 Ouest	1 North	1 West
Control	1 North 1 Ouest	0	1 North	1 West	1 North	1 West

As can be seen, the above sampling plan is unbalanced with respect to milieu. That is, the reader will note that there are no urban catholic schools in the FAD group and there are no rural catholic schools in the Control group. This means that it is not possible to separate the impact of secteur from the impact of geographical region, particularly as it relates to Catholic schools. This

confounding was unavoidable given the difficulty of recruiting participating schools with particular characteristics.

Test Administration

Pretest Administration.

In November 2002 the reading and math tests developed for the project were administered to 317 second grade students, to 335 third grade students, and to 290 4th grade students. These students came from 12 participating schools. The breakdown of the students with respect to treatment condition is presented in the table below:

Number of Students per Treatment Condition Taking the Pretest

Treatment Condition	Grade 2	Grade 3	Grade 4
FAD	170	164	145
Control	147	171	145

The math tests were administered by having the test administrator read the instructions for completing the tests and then having the students complete the test which took approximately one hour to complete. The reading test was administered somewhat differently in that the test administrator read the instructions for the test and then turned on a tape recorded version of the test. Audio tape was used to administer the reading portion of the test to assure standardization of the testing conditions for all students.

*Test Scoring and Data Processing***.** The students marked their answers on printed tests and a team of Haitian scorers corrected the tests and coded item level information onto machine scorable answer forms. Information regarding the factors described in the above section was also coded onto the answer forms.

The completed answer forms were sent to the University of Massachusetts where they were machine scored and transformed into digital files that were entered into a statistical analysis program (SPSS 11.5).

Posttest Administration.

The posttests were administered in the period May 30 to June 14, 2003. The test administrators had lists of the names of students who had completed the pretest when they went to the schools to administer posttests. They then asked to administer posttests to only those students. This procedure provided the strongest possible conditions for determining program impact (i.e., comparing the performance of FAD and Control students who had taken both the pretest and the posttest) and it greatly facilitated the matching of pretest and posttest data for students who had taken both tests.

The test administration procedures were identical to those used to administer the pretests. The procedures for scoring the tests and for converting the test data into electronic data analysis files was also identical to that used for the pretest.

Number of Students per Treatment Condition Taking the Posttest

Treatment Condition	Grade 2	Grade 3	Grade 4
FAD	140	122	123
Control	154	161	151

Creation of Data Files Containing Both Pretest and Posttest Data. The final versions of the data files were created during the period July 6-10, 2003. William Michel, who oversaw the posttest data collection effort in Haiti, and Abdoul Houssein from EDC traveled to the University of Massachusetts to assist in the matching effort. The process involved examining the pretest records for each school and matching the students in that school with a student posttest record. William and Abdoul worked with Rachel Wing, the University of Massachusetts graduate research assistant working on the project to complete the final versions of the data files. Mr. Michel also checked the coding of factors (e.g., secteur, milieu, etc) contained in the data files to assure that they were accurate.

Study Participants

Tables 1 and 2, appended to the end of this report show the number of male and female participants from each school that completed pre and post tests. The tables also show the distribution of the schools with respect to whether they were part of the FAD group, or the Control group. The tables also indicate whether the schools were protestant, catholic or independent, which were urban or rural, and what geographic region the schools come from. An examination of the tables shows that, as mentioned earlier, the groups are not balanced with respect to the representation of the urban and rural factor over the three school types.

Results

The results of the analysis of the pre and post data will be divided into two sections. The first section will report on the psychometric properties of the tests, and the second will describe pre and posttest performance as a function of whether students were in the FAD or Control groups, and as a function of the demographic variables collected in the study.

Test Reliability

The reliability of the tests was evaluated using the coefficient alpha procedures. The reliabilities for each of the tests is listed in the table below.

Test Reliability

Test	Alpha	# of test items	# of students
Grade 2 Pre Reading	.872	40	317
Grade 2 Pre Math	.914	56	317
Grade 3 Pre Reading	.787	45	335
Grade 3 Pre Math	.889	49	335
Grade 4 Pre Reading	.766	49	290
Grade 4 Pre Math	.889	40	290
Grade 2 Post Reading	.831	40	292
Grade 2 Post Math	.928	56	291
Grade 3 Post Reading	.786	45	283
Grade 3 Post Math	.877	49	282
Grade 4 Post Reading	.782	49	272
Grade 4 Post Math	.880	40	272

The reliabilities in the above table are all in the acceptable (.7-.8) to quite good range (.85 and above). The reliabilities that are in the acceptable range are the reading tests beyond the grade 2 level. The somewhat lower reliabilities on the upper grade reading tests is attributable to the presence of comprehension items on these tests which have lower reliabilities that items measuring letter and word knowledge.

Data Analysis Procedures

Two forms of analyses will be reported in the sections to follow. In the first form, all of the students who have taken either the pretest or the posttest will be included in the analysis. This type of analysis will address the question of whether student performance on a particular pretest or posttest differed as a function of treatment or school characteristics.

The second form of analysis asks the question of whether students in the treatment groups differed in the amount of academic gain they made in the interval between pre and post tests, and whether those gains varied as a function of characteristics of the schools. Historically, gain score analysis has been a highly controversial topic in educational research. The straightforward procedure would be to analyze a difference score calculated by subtracting pre score from post score. There are, however, serious problems associated with the analysis of gain scores, the foremost of which is that gain scores are much less reliable than the pre and post tests that are used to create the gain scores. More specifically, the reliability of a gain score is the product of the reliabilities of the pre and post tests. So for example, if the reliability of the pre and post tests were both .9, the reliability of the gain score would be .82. The drop from .9 to .82 is not that substantial, but with slightly lower reliabilities the drop is substantial. So, for example, the reliability of a gain score created by pre and post tests with reliabilities of .7 is only .49.

Because of the unreliability of gain scores we used a procedure where pretest scores were used as a covariate in an analysis of covariance framework and posttest score was used as the criterion or dependent variable. This analysis will be referred to in subsequent sections as the analysis of pretest to posttest gain, but the reader should understand that it is actually the analysis of posttest performance with the impact of pretest performance covaried out of posttest performance. This procedure is not ideal in situations where there are significant differences between groups at the time of pretest, but it is the best alternative relative to other possibilities.

Overall Math Results by Treatment

The analyses in the section to follow report the results of performance on all of the items contained on the math tests. Analyses of pretest performance and posttest performance were performed on data from all of the examinees who took either the pretest or the posttest. The gain score analyses included only students who took *both* the pretest and the posttest. The form of the gain score analyses was to use posttest performance as the criterion variable and pretest performance as a covariate. Finally, all analyses included location (urban, rural) as a variable in the analyses. The results of the location analyses will be reported later in the report.

What the overall analyses to follow show:

- **2nd Grade**: The FAD and Control group did not differ from one another on the math pretest that included all of the 2nd grade students taking the pretest. There were significant differences between the treatment groups on the math posttest with the Control group scoring significantly higher than the FAD group in the analysis including all students who took the posttest. In the more critical analysis examining the gain between pre and posttest performance (including only students who took *both* pre and posttests), the FAD and Control groups did not differ from one another on the amount of gain made from pre to posttest.
- **3rd Grade:** The Control group performed significantly better than the FAD group on the math pretest, but the groups did not differ on the math posttest. There were also no differences between the groups in the amount of gain made from pretest to posttest.

- **4th Grade:** There were no differences between the FAD and Control groups on the pretest, the posttest, and the amount of gain made from pre to posttest.

The analyses of math performance as a function of treatment condition. The descriptive statistics for overall math performance are reported in Tables 3 (2nd grade results), 4 (3rd grade results) and 5 (4th grade results).

The analysis of grade 2 data indicated that the FAD and Control groups did not differ on the pretest, $F(1,313) = 2.39$, NS. Treatment was, however, a significant source of variance in the analysis of posttest data where the Control group students scored significantly higher than the FAD students, $F(1,290) = 4.44$, $p < .05$. Finally, the analysis of gain between pre and posttest indicated that the FAD and Control group students did not differ in the gain they made from pre to posttest, $F(1,241) = 1.82$, NS.

The analysis of the grade 3 data indicated that treatment was a significant source of variance, $F(1,331) = 4.17$, $p < .05$, with the Control group scoring higher on the test than the FAD group. However, there were no differences between the FAD and Control group on the posttest, $F(1,279)= .45$, NS, and on the pretest to posttest gain, $F(1,236) = .01$, NS.

Finally, the analysis of grade 4 data showed that there were no significant differences between the FAD and Control groups on the pretest, $F(1,286) = 1.61$, NS, on the posttest, $F(1,270) = 2.98$, NS, and on the analysis of pretest to posttest gain, $F(1,227) = 3.56$, NS.

Math Results for Individual Math Skills

The math tests contained test items that could be categorized as number identification, addition, subtraction, multiplication, division and decimal items. The results to be reported in the following section describe the results of analyses that examine whether the FAD and Control groups differed on the different item types.

What the Analyses to Follow Show:

- **Grade 2:** The FAD and Control group did not differ in the ability to recognize numbers on the pretest, the posttest, and the amount of gain from pretest to posttest. Likewise, there was no difference between the FAD and Control group in addition performance, subtraction performance, multiplication performance, and division performance. On the decimal items, there were no differences between FAD and Control groups on the pre test and the posttest, however, there was a significant advantage for the control group on the pre to posttest gain.
- **Grade 3:** There were no differences between the FAD and Control group on the number identification items on the pretest, and the posttest, however the Control group did make higher pretest to posttest gain on the number identification items than did the FAD group. On the addition items, the Control group scored significantly higher than the FAD group on the pretest, but there were no differences between the groups on the posttest and on the analysis of pretest to posttest gain. There were no differences between the Control and Fad groups on

subtraction math items, multiplication math items, and division math items that were contained on the pretests, posttests, and that contributed to an analysis of pretest to posttest gain. There were differences though between the groups on the decimal items. The Control group performed significantly better than the FAD group on the decimal items contained on the pretest, but there were no differences between the groups on the analysis of posttest and pre to posttest gain data.

- **Grade 4:** The FAD and Control groups did not differ in performance on the addition items contained on the pretest, the posttest and also did not differ on the amount of gain they made from pretest to posttest. Likewise, there were no differences between the FAD and Control groups on the subtraction and multiplication items contained on the pretest, the posttest and that contributed to the pretest to posttest gain analysis. On the division test items, the groups did not differ on the pretest analysis and the posttest analysis, but there was a statistically significant advantage for the control group on the analysis of pretest to posttest gain. In the analysis of decimal performance, the Control group scored higher than the FAD group on both the pretest and the posttest, but there was no difference between the groups on the analysis of pretest to posttest gain.

The analyses of math individual skills as a function of treatment condition. The descriptive statistics for the math individual skills are presented in tables 6 (performance on the number items), 7 (performance on the addition items), 8 (performance on the subtraction items), 9 (performance on the multiplication items), 10 (performance on the division items) and 11 (performance on the decimal items).

The analysis of grade two data indicated that the FAD and Control groups did not differ on number recognition performance on the pretest, $F(1, 315) = 3.0$, NS, on the posttest, $F(1, 292) = .58$, NS, and on the analysis of pretest to posttest gain, $F(1, 243) = .032$, NS. There was a similar pattern on the analysis of addition performance where the FAD and Control groups did not differ on the pretest, $F(1, 315) = .01$, NS, the posttest, $F(1,292) = .27$, NS, and the pretest to posttest gain, $F(1,243) = 2.45$, NS. This pattern was also followed in the analysis of subtraction performance where the FAD and Control groups did not differ on the pretest, $F(1,315) = .275$, NS, on the posttest, $F(1, 292) = .267$, NS, and on the analysis of pretest to posttest gain, $F(1, 243) = 1.46$, NS. There were also no differences in the analysis of the multiplication items where pretest differences, $F(1,315) = .132$, NS, posttest differences, $F(1,292), = .541$, NS, and pretest to posttest gain, $F(1,243) = .025$, NS, were all nonsignificant. In a similar manner, the analysis of the division items indicated no differences between FAD and Control performance on the pretest, $F(1, 315) = 1.50$, NS, the posttest, $F(1,292) = .111$, NS, and the pretest to posttest gain, $F(1,243) = .39$, NS. The analysis of the decimal items indicated that the FAD and Control groups did not differ on the pretest and the posttests, but there was a significant advantage favoring the Control group on the analysis of pretest to posttest gain, $F(1,243) = 6.56$, $p = .01$.

The analysis of grade three data indicated that there were no differences between FAD and Control students on the number recognition pretest, $F(1, 333) = 1.73$, NS, and on the number items on the posttest, $F(1,281) = 2.95$, NS, but there was a difference on the pretest to posttest gain, $F(1, 238) = 5.35$, $p < .02$, where the Control group students made significantly greater gain than did the FAD group. There were also some significant differences favoring the Control

group on the analysis of addition performance. The Control group scored significantly higher than the FAD group on the addition items on the pretest, $F(1,333) = 3.88$, $p = .05$, but there were no differences between the groups on the posttest, $F(1,281) = .067$, NS, and on the pretest to posttest gain, $F(1,238) = 1.83$, NS. The analysis of subtraction, multiplication and division performance for 3rd grade indicated that there were no significant differences between the FAD and Control groups on the pretests and posttests, and there were no differences between the groups on the pretest to posttest gain. There was one significant difference, however, in the analysis of decimal performance. The Control group scored significantly higher than the FAD group on the decimal pretest, $F(1,333) = 10.58$, $p < .01$, but there were no differences between the groups on the posttest, $F(1,281) = 1.84$, NS, and on the analysis of pretest to posttest gain, $F(1,238) = .001$, NS.

The grade 4 analyses indicated that the FAD and Control groups did not differ on the addition pretest, $F(1,288) = 1.07$, NS, on the addition posttest, $F(1,288) = 1.07$, NS, and on the analysis of pretest to posttest gain, $F(1,229) = .251$, NS. This pattern was followed in the analyses of subtraction and multiplication performance where there were no differences between the FAD and Control groups on the pretests, the posttests, and on the analysis of pretest to posttest gain. There were also no differences between the FAD and Control groups on the decimal task.

Summary of the Math Results. In the overall analyses 2nd grade students did not differ from one another on the pretest, but the Control group did score significantly better than the FAD group on the posttest. However, the analysis of pre to post gain that included only students taking both the pretest and the posttest indicated that there were no differences between the FAD and Control students. In short, there was little evidence of an overall impact in math associated with the FAD treatment in grade 2.

The analysis of individual math skills for 2nd grade students indicated that there were no differences between FAD and Control students on any of the analyses involving number recognition, addition, subtraction, multiplication and division. There were also no differences between FAD and Control groups on the decimal items contained in the pre and posttests. However, there was a significant advantage favoring the Control group on the amount of pretest to posttest gain on the decimal items. The importance of the finding favoring the Control group on the pre to post gain is questionable given the pattern of results on the pretest and posttests (no differences between the groups), and given the very low performance on the decimal items for grade 3 children. In other, words, it is possible these results are spurious.

The grade 3 analyses indicated that the Control group performed significantly better than the FAD group on the pretest, but this advantage had disappeared on the posttest, suggesting that overall the FAD group had made greater gains than the Control group. However, this advantage in gain from pretest to posttest was not large enough to result in a FAD advantage on the analysis of pretest to posttest gain.

The analysis of the individual math skills for grade 3 students indicated that the FAD and Control groups did not differ on the number identification items contained in pretest and on the number identification items on the posttest. There was, however, a significant advantage for the Control group on the amount of gain made from pretest to posttest. An examination of the mean

performance for the two groups in suggests that this difference is not important. All 3rd grade students are performing very well on the number identification items and the difference in gain is probably important from an instructional perspective. The analysis of the addition items indicated that the grade 3 Control students scored significantly higher than the FAD group on the pretest addition items, but that the FAD group had made sufficient gain on the posttest to eliminate the Control group advantage. The magnitude of this gain was not large enough, however, to produce a significant advantage for the FAD group in the analysis of pretest to posttest gain. The third grade analyses indicated that the FAD and Control groups did not differ on any of the analyses involving subtraction, multiplication and division. There was an advantage favoring the Control group on the decimal items contained in the pretest, but again the FAD group made sufficient gain on the posttest to eliminate that advantage. However, the amount of pre to post gain made by the FAD group was not large enough to result in a significant pre to post advantage for the FAD group.

The analysis of the overall grade 4 math data indicated there were no differences between FAD and control students on the pretest, the posttest and the analysis of pretest to posttest gain.

The analyses of separate math skills for grade 4 students indicated that there were no differences between the groups on the addition, subtraction and multiplication items on any of the tests. Likewise, there were no differences between the FAD and Control groups on the division items contained on the pretests and the posttests. However, there was a difference on the division pretest to posttest gain that favored the Control group. An examination of the means in Table 10 shows that the difference between FAD and Control groups on the posttest was also fairly large (though statistically nonsignificant), and that the magnitude of the pretest to postest gain difference is also fairly large, suggesting that the advantage for the Control group is instructionally important. Finally, the analysis of the decimal items for the grade 4 students indicated that the Control group scored higher than FAD 4th grade counterparts on the pretest and the posttest, but there were no differences in the analysis of pretest to posttest gain. This pattern is consistent with the interpretation that the gap between Control and FAD students stayed constant during the academic year, producing no real advantage for one group or the other in the academic gain occurring during the school year.

Overall Reading Results by Treatment

The analyses of the overall reading results took the same form as the analyses of math performance. Three separate analyses were performed, one on pretest performance, one on posttest performance, and one on posttest performance with pretest performance used as a covariate in the analyses. The analyses of pretest and posttest performance included all student who had taken either test and the analyses of posttest performance with pretest as a covariate included only those students who had taken both the pretest and the posttest. The analysis included the covariate will be referred to as the analysis of pre to post gain.

What the overall analyses to follow show:

- **Grade 2:** There were no differences between the FAD and Control group on the reading pretest, the reading posttest, and the analysis of pretest to posttest gain.

- **Grade 3:** The FAD group scored significantly higher than the Control group on the pretest, but did not differ from the Control group on the posttest and on the analysis of pretest to posttest gain.
- **Grade 4:** There were no differences between the FAD and Control groups on the pretest and on the posttest. There was, however, a significant difference favoring the FAD group on the amount of gain made from pretest to posttest.

The results of the overall reading analyses. The descriptive data for each of the grades on the overall reading analyses are contained in tables 12 (grade 2), 13 (grade 3), and 14 (grade 4).

The analysis of the grade 2 data indicated that there were no differences between the FAD and Control groups on the reading pretest, $F(1,315) = 1.83$, NS, on the reading posttest, $F(1,292) = .127$, NS, and on the analysis of pretest to posttest gain, $F(1,243) = .27$, NS.

The analysis of grade 3 data indicated that the FAD group scored significantly higher on the reading test than did the Control group, $F(1,333) = 4.52$, $p < .05$, but there were no differences between the two groups on the posttest, $F(1, 281) = 2.56$, NS, and on the analysis of pretest to posttest gain, $F(1,238) = 1.96$, NS.

There were no differences between FAD and Control 4th grade performance on the pretest, $F(1,288) = .51$, NS, and on the posttest, $F(1,272) = 2.3$, NS. However, FAD students did make significantly greater gains than Control students from pretest to posttest, $F(1,229) = 3.75$, $p = .05$.

Reading Results for Individual Reading Skills

The reading tests contained items that measured knowledge of letter names, the ability to read and identify letters, and the ability to comprehend sentences. The tests at each grade level contained these three item types, but the tasks were somewhat more difficult at each grade level. For example, the grade 2 tests asked students to identify upper case letters from among a set of letters that were visually distinct from one another (e.g., T, M, O, B), to identify relatively short words, and to comprehend relatively short sentences. In contrast, the grade 4 tests mixed upper case and lower case letters that were visually similar to one another (e.g., p, q, M, N), asked students to identify relatively long words, and asked students to comprehend longer sentences than second grade students were asked to comprehend.

What the analyses of separate reading skills to follow show:

- **Grade 2:** The FAD and Control groups did not differ on the pretest of letter identification ability. However, there was a significant advantage for FAD group on the letter posttest and on the amount of pretest to posttest gain that was made on the letter recognition subskill. There were no differences between the FAD and Control groups on any of the tests involving the identification of words and the understanding of sentences.
- **Grade 3:** The FAD group scored significantly higher than the Control group on the letter recognition items on the pretest, but there were no differences between the groups on the posttest and on the analysis of pretest to posttest gain. The FAD

and Control groups did not differ on the pretest in their ability to recognize words, but there was a near significant advantage favoring the FAD group on the word items on the posttest, and the FAD group had a significantly greater pretest to posttest gain than did the Control group on word recognition. On the sentence understanding items, the FAD group scored significantly higher than the Control group on the pretest, but the Control group gained enough during the academic year to wipe out that advantage on the posttest and on the pretest to posttest gain analysis, though these differences were not statistically significant.

- **Grade 4:** The grade 4 students did not have any letter recognition items on their tests. There were no differences between the FAD and Control groups on word recognition ability and on sentence understanding on any of the tests.

The results of the reading individual skill analyses. The descriptive statistics for the reading individual skill analyses are contained in tables 15 (letter recognition skill), 16 (word recognition skill) and 17 (sentence understanding skill).

The analyses of the grade 2 letter recognition data showed that the FAD and Control groups did not differ on the pretest, $F(1,315) = .303$, NS, but that there was an advantage favoring the FAD group on the posttest, $F(1,292) = 8.23$, $p < .01$, and on the amount of gain made from pretest to posttest, $F(1,243) = 10.71$, $p < .01$. There were no differences between FAD and Control groups, however, on the word recognition pretest, $F(1,315) = 2.51$, NS, on the word recognition posttest, $F(1, 292) = .254$, NS, and on the amount of pretest to posttest gain, $F(1, 243), = .667$, NS. A similar pattern was present on the analysis of sentence performance where the FAD and Control groups did not differ on the pretest, $F(1,315) = .32$, Ns, the posttest, $F(1, 292) = .04$, NS, and on the pretest to posttest gain, $F(1,243) = .06$, NS.

The grade 3 analyses of individual reading skills indicated that the FAD group scored significantly higher than the Control group on the letter pretest, $F(1,333) = 13.6$, $p < .01$, but that this advantage had disappeared on the posttest, $F(1,281) = .26$, NS, and on the analysis of pretest to posttest gain, $F(1,238) = .01$, NS. On the word recognition items, there were no differences between FAD and Control students on the pretest, $F(1,333) = .56$, NS, but there was a near significant advantage for the FAD students on the posttest, $F(1,281) = 3.18$, $p = .07$, and there was a significant advantage favoring FAD students on the pretest to posttest gain analysis, $F(1,238) = 5.58$, $p < .05$. The analyses of sentence understanding indicated that the FAD group scored significantly higher than the Control group on the pretest, $F(1,333) = 13.56$, $p < .01$, but this advantage disappeared on the posttest, $F(1,281) = .21$, NS, and on the analysis of pretest to posttest gain, $F(1,238) = .03$, NS.

Grade 4 did not complete any letter recognition items. The analysis of grade 4 word recognition performance indicated that the FAD and Control groups did not differ on the pretest, $F(1,272) = .26$, NS, on the posttest, $F(1,272) = .26$, NS, and on the analysis of pretest to posttest gain, $F(229) = .71$, NS. A similar pattern was present on the sentence understanding items where the FAD and Control groups did not differ on the pretest, $F(1,288) = .02$, NS, on the posttest, $F(1,272) = .20$, NS, and on the analysis of pretest to posttest gain, $F(1,229) = .01$, NS.

Summary of the Reading Results. The overall analyses of reading performance for second grade students indicated there were no differences between the FAD and Control students on the pretest, the posttest and the amount of gain made from pretest to posttest.

Whereas there were no differences between the treatment groups on the overall analyses of grade 2 reading performance, there were some differences favoring the FAD group in the analyses of separate reading skills. There were no differences between the groups on the pretest of letter recognition performance, but the FAD group did score higher than the Control group on the letter posttest and on the amount of gain made from pretest to posttest. The second grade FAD and Control groups did not differ on any of the tests of word recognition and sentence understanding.

The overall analysis of reading performance for grade 3 students indicated that there were advantages favoring the FAD group on the pretest, but these differences were not present on the posttest and on the analysis of pretest to posttest gain.

The analyses of individual reading skills indicated that whereas there were no differences between the FAD and Control groups on the word recognition pretest, there were significant advantages for the FAD group on the word recognition posttest and on the amount of gain from pretest to posttest. On the sentence task, the FAD group scored significantly higher than the Control group on the pretest, but this advantage did not hold on the posttest, and on the analysis of pretest to posttest gain, with both analyses showing nonsignificant differences between the groups.

In the 4th grade overall reading analysis, there were no differences between FAD and Control groups on the pretest and the posttest, but there was a significant advantage for the FAD group in the amount of gain made from pretest to posttest.

The analysis of individual reading skills for grade 4 students was uninformative with none of the analyses showing differences between the FAD and Control groups.

Math Performance for Boys and Girls

The examination of the math performance of boys and girls involved separate analyses of each grade in analysis frameworks that examined the impact of both student sex and treatment. These analyses indicated whether there were performance differences between boys and girls, and they indicated whether the performance of boys and girls varied as a function of whether the students were enrolled in FAD schools or Control schools.

What the analyses of math performance for boys and girls shows:

- **Grade 2:** Boys scored significantly higher than girls on the math pretest and on the math posttest. However, there was not a significant difference between boys and girls on the amount of gain made from pretest to posttest. There was also an interaction between sex and treatment on the math pretest with the gap between boys and girls (favoring boys) being greater in the FAD schools than in the Control schools.

- **Grade 3:** Boys also scored significantly higher than girls on the grade 3 math analyses on the pretest, but there were no differences between boys and girls on the posttest and on the amount of gain made from pretest to posttest. There were no interactions between treatment and sex in the grade 3 analyses.
- **Grade 4:** As was the case in the two younger grades, Grade 4 boys scored significantly higher than girls on the math pretests, and they also scored significantly higher than girls on the math posttests, but there were no differences in the amount of gain made from pretest to posttest.

The results of the math analyses of male and female performance. The math performance of 2nd grade boys and girls is shown in Table 18, 3rd grade performance is shown in Table 19, and 4th grade performance is shown in Table 20.

The analyses of grade 2 performance indicated that Boys scored significantly higher than girls on the math pretest, $F(1,313) = 18.0$, $p < .01$, and that there was a significant interaction between treatment and sex, $F(1,313) = 10.31$, $p < 01$. The nature of this interaction was that there was a larger gap between boys and girls in the FAD schools than there was in the Control schools. The advantage for boys persisted in the posttest, $F(1,290) = 4.85$, $p < .05$, though importantly, the gap was smaller than on the pretest. There was no interaction between sex an treatment on the posttest. The analysis of pre to post gain indicated there were no differences between boys an girls, though an examination of the means in Table 18 shows that girls in the FAD treatment made greater gains than boys.

The grade 3 analyses indicated that boys again scored higher than girls on the pretest, $F(1,331) = 6.46$, $p < .05$, but this advantage disappeared on the posttest, $F(1,279) = 3.55$, NS, and on the analysis of pretest to posttest gain, $F(1,236) = .01$, NS. Again, an examination of the means in Table 19 indicates that the girls in the FAD conditions are actually making more gain from pretest to posttest than the boys, though this difference was not large enough to be statistically significant.

Grade 4 was similar to the other grades in that boys scored higher than girls on the math pretest, $F(1,286) = 12.8$, $p < .01$, and on the math posttest, $F(1,270) = 3.95$, $p < .05$, but there was no difference between boys and girls on the amount of gain they made from pretest to posttest, $F(1,227) = .27$, NS.

Summary of the Math Results for Boys and Girls. Boys start out performing better than girls at each grade level in and in both treatment conditions in all three grades. These differences were significant on the pretests at each of the grade levels. In grade 2, there was also an interaction between sex and treatment with the gap between boys and girls being larger in the FAD schools than it was in the Control schools.

The significant advantage for boys persisted on the posttest for grades 2 and 4, but not for grade 3. Importantly, the size of the gap between boys and girls reduced in all 3 grades, especially in the FAD schools where the amount of gain from pretest to posttest for girls exceeded that for boys in all 3 grade levels. It is important to note that the reduction in boy-girl gap for the FAD schools relative to the Control schools was not statistically significant. Nonetheless, it is

noteworthy, particularly in grades 2 and 3 where the FAD gain advantage for girls over boys in present in both the comparison of overall pre and post test performance but also in the comparison of students who took both the pretest and the posttest.

Reading Performance for Boys and Girls

The general framework for the analysis of the reading performance of boys and girls was similar to that for math performance. Separate analyses were performed for each grade and treatment was a factor in each analysis to allow for the detection of interactions between student sex and treatment effects.

What the analyses to follow show:

- **Grade 2:** Boys scored significantly higher on the reading pretests than did girls, though there were no sex differences in the analysis of posttest performance, and in the analysis of pretest to posttest gain. There were, however, interactions between sex and treatment condition in both the posttest analysis and the analysis of the pretest to posttest gain. That nature of these interactions were that the girls in the Control conditions made larger gains relative to boys than they did in the FAD conditions.
- **Grade 3:** There were no sex differences on any of the tests.
- **Grade 4:** There were no sex differences on any of the tests.

The results of the reading analyses of male and female performance. The descriptive statistics for the performance of boys and girls on the reading tests are contained in Tables 18 (2nd grade performance), 19 (3rd grade performance) and 20 (4th grade performance).

The analyses of grade 2 data indicated boys performed significantly better on the reading pretest than did girls, $F(1,313) = 6.8$, $p < .05$, but there was no overall difference between boys and girls on the posttest, $F(1,290) = .68$, NS, and on the analysis of pretest to posttest gain, $F(1, 241) = .12$, NS. However, there were significant treatment by sex interactions on both the posttest, $F(1,290) = 4.49$, $p < .05$, and the analysis of pretest to posttest gain, $F(1,241) = 4.81$, $p < .05$. The nature of these interactions were that the females in the Control group made greater gains relative to males than did the females in the FAD group, though females in both groups made greater gains than did males.

The grade 3 analyses indicated that there were no differences between boys and girls on the pretest, $F(1,331) = .02$, NS, on the posttest, $F(1,279) = .65$, NS, and on the analysis of pretest to posttest gain, $F(1,236) = .07$, NS. In addition, there were no interactions between student sex and treatment condition.

The grade 4 analysis was identical in outcome of that for grade 3. There were no sex differences on the pretest, $F(1,286) = 1.5$, NS, on the posttest, $F(1,270) = .02$, NS, and on the analysis of pretest to posttest gain, $F(1,227) = .53$, NS. Moreover, there was no interaction between treatment and student sex in any of the analyses.

Summary of the Reading Results for Boys and Girls. The only significant differences between boys and girls on the reading tests occurred in the second grade where boys scored significantly higher than girls on the pretest. In addition, there was an interaction between treatment and sex on the posttest and on the analysis of pretest to posttest gain. The nature of this interaction was that girls in the Control condition tended to make greater gains relative to boys than did girls in the FAD condition. All of the other analyses indicated there were no differences between boys and girls on reading performance.

Math Performance Comparisons between Urban and Rural Schools (Milieu)

The comparison of the math performance of students enrolled in urban and rural schools took a form similar to that in the previous section. That is, each grade was analyzed separately, and treatment was included as a variable in every analysis to allow for the detection of interactions between treatment and milieu.

What the analyses to follow show:

- **Grade 2:** There were no differences in overall math performance in urban and rural schools on the pretest, but there was a significant interaction between school milieu and treatment. The nature of this interaction was that the rural schools in the FAD sample scored quite a bit higher on the math tests than the urban schools, whereas the opposite pattern existed in the Control schools. On the posttest, there was both a significant effect for milieu and a significant interaction between milieu and treatment. The nature of these effects was that the rural schools scored higher than the urban schools and that the gap between urban and rural was much larger in the FAD group than in the Control group. Finally, there was also a significant milieu effect in the analysis of pretest to posttest gain with the rural schools making greater overall gains that the urban schools.
- **Grade 3:** As was the case with the grade 2 data, there was no overall difference between urban and rural schools on the pretest, but there was a significant interaction between milieu and treatment. Again, similar to grade 2, the nature of this difference was that in the FAD group the rural schools scored higher than the urban schools but in the Control group the urban schools scored higher than the rural schools. On the posttest the rural schools scored higher than the urban schools. There were no significant differences involving milieu on the analysis of pretest to posttest gain.
- **Grade 4:** The grade 4 pretest analysis showed that students in the urban schools scored higher than students in rural schools. On the posttest analysis there was no overall difference between urban and rural schools but there was a significant interaction between milieu and treatment. The nature of this interaction was that the urban students scored higher than the rural students in the FAD group whereas the opposite pattern was present in the Control group. There were no significant differences involving milieu on the analysis of pretest to posttest gain.

The results of analyses on the math performance of students in rural and urban schools. The descriptive statistics broken down by urban and rural schools is presented in Tables 21 (2nd grade), 22 (3rd grade) and 23 (4th grade).

For second grade students, there were no pretest differences between urban and rural schools, $F(1,313) = 1.41$, NS, but there was a significant interaction between school milieu and treatment, $F(1,313) = 31.6$, $p < .01$. The nature of this interaction was that the rural schools in the FAD sample scored quite a bit higher on the math tests than the urban schools, whereas the opposite pattern existed in the Control schools. On the posttest, there was both a significant effect for milieu, $F(1,290) = 4.18$, $p < .05$, and a significant interaction between milieu and treatment, $F(1, 290) = 4.24$, $p < .05$. The nature of these effects were that the rural students scored higher than the urban students and that the gap between rural and urban students was quite a bit larger in the FAD group than it was in the Control group. There was also a significant milieu effect on the analysis of pretest to posttest gain where the rural students made greater gains than did the urban students, $F(1,241) = 6.37$, $p < .05$.

The third grade analysis of math pretest performance did not find overall differences between urban and rural students, $F(1,331) = 2.29$, NS, but there was a significant interaction between treatment and milieu, $F(1,331) = 4.13$, $p < .05$. The nature of this interaction was that the rural students scored higher than their urban counterparts in the FAD group, but the urban students scored higher than the rural students in the Control group. The grade 3 analysis of math posttest data indicated that the rural students scored higher than their urban counterparts, $F(1,279) = 7.93$, $P < .01$. However, there were no differences between urban and rural students on the analysis or pretest to posttest gain, $F(1,236) = 1.99$, NS.

The grade 4 analysis of pretest performance indicated there was significant effect of milieu on the pretest, $F(1,286) = 5.24$, $p < .05$, with urban students scoring higher than rural students. On the posttest, there was no overall difference between urban and rural students, $F(1,270) = 1.7$, NS, but that there was a significant interaction between treatment and milieu, $F(1,270) = 6.26$, $p < .05$. The pattern that produced this interaction was the opposite of the pattern that existed in grades 2 and 3. In those grades the FAD rural students scored higher than their urban counterparts, while in the Control group the urban student scored higher than the control students. The opposite was true for grade 4 students. In grade 4, urban students scored higher than rural students in the FAD group, while rural students scored higher than urban students in the Control group. The analysis of grade 4 pretest to posttest gain indicated that there were no differences between the urban and rural students, $F(1,227) = 2.15$, NS.

Summary of math performance for urban and rural students. The pattern of results across grades on the pretest was similar in grades 2 and 3. In both grades there were no overall differences in math performance between students enrolled in urban and rural schools. There was, however, a significant interaction between treatment and milieu in both grades. The nature of this interaction was that the rural students in the FAD group scored higher than their urban counterparts, whereas the urban students scored higher than the rural students in the Control condition. This different pattern of performance on the tests speaks to the issue of the quality of the initial match between FAD and Control schools. Specifically, it suggests that the overall match, at least as it relates to urban and rural schools, was not ideal.

The analysis of posttest data for grades 2 and 3 was similar in pattern but did not yield the same statistical outcomes. In grade 2, there was both a significant effect of Milieu (rural schools higher) and a significant interaction between treatment and milieu (gap between rural and urban much higher in FAD group than in Control group). In grade 3 there was a significant advantage of the rural schools over the urban schools, but the interaction between treatment and milieu was not statistically significant.

Finally, the analysis of pretest to posttest gain for the grade 2 and 3 students indicated that in the second grade the rural students made significantly greater gains than their urban counterparts. The rural students also tended to make higher gains in the grade 3 analysis, but this difference was not statistically significant.

The analysis of grade 4 data showed a different pattern than that for grade 2 and 3. There, the urban students scored higher than their rural counterparts on the pretest, and there was no interaction between treatment and milieu, indicating that the urban and rural performance in the different treatments was more similar than it was in grades 2 and 3. The analysis of posttest performance for grade 4 indicated that there were no differences between rural and urban students, but there was an interaction between milieu and treatment. Urban students scored higher than the rural students in the FAD condition, but rural students scored higher than urban students in the Control condition. Finally, there were no significant differences between rural and urban students in the amount of gain they made from pretest to posttest.

Reading Performance Comparisons between Urban and Rural Schools (Milieu)

The comparison of the reading performance of students enrolled in urban and rural schools took a form similar to that in the previous section. That is, each grade was analyzed separately, and treatment was included as a variable in every analysis to allow for the detection of interactions between treatment and milieu.

What the analyses to follow show:

- **Grade 2:** The analysis of pretest reading performance indicated there were no differences between urban and rural schools. There was, however, a significant interaction between treatment and milieu, with the rural schools in the FAD group scoring considerably higher than the urban students, while in the Control group there was little difference between rural and urban students. The pattern on the posttest was similar with not overall differences between urban and rural performance, but a significant interaction between treatment and milieu. This source of this interaction was that rural student scored higher than urban students in the FAD group, but urban students scored higher than rural students in the Control group. There were no differences involving milieu on the analysis of pretest to posttest gain.
- **Grade 3:** Urban students scored higher than rural students on the reading pretests, but there was no difference between urban and rural students on the posttest and on the analysis of pretest to posttest gain.

- **Grade 4:** The analysis of pretest performance indicated that urban students scored significantly higher than their rural counterparts, and this advantage was also present on the posttest analysis. Additionally, there was a significant interaction between treatment and milieu on the posttest. The nature of this interaction was that the gap between urban and rural performance was considerably greater in the FAD group than it was in the Control group. Finally, there was a significant advantage for the rural group on the amount of gain they made from pretest to posttest.

The results of analyses on the reading performance of students in rural and urban schools. The descriptive statistics broken down by urban and rural schools is presented in Tables 21 (2nd grade), 22 (3rd grade) and 23 (4th grade).

The analysis of 2nd grade data shows that there was not an overall significant difference between rural and urban schools, $F(1,313) = .678$, NS, but there was a significant interaction between treatment and milieu, $F(1,313) = 34.9$, $p < .01$. The nature of this interaction was that the rural schools performed much higher than urban schools in the FAD group, but the two types of schools differed little in the Control group. On the posttest there were both overall significant differences between rural and urban schools, $F(1,270) = 9.4$, $p < .01$, and a significant interaction between treatment and school milieu, $F(1,270) = 8.2$, $p < .01$. The main effect for milieu was associated with higher performance on the part of the rural schools, and the interaction was attr5ibutable to rural schools having much more of an advantage over urban schools in the Fad group compared to the Control group. There were no differences between rural and urban schools in the amount of pretest to posttest gain, $F(1,241) = 1.12$, NS.

In grade 3 there was a significant advantage for the urban group over the rural group, $F(1,331) = 8.1$, $p < .01$. There were, however, no differences between the urban and rural groups on the posttest, $F(1,279) = 2.2$, NS, and on the analysis of pretest to posttest gain, $F(1,236) = .201$, NS. In addition, there were no significant interaction between treatment and milieu in the posttest and gain analyses.

The grade 4 analyses indicated that the urban schools outperformed the rural schools on the pretest, $F(1,286) = 5.25$, $p < .05$. In addition, the urban schools also scored higher than the rural school on the posttest, $F(1, 270) = 9.4$, $p < .01$. There was also a significant interaction between treatment and milieu on the posttest, $F(1,270) = 8.2$, $p < .01$. The nature of this interaction was that the urban students were much better than the rural student in the FAD condition, but there was not much difference between the two in the Control schools. The analysis of pretest to posttest gain indicated that the rural students made significantly greater gains than did the urban students, $F(1,227) = 4.99$, $p < .05$.

Summary of reading performance for urban and rural students. Differences between urban and rural schools in reading performance (and in math performance as well) was often moderated by the treatment condition the students were in. In grade 2, rural students in the FAD condition performed much better than their urban counterparts, but in the Control group there was very little difference between the two school types. This pattern persisted in the analysis of grade 2

posttest performance, but there was no difference in the amount of pretest to posttest gain for students in urban and rural schools.

The grade 3 analyses indicated that urban students performed better than their rural counterparts on the pretest, but there were no differences between the two school types on the posttest and on the analysis of pretest to posttest gain.

In grade 4, urban students started out with a significant advantage over their rural counterparts on the pretest, and this advantage was also present on the posttest. As was the pattern in previous grade 2 and 3 analyses involving milieu, the gap between urban and rural students was larger in the FAD group than in the Control group. Finally, grade 4 students were the only students to show significant differences in the amount of gain occurring from pretest to posttest, with rural students showing greater gains than urban students.

Math Performance Comparisons between Catholic, Protestant, and Independent Schools (Secteur)

Four of the schools participating in the project were Catholic, four were Protestant, and four were Independent. The analyses reported in this section examine differences between each of these school types, and they examine whether the FAD experience had differential impact in the school types. Each of the analyses to be reported examine both treatment impact and school type impact.

What the analyses show:

- **Grade 2:** There were no differences between the Secteur types on the pretest and the posttest. There was, however, significant differences in the amount of pretest to posttest gain made by the three school types. The Independent schools made the greatest gain, closely followed by the Catholic schools, and both of these made significantly greater gains than the Protestant schools. There was also a significant interaction between treatment and Secteur in the pretest to posttest gain analysis. The nature of this interaction was that the performance of the three types of schools was much more similar in the FAD group than it was in the Control group.
- **Grade 3:** There were no differences between the school types on the pretest, but there was on the posttest where the analyses indicated there was an interaction between treatment and Secteur. The nature of this interaction was that there was more variability between the performance of the groups in the FAD condition than in the Control condition. Finally, there were significant differences involving the amount of pretest to posttest gain. The Independent schools made significantly greater gains than did either the Protestant or Catholic schools.
- **Grade 4:** There were no differences involving Secteur on the pretest and the posttest. There was a significant interaction between Secteur and treatment on the analysis of pretest to posttest gain. The nature of this interaction was that there were very small differences in the amount of gain made by the three school types in the FAD condition. However, there was a considerable spread between the

types in the Control condition with the Protestant schools making the most gain, followed by the Independent schools, and with the Catholic schools making the smallest gain.

The results of analyses on the math performance of students in Catholic, Protestant, and Independent schools (Secteur). The descriptive statistics for the analyses to follow are presented in Tables 24 (Grade 2), 25 (Grade 3) and 26 (Grade 4).

The grade 2 analyses indicated that there were no differences between the three school types on the pretest, $F(2,311) = 1.98$, NS, and on the posttest, $F(2,288) = .96$, NS. There were, however, several differences in the analysis of pretest to posttest gain. There was an overall difference between the three school types, $F(2,239) = 6.41$, $p < .01$, and there was an interaction between Secteur and treatment, $F(2,239) = 6.54$, $p < .01$. The nature of the main effect was that both the Independent and the Catholic schools made significantly greater gains than did the Protestant schools. The interaction was attributable to these differences being larger in the FAD group than in the Control group.

The grade 3 analyses indicated that there were no differences between the school types on the pretest, $F(2,329) = 2.39$, NS, and on the posttest, $F(2,277) = 1.99$, NS. There was, however, a significant interaction between Secteur and treatment in the posttest analysis, $F(2,277) = 3.65$, $p < .05$. The nature of this interaction was that the three school types were very similar to one another in the Control group, while the Protestant group scored quite a bit higher than the other two school types in the FAD group. There was a significant difference between the three school types in the analysis of pretest to posttest gain, $F(2,234) = 3.37$, $P < .05$. The Independent schools made the greatest gain, closely followed by the Protestant schools, with the Catholic schools making the smallest gain.

There were no grade 4 differences between the three school types on the pretest analysis, $F(2,284) = 1.7$, NS, and the posttest analysis, $F(2,268) = .16$, NS. However, there was a significant interaction involving Secteur and treatment on the analysis of pretest to posttest gain, $F(2,225) = 6.82$, $P < .01$. This interaction was attributable to there being greater differences between the three school types in the Control condition that there was in the FAD condition, where the three school types made very similar gains.

Summary of math performance for Independent, Catholic and Protestant schools. The grade 2 analyses indicated that there were no differences between the three types of schools on the pretest and the posttest. There were differences, though, in the amount of gains each type of school made from pretest to posttest. Both the Independent and Catholic schools made significantly greater gain than did the Protestant schools. The analysis of pretest to posttest gain also indicated that the FAD treatment seemed to reduce the performance differences between the three types of schools relative to the differences that existed in the Control group.

The analyses of the grade 3 data showed that there were no differences between the three types of schools on the pretest, and there were no overall differences between the schools on the posttest. However, there was an interaction between treatment and Secteur on the posttest. The nature of this interaction was that the differences between the three types of schools was greater

in the FAD group than in the Control group. There were also significant differences in the amount of pretest to posttest gain made by the three types of schools. The Independent schools made significantly more gain from pretest to posttest than did the Protestant and Catholic schools.

The grade 4 analyses were similar to the analyses of the other grades in that there were no differences between the school types on the pretest and the posttest. There was an interaction between school type and treatment on the analysis of pretest to posttest gain. The nature of this interaction was that the spread in the amount of gain between the school types was much smaller in the FAD condition than there was in the Control condition.

Reading Performance Comparisons between Catholic, Protestant, and Independent Schools (Secteur)

The analyses of reading performance as a function of Secteur were identical in form to the analyses of math performance.

What the analyses to follow show:

- **Grade 2:** There were no overall differences between school types on the pretest, but there was a significant interaction between treatment and Secteur. The analyses of posttest performance and pretest to posttest gain indicated that Secteur was not a significant source of variance, nor did it contribute to significant interactions involving treatment.
- **Grade 3:** Secteur was not a significant source of variance in the pretest and posttest analyses, and it did not contribute to any interactions. There was, however, a significant interaction between Secteur and treatment in the analysis of pretest to posttest gain.
- **Grade 4:** Secteur was a significant source of variance in the analysis of grade 4 pretest data. The nature of this difference was that the Catholic and Independent schools scored higher than did the Protestant schools. There were no differences involving Secteur in the analysis of posttest performance and in the analysis of pretest to posttest gain.

The results of analyses on the reading performance of students in Catholic, Protestant, and Independent schools (Secteur). The descriptive statistics for the analyses to follow are contained in Tables 24 (Grade 2), 25 (Grade 3) and 26 (Grade 4).

The analysis of grade 2 reading performance showed that the different school types did not differ on the pretest, $F(2,311) = 2.44$, NS. There was, however, a significant treatment by Secteur interaction, $F(2,311) = 5.93$, $p < .01$. The nature of the interaction was that in the FAD condition the Independent schools are scoring well below the Catholic and Protestant schools, while in the Control condition the Independent schools are scoring better than the other two types of schools. There were no differences between the school types on the posttest, $F(2,288) = 1.6$, NS, and on the analysis of pretest to posttest gain, $F(2,239) = 1.5$, NS.

The grade 3 analysis of pretest performance indicated that Secteur was not a significant source of variance in the analysis of pretest performance, posttest performance, $F(2,277) = .37$, NS, and the analysis of pretest to posttest gain, $F(2,234) = .29$, NS. There was, however, an interaction between treatment and Secteur in the analysis of pretest to posttest gain, $F(2,234+ = 4.2$, $p < .05$. The nature of this interaction involved shifting status of the school types in the groups. For example, the Catholic schools gained less than they other two school types in the FAD condition, but in the Control condition the Catholic schools gained more than the other two types of schools.

The grade 4 analysis of pretest data indicated that there was both a significant main effect for Secteur, $F(2,284) = 6.2$, $p < .01$, and a significant interaction between Secteur and treatment, $F(2,284) = 3.5$, $p < .05$. The main effect was attributable to both the Catholic and Independent schools scoring higher than the Protestant schools. The interaction was associated with there being much larger differences in the three types of schools in the Control condition than there was in the FAD condition. There were no differences between the different school types in the analysis of posttest performance, $F(2,268) = 1.39$, NS, and the analysis of pretest to posttest gain, $F(2,225) = 2.7$, NS.

Summary of reading performance for Independent, Catholic and Protestant schools. The analysis of grade 2 data indicated that there were no overall differences involving Secteur in the analysis of pretest data, but there was an interaction between treatment and Secteur in the analysis. The nature of this interaction was that the Independent schools did better than the other two types of schools in the Control group, but did much poorer than the other two groups in the FAD condition. Secteur was not a significant source of variance in either the posttest analysis or the analysis of pretest to posttest gain.

In the grade 3 data, Secteur was not a significant factor in the pretest analysis and the posttest analysis. Secteur did, however, contribute to a significant interaction between treatment and Secteur in the analysis of pretest performance. This interaction was atteibutable to there being greater variability in the performance of schools in the FAD group than there was in the Control group.

The grade 4 analyses indicated that the Catholic and Independent schools scored higher than the Protestant schools on the pretest. There were, however, no differences between the school types on the analysis of posttest performance, and the analysis of pretest to posttest gain.

Math and Reading Results for Geographic Region

The FAD and Control schools participating in the study were from the Ouest and Nord regions of Haiti. Given that regional differences were not a critical aspect of the study the results associated with region will not be discussed in detail. The descriptive statistics for regional differences are presented in Tables 27 (2nd grade), 28 (3rd grade) and 29 (4th grade).

Math and Reading Results for Individual Schools

mike

Table 1

FAD Group Showing Distribution of Students by Location, School Type, Region, School, Grade and Gender

Location	School Type	Region	School	Sex	2nd	Pre N 3rd	4th	2nd	Post N 3rd	4th
Urban	Independent	Ouest	Le Normalien	Male	9	13	15	10	13	12
				Female	21	17	15	20	17	17
				Total	30	30	30	30	30	29
Urban	Protestant	Nord	Baptiste du Limbre	Male	14	9	6	0	0	0
				Female	10	9	7	0	0	0
				Total	24	18	13	0	0	0
Rural	Catholic	Nord	Notre-Dame de Lamercie	Male	22	17	15	22	16	15
				Female	13	18	15	11	14	16
				Total	35	35	30	33	30	31
Rural	Catholic	Ouest		Male	14	2	5	9	2	5
				Female	7	17	6	9	13	6
				Total	21	19	11	18	15	11
Rural	Protestant	Ouest	Saint Antoine de Padoue	Male	15	14	16	17	11	12
				Female	15	18	15	12	13	10
				Total	30	32	31	19	24	22
Rural	Independent	Ouest	Bon Samaritain Institution Joyau de Salem	Male	15	15	9	13	10	7
				Female	15	15	21	17	13	23
				Total	30	30	30	30	23	30

Table 2

Control Group Showing Distribution of Students by Location, School Type, Region, School, Grade and Gender

Location	School Type	Region	School	Sex	Pre N 2nd	Pre N 3rd	Pre N 4th	Post N 2nd	Post N 3rd	Post N 4th
Urban	Catholic	Nord	St. Joseph de Bahon	Male	15	16	13	13	16	12
				Female	15	14	9	15	14	9
				Total	30	30	22	28	30	21
Urban	Protestant	Nord	Baptiste de la Grace	Male	17	11	17	14	11	16
				Female	12	19	13	15	19	12
				Total	29	30	30	29	30	28
Urban	Independent	Nord	Mixte La Belle Etoile	Male	4	8	3	8	7	9
				Female	4	14	8	5	15	13
				Total	8	22	11	13	22	22
Urban	Catholic	Ouest	Notre-Dame du Mont Carmel	Male	12	11	13	18	14	17
				Female	14	12	12	14	16	11
				Total	16	23	25	32	30	28
Rural	Protestant	Ouest	Methodiste Libre de Violet	Male	6	20	13	7	13	11
				Female	18	11	11	15	7	8
				Total	24	31	24	22	20	19
Rural	Independent	Ouest	Institution Classique Latremblay	Male	15	21	14	15	19	14
				Female	15	14	19	15	10	19
				Total	30	35	33	30	29	33

Table 3

Second Grade Mean Percent Correct on Math Test as a Function of Treatment Group

Treatment Group	*Pretest Mean*	*Posttest Mean*	*Percent Gain*
FAD Total Sample	49.86	61.43	11.57
	N= 170	N= 140	
	SD= 16.87	SD= 17.16	
Control Total Sample	50.55	62.74	12.19
	N= 147	N= 154	
	SD= 15.27	SD= 16.59	
Totals for Total Sample	50.18	62.12	11.94
	N= 317	N= 294	
	SD= 16.13	SD= 16.85	
FAD Taking Both Pre & Post Tests	50.54	61.63	11.09
	N= 118	N= 118	
	SD= 16.90	SD= 16.88	
Control Taking Both Pre & Post Tests	51.24	64.39	13.15
	N= 128	N= 128	
	SD= 15.57	SD= 15.57	
Totals Taking Both Pre & Post Tests	50.91	63.07	12.16
	N= 246	N= 246	
	SD= 16.19	SD= 16.88	

Table 4

Third Grade Mean Percent Correct on Math Test as a Function of Treatment Group

Treatment Group	*Pretest Mean*	*Posttest Mean*	*Percent Gain*
FAD Total Sample	44.65	60.79	16.14
	N= 164	N= 122	
	SD= 14.86	SD= 12.64	
Control Total Sample	47.09	61.81	14.72
	N= 171	N= 161	
	SD= 14.88	SD= 15.78	
Totals for Total Sample	45.90	61.37	15.47
	N= 335	N= 283	
	SD= 14.90	SD= 14.49	
FAD Taking Both Pre & Post Tests	46.54	60.92	11.38
	N= 108	N= 108	
	SD= 14.31	SD= 12.82	
Control Taking Both Pre & Post Tests	48.46	62.05	13.59
	N= 133	N= 133	
	SD= 15.09	SD= 15.91	
Totals Taking Both Pre & Post Tests	47.60	61.55	13.95
	N= 241	N= 241	
	SD= 14.75	SD= 14.60	

Table 5

Fourth Grade Mean Percent Correct on Math Test as a Function of Treatment Group

Treatment Group	*Pretest Mean*	*Posttest Mean*	*Percent Gain*
FAD Total Sample	40.50	53.78	13.28
	N= 145	N= 123	
	SD= 16.89	SD= 14.91	
Control Total Sample	43.66	56.76	13.10
	N= 145	N= 151	
	SD= 18.55	SD= 18.60	
Totals for Total Sample	42.08	55.42	13.34
	N= 290	N= 274	
	SD= 17.78	SD= 17.07	
FAD Taking Both Pre & Post Tests	41.88	54.13	12.25
	N= 109	N= 109	
	SD= 17.15	SD= 14.58	
Control Taking Both Pre & Post Tests	45.53	59.36	13.83
	N= 123	N= 123	
	SD= 18.46	SD= 18.15	
Totals Taking Both Pre & Post Tests	43.81	56.90	13.09
	N= 232	N= 232	
	SD= 17.91	SD= 16.74	

Table 6

Second, Third and Fourth Grade Mean Percent Correct on Number Section of Math Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Number Pretest**	**Number Posttest**	**Gain**	**Number Pretest**	**Number Posttest**	**Gain**	**Number Pretest**	**Number Posttest**	**Gain**
FAD Total Sample	**81.73** N=170 SD=19.52	**90.85** N=140 SD=13.89	**9.12**	**95.12** N=164 SD=9.23	**93.72** N=122 SD=11.60	**-1.40**	**91.55** N=145 SD=12.23	**94.92** N=123 SD=11.07	**3.37**
Control Total Sample	**85.25** N=147 SD=16.16	**92.09** N=154 SD=13.95	**6.84**	**93.57** N=171 SD=12.10	**95.86** N=161 SD=9.36	**2.29**	**89.31** N=145 SD=13.74	**95.03** N=151 SD=10.42	**5.72**
FAD Pre & Post	**83.21** N=118 SD=18.12	**91.74** N=118 SD=12.60	**8.53**	**96.60** N=108 SD=7.81	**93.42** N=108 SD=12.06	**-3.18**	**91.51** N=109 SD=12.37	**94.95** N=109 SD=11.17	**3.44**
Control Pre & Post	**85.94** N=128 SD=15.98	**92.58** N=128 SD=14.31	**6.64**	**93.82** N=133 SD=12.57	**95.91** N=133 SD=9.22	**2.09**	**90.45** N=123 SD=13.78	**95.94** N=123 SD=9.80	**5.49**

Table 7

Second, Third and Fourth Grade Mean Percent Correct on Addition Section of Math Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Addition Pretest**	**Addition Posttest**	**Gain**	**Addition Pretest**	**Addition Posttest**	**Gain**	**Addition Pretest**	**Addition Posttest**	**Gain**
FAD Total Sample	**64.05** N=170 SD=26.65	**73.17** N=140 SD=23.14	**9.12**	**59.35** N=164 SD=24.52	**79.71** N=122 SD=17.73	**20.36**	**63.65** N=145 SD=24.63	**81.42** N=123 SD=20.85	**17.77**
Control Total Sample	**63.99** N=147 SD=25.81	**74.44** N=154 SD=22.37	**10.45**	**64.52** N=171 SD=23.54	**79.09** N=161 SD=21.73	**14.57**	**66.60** N=145 SD=23.82	**83.04** N=151 SD=20.31	**16.44**
FAD Pre & Post	**65.40** N=118 SD=27.44	**73.40** N=118 SD=22.56	**8.00**	**62.27** N=108 SD=24.15	**80.40** N=108 SD=17.51	**18.13**	**66.58** N=109 SD=24.38	**82.04** N=109 SD=20.05	**15.46**
Control Pre & Post	**64.48** N=128 SD=26.19	**76.19** N=128 SD=21.86	**11.71**	**66.04** N=133 SD=23.92	**79.20** N=133 SD=20.63	**13.16**	**68.41** N=123 SD=22.94	**83.94** N=123 SD=20.02	**15.53**

Table 8

Second, Third and Fourth Grade Mean Percent Correct on Subtraction Section of Math Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Subtr Pretest**	**Subtr Posttest**	**Gain**	**Subtr Pretest**	**Subtr Posttest**	**Gain**	**Subtr Pretest**	**Subtr Posttest**	**Gain**
FAD Total Sample	**27.19** N=170 SD=21.71	**46.41** N=140 SD=31.07	**19.22**	**37.36** N=164 SD=25.40	**61.25** N=122 SD=21.70	**23.89**	**41.93** N=145 SD=30.03	**67.64** N=123 SD=26.05	**25.71**
Control Total Sample	**25.90** N=147 SD=22.07	**48.25** N=154 SD=30.09	**22.35**	**37.64** N=171 SD=23.94	**60.81** N=161 SD=22.44	**23.17**	**47.03** N=145 SD=31.14	**64.13** N=151 SD=30.53	**17.10**
FAD Pre & Post	**26.53** N=118 SD=21.47	**46.02** N=118 SD=31.20	**19.49**	**40.15** N=108 SD=24.99	**61.45** N=108 SD=22.12	**21.30**	**42.57** N=109 SD=30.32	**67.89** N=109 SD=25.97	**25.32**
Control Pre & Post	**27.46** N=128 SD=22.53	**51.93** N=128 SD=30.74	**24.47**	**40.26** N=133 SD=24.11	**61.24** N=133 SD=23.09	**20.98**	**48.46** N=123 SD=30.52	**66.21** N=123 SD=30.04	**17.75**

Table 9

Second, Third and Fourth Grade Mean Percent Correct on Multiplication Section of Math Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Mult Pretest**	**Mult Posttest**	**Gain**	**Mult Pretest**	**Mult Posttest**	**Gain**	**Mult Pretest**	**Mult Posttest**	**Gain**
FAD Total Sample	**10.98** N=170 SD=19.45	**23.10** N=140 SD=28.53	**12.12**	**19.27** N=164 SD=22.58	**41.80** N=122 SD=20.41	**22.53**	**31.31** N=145 SD=28.46	**58.05** N=123 SD=25.79	**26.74**
Control Total Sample	**11.79** N=147 SD=20.20	**20.82** N=154 SD=24.45	**9.03**	**24.21** N=171 SD=23.88	**45.71** N=161 SD=23.39	**21.50**	**34.90** N=145 SD=28.07	**61.28** N=151 SD=26.94	**26.38**
FAD Pre & Post	**11.58** N=118 SD=20.62	**22.60** N=118 SD=28.87	**11.02**	**20.74** N=108 SD=22.54	**41.85** N=108 SD=20.74	**21.11**	**33.58** N=109 SD=28.40	**58.72** N=109 SD=26.29	**25.14**
Control Pre & Post	**11.20** N=128 SD=20.18	**21.93** N=128 SD=25.28	**10.73**	**25.86** N=133 SD=24.34	**46.47** N=133 SD=23.81	**20.61**	**36.91** N=123 SD=28.40	**63.85** N=123 SD=25.62	**26.94**

Table 10

Second, Third and Fourth Grade Mean Percent Correct on Division Section of Math Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Division Pretest**	**Division Posttest**	**Gain**	**Division Pretest**	**Division Posttest**	**Gain**	**Division Pretest**	**Division Posttest**	**Gain**
FAD Total Sample	**27.00** N=145 SD=23.58	**37.63** N=123 SD=21.89	**10.63**	**14.02** N=164 SD=17.21	**38.80** N=122 SD=21.47	**24.78**	**27.00** N=145 SD=23.58	**37.63** N=123 SD=21.89	**10.63**
Control Total Sample	**26.21** N=145 SD=24.69	**42.48** N=151 SD=28.62	**16.27**	**17.35** N=171 SD=16.00	**38.92** N=161 SD=23.86	**21.57**	**26.21** N=145 SD=24.69	**42.48** N=151 SD=28.62	**16.27**
FAD Pre & Post	**0.42** N=118 SD=4.60	**3.95** N=118 SD=13.90	**3.53**	**14.81** N=108 SD=16.17	**38.58** N=108 SD=21.69	**23.77**	**28.31** N=109 SD=24.43	**36.83** N=109 SD=21.93	**8.52**
Control Pre & Post	**0.78** N=128 SD=6.23	**5.21** N=128 SD=17.96	**4.43**	**18.55** N=133 SD=16.62	**38.72** N=133 SD=24.67	**20.17**	**28.92** N=123 SD=25.04	**46.34** N=123 SD=28.65	**17.42**

Table 11

Second, Third and Fourth Grade Mean Percent Correct on Decimal Section of Math Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Decimal Pretest**	**Decimal Posttest**	**Gain**	**Decimal Pretest**	**Decimal Posttest**	**Gain**	**Decimal Pretest**	**Decimal Posttest**	**Gain**
FAD Total Sample	**2.16** N=170 SD=8.99	**2.93** N=140 SD=10.42	**0.77**	**7.49** N=164 SD=14.02	**18.97** N=122 SD=18.41	**11.48**	**21.09** N=145 SD=16.14	**25.81** N=123 SD=18.95	**4.72**
Control Total Sample	**2.04** N=147 SD=8.02	**6.00** N=154 SD=16.16	**3.96**	**12.70** N=171 SD=15.21	**22.27** N=161 SD=21.54	**9.57**	**27.47** N=145 SD=19.47	**30.85** N=151 SD=21.81	**3.38**
FAD Pre & Post	**2.54** N=118 SD=9.90	**2.62** N=118 SD=10.18	**0.08**	**8.20** N=108 SD=13.70	**19.05** N=108 SD=18.22	**10.85**	**22.02** N=109 SD=16.65	**26.68** N=109 SD=18.59	**4.66**
Control Pre & Post	**2.34** N=128 SD=8.56	**6.96** N=128 SD=17.34	**4.62**	**13.32** N=133 SD=15.55	**22.34** N=133 SD=22.13	**9.02**	**29.27** N=123 SD=19.54	**34.21** N=123 SD=21.39	**4.94**

Table 12

Second Grade Mean Percent Correct on Reading Test as a Function of Treatment Group

Treatment Group	*Pretest Mean*	*Posttest Mean*	*Percent Gain*
FAD Total Sample	67.22	79.58	12.36
	N= 170	N= 140	
	SD= 17.17	SD= 12.28	
Control Total Sample	69.85	79.04	9.19
	N= 147	N= 154	
	SD= 17.31	SD= 13.80	
Totals for Total Sample	68.44	79.30	10.86
	N= 317	N= 294	
	SD= 17.25	SD= 13.08	
FAD Taking Both Pre & Post Tests	67.46	80.21	12.75
	N= 118	N= 118	
	SD= 17.35	SD= 11.87	
Control Taking Both Pre & Post Tests	70.51	81.03	10.52
	N= 128	N= 128	
	SD= 17.33	SD= 12.29	
Totals Taking Both Pre & Post Tests	69.04	80.64	11.60
	N= 246	N= 246	
	SD= 17.37	SD= 12.07	

Table 13

Third Grade Mean Percent Correct on Reading Test as a Function of Treatment Group

Treatment Group	*Pretest Mean*	*Posttest Mean*	*Percent Gain*
FAD Total Sample	75.30	82.31	7.01
	N= 164	N= 122	
	SD= 10.67	SD= 8.76	
Control Total Sample	72.70	80.30	7.60
	N= 171	N= 161	
	SD= 11.67	SD= 11.59	
Totals for Total Sample	73.97	81.17	7.20
	N= 335	N= 283	
	SD= 11.25	SD= 10.49	
FAD Taking Both Pre & Post Tests	76.40	82.84	6.44
	N= 108	N= 108	
	SD= 10.40	SD= 8.60	
Control Taking Both Pre & Post Tests	73.72	79.88	6.16
	N= 133	N= 133	
	SD= 12.19	SD= 11.61	
Totals Taking Both Pre & Post Tests	74.92	81.21	6.29
	N= 241	N= 241	
	SD= 11.47	SD= 10.46	

Table 14

Fourth Grade Mean Percent Correct on Reading Test as a Function of Treatment Group

Treatment Group	*Pretest Mean*	*Posttest Mean*	*Percent Gain*
FAD Total Sample	73.98	83.03	9.05
	N= 145	N= 123	
	SD= 11.54	SD= 10.50	
Control Total Sample	74.92	81.11	6.19
	N= 145	N= 151	
	SD= 10.83	SD= 10.30	
Totals for Total Sample	74.45	81.97	7.52
	N= 290	N= 274	
	SD= 11.18	SD= 10.41	
FAD Taking Both Pre & Post Tests	74.26	83.06	8.80
	N= 109	N= 109	
	SD= 12.09	SD= 10.46	
Control Taking Both Pre & Post Tests	76.12	81.86	5.74
	N= 123	N= 123	
	SD= 10.80	SD= 10.33	
Totals Taking Both Pre & Post Tests	75.25	82.42	7.17
	N= 232	N= 232	
	SD= 11.44	SD= 10.38	

Table 15

Second and Third Grade Mean Percent Correct on Letter Section of Reading Test as a Function of Treatment Group

	Grade 2			Grade 3		
Treatment Group	**Letter Pretest**	**Letter Posttest**	**Gain**	**Letter Pretest**	**Letter Posttest**	**Gain**
FAD Total Sample	**87.47** N=170 SD=18.53	**97.43** N=140 SD=8.76	**9.96**	**90.43** N=164 SD=8.24	**93.36** N=122 SD=5.69	**2.93**
Control Total Sample	**88.57** N=147 SD=16.84	**93.77** N=154 SD=12.58	**5.20**	**86.55** N=171 SD=10.76	**92.92** N=161 SD=8.11	**6.37**
FAD Pre & Post	**86.78** N=118 SD=18.02	**97.88** N=118 SD=7.02	**11.10**	**90.74** N=108 SD=8.28	**93.43** N=108 SD=5.66	**2.69**
Control Pre & Post	**89.61** N=128 SD=15.34	**95.08** N=128 SD=11.50	**5.47**	**86.69** N=133 SD=10.85	**92.78** N=133 SD=8.47	**6.09**

Table 16

Second, Third and Fourth Grade Mean Percent Correct on Word Section of Reading Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Word Pretest**	**Word Posttest**	**Gain**	**Word Pretest**	**Word Posttest**	**Gain**	**Word Pretest**	**Word Posttest**	**Gain**
FAD Total Sample	**61.65** N=170 SD=20.55	**77.91** N=140 SD=15.96	**16.26**	**70.19** N=164 SD=14.76	**81.12** N=122 SD=11.95	**10.93**	**77.86** N=145 SD=13.60	**87.80** N=123 SD=12.00	**9.94**
Control Total Sample	**65.40** N=147 SD=21.48	**78.88** N=154 SD=16.99	**13.48**	**68.95** N=171 SD=15.46	**78.11** N=161 SD=15.45	**9.16**	**79.24** N=145 SD=12.63	**87.07** N=151 SD=11.64	**7.83**
FAD Pre & Post	**62.35** N=118 SD=20.63	**78.43** N=118 SD=16.24	**16.08**	**71.33** N=108 SD=14.51	**81.67** N=108 SD=11.82	**10.34**	**78.19** N=109 SD=13.99	**87.87** N=109 SD=12.12	**9.68**
Control Pre & Post	**65.36** N=128 SD=22.02	**81.18** N=128 SD=15.45	**15.82**	**70.26** N=133 SD=16.20	**77.55** N=133 SD=15.54	**7.29**	**80.25** N=123 SD=12.57	**87.56** N=123 SD=12.03	**7.31**

Table 17

Second, Third and Fourth Grade Mean Percent Correct on Sentence Section of Reading Test as a Function of Treatment Group

	Grade 2			Grade 3			Grade 4		
Treatment Group	**Sent Pretest**	**Sent Posttest**	**Gain**	**Sent Pretest**	**Sent Posttest**	**Gain**	**Sent Pretest**	**Sent Posttest**	**Gain**
FAD Total Sample	**57.71** N=170 SD=26.60	**63.48** N=140 SD=24.94	**5.77**	**73.29** N=164 SD=20.46	**68.20** N=122 SD=18.85	**-5.09**	**67.28** N=145 SD=14.80	**78.76** N=123 SD=19.13	**11.48**
Control Total Sample	**59.41** N=147 SD=26.64	**62.91** N=154 SD=22.52	**3.50**	**65.03** N=171 SD=20.59	**67.08** N=161 SD=20.91	**2.05**	**67.47** N=145 SD=13.90	**77.65** N=151 SD=17.60	**10.18**
FAD Pre & Post	**57.91** N=118 SD=27.37	**64.48** N=118 SD=24.78	**6.57**	**74.63** N=108 SD=20.39	**69.44** N=108 SD=18.84	**-5.19**	**67.48** N=109 SD=14.87	**79.24** N=109 SD=18.18	**11.76**
Control Pre & Post	**61.28** N=128 SD=25.75	**64.93** N=128 SD=21.35	**3.65**	**66.17** N=133 SD=20.18	**66.92** N=133 SD=20.16	**0.75**	**69.02** N=123 SD=13.57	**78.35** N=123 SD=17.68	**9.33**

Table 18

Second Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Gender

TreatmentGroup	Gender	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Female	**43.06**	**57.67**	**14.61**	**63.83**	**77.31**	**13.48**
		N= 81	N= 69		N= 81	N= 69	
		SD= 14.66	SD= 15.24		SD= 16.45	SD= 9.88	
	Male	**56.06**	**65.09**	**9.03**	**70.31**	**81.80**	**11.49**
		N= 89	N=71		N= 89	N= 71	
		SD= 16.43	SD= 18.21		SD= 17.32	SD= 13.95	
Control Total Sample	Female	**49.70**	**62.16**	**12.46**	**68.17**	**80.00**	**11.83**
		N= 78	N= 79		N= 78	N= 79	
		SD= 15.79	SD= 17.42		SD= 18.52	SD= 12.94	
	Male	**51.50**	**63.34**	**11.84**	**71.74**	**78.03**	**6.29**
		N= 69	N=75		N= 69	N= 75	
		SD= 14.71	SD= 15.76		SD= 15.74	SD= 14.67	
FAD Pre & Post	Female	**44.02**	**56.88**	**12.86**	**63.88**	**77.12**	**13.24**
		N= 60	N= 60		N= 60	N= 60	
		SD= 14.57	SD= 13.61		SD= 15.89	SD= 10.21	
	Male	**57.30**	**66.53**	**9.23**	**71.16**	**83.41**	**12.25**
		N= 58	N=58		N= 58	N= 58	
		SD= 16.58	SD= 18.56		SD= 18.14	SD= 12.68	
Control Pre & Post	Female	**50.32**	**62.98**	**12.66**	**68.45**	**81.02**	**12.57**
		N= 71	N= 71		N= 71	N= 71	
		SD= 15.81	SD= 17.39		SD= 18.73	SD= 11.68	
	Male	**52.38**	**66.15**	**13.77**	**73.07**	**81.05**	**7.98**
		N= 57	N=57		N= 57	N= 57	
		SD= 15.33	SD= 16.12		SD= 15.19	SD= 13.12	

Table 19

Third Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Gender

TreatmentGroup	Gender	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Female	**42.64**	**60.09**	**17.45**	**75.32**	**82.22**	**6.90**
		N= 94	N= 70		N= 94	N= 70	
		SD= 15.40	SD= 12.59		SD= 11.85	SD= 8.74	
	Male	**47.35**	**61.73**	**14.38**	**75.27**	**82.44**	**7.17**
		N= 70	N= 52		N= 70	N= 52	
		SD= 13.76	SD= 12.76		SD= 8.94	SD= 8.87	
Control Total Sample	Female	**45.29**	**59.36**	**14.07**	**72.51**	**79.40**	**6.89**
		N= 84	N= 81		N= 84	N= 81	
		SD= 15.69	SD= 16.36		SD= 11.71	SD= 12.76	
	Male	**48.84**	**64.29**	**15.45**	**72.87**	**81.22**	**8.35**
		N= 87	N= 80		N= 87	N= 80	
		SD= 13.92	SD= 14.87		SD= 11.69	SD= 10.27	
FAD Pre & Post	Female	**44.43**	**60.35**	**15.92**	**76.50**	**82.95**	**6.45**
		N= 61	N= 61		N= 61	N= 61	
		SD= 13.75	SD= 12.95		SD= 11.78	SD= 8.77	
	Male	**49.28**	**61.66**	**12.38**	**76.26**	**82.70**	**6.44**
		N= 47	N= 47		N= 47	N= 47	
		SD= 14.71	SD= 12.77		SD= 8.38	SD= 8.48	
Control Pre & Post	Female	**47.12**	**60.02**	**12.90**	**73.20**	**79.25**	**6.05**
		N= 68	N= 68		N= 68	N= 68	
		SD= 16.18	SD= 16.04		SD= 12.35	SD= 12.52	
	Male	**49.86**	**64.18**	**14.32**	**74.26**	**80.55**	**6.29**
		N= 65	N= 65		N= 65	N= 65	
		SD= 13.84	SD= 15.62		SD= 12.09	SD= 10.64	

Table 20

Fourth Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Gender

TreatmentGroup	Gender	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Female	**38.01**	**52.85**	**14.84**	**73.68**	**82.97**	**9.29**
		N= 79	N= 72		N= 79	N= 72	
		SD= 16.64	SD= 15.32		SD= 11.28	SD= 10.76	
	Male	**43.48**	**55.10**	**11.62**	**74.34**	**83.11**	**8.77**
		N= 66	N= 51		N= 66	N= 51	
		SD= 16.83	SD= 14.34		SD= 11.92	SD= 10.21	
Control Total Sample	Female	**39.03**	**53.62**	**14.59**	**73.61**	**81.02**	**7.41**
		N= 72	N= 72		N= 72	N= 72	
		SD= 19.02	SD= 20.50		SD= 10.92	SD= 10.69	
	Male	**48.22**	**59.62**	**11.40**	**76.21**	**81.19**	**4.98**
		N= 73	N= 79		N= 73	N= 79	
		SD= 16.99	SD= 16.28		SD= 10.66	SD= 10.00	
FAD Pre & Post	Female	**39.11**	**53.27**	**14.16**	**73.70**	**83.15**	**9.45**
		N= 62	N= 62		N= 62	N= 62	
		SD= 17.08	SD= 14.43		SD= 12.09	SD= 10.60	
	Male	**45.53**	**55.27**	**16.16**	**74.99**	**82.94**	**9.45**
		N= 47	N= 47		N= 47	N= 47	
		SD= 16.71	SD= 14.86		SD= 12.19	SD= 10.38	
Control Pre & Post	Female	**41.54**	**55.18**	**13.64**	**74.59**	**81.45**	**6.86**
		N= 60	N= 60		N= 60	N= 60	
		SD= 19.17	SD= 20.65		SD= 11.02	SD= 10.62	
	Male	**49.33**	**63.33**	**14.00**	**77.58**	**82.25**	**4.67**
		N= 63	N= 63		N= 63	N= 63	
		SD= 17.05	SD= 14.47		SD= 10.46	SD= 10.10	

Table 21

Second Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Location

TreatmentGroup	Location	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Urban	**39.65**	**52.52**	**12.87**	**59.21**	**72.98**	**13.77**
		N= 54	N= 30		N= 54	N= 30	
		SD= 16.45	SD= 21.19		SD= 19.32	SD= 14.76	
	Rural	**54.62**	**63.86**	**9.24**	**70.95**	**81.39**	**10.44**
		N= 116	N= 110		N= 116	N= 110	
		SD= 14.90	SD= 15.11		SD= 14.73	SD= 10.91	
Control Total Sample	Urban	**52.21**	**62.47**	**10.26**	**69.89**	**80.05**	**10.16**
		N= 93	N= 102		N= 93	N= 102	
		SD= 16.18	SD= 16.15		SD= 18.35	SD= 13.33	
	Rural	**47.69**	**63.28**	**15.59**	**69.77**	**77.06**	**7.29**
		N= 54	N= 52		N= 54	N= 52	
		SD= 13.22	SD= 17.56		SD= 15.52	SD= 14.61	
Totals for Total Sample	Urban	**47.59**	**60.20**	**12.61**	**65.97**	**78.44**	**12.47**
		N= 147	N= 132		N= 147	N= 132	
		SD= 17.32	SD= 17.84		SD= 19.35	SD= 13.93	
	Rural	**52.42**	**63.67**	**11.25**	**70.57**	**80.00**	**9.43**
		N= 170	N= 162		N= 170	N= 162	
		SD= 14.70	SD= 15.89		SD= 14.95	SD= 12.34	
FAD Pre & Post	Urban	**38.26**	**52.97**	**14.41**	**58.17**	**74.88**	**16.71**
		N= 26	N= 26		N= 26	N= 26	
		SD= 17.33	SD= 19.91		SD= 20.78	SD= 13.37	
	Rural	**54.02**	**64.07**	**10.05**	**70.08**	**81.71**	**11.63**
		N= 92	N= 92		N= 92	N= 92	
		SD= 15.14	SD= 15.16		SD= 15.39	SD= 11.03	
Control Pre & Post	Urban	**53.06**	**64.77**	**11.71**	**70.77**	**82.53**	**11.76**
		N= 81	N= 81		N= 81	N= 81	
		SD= 16.52	SD= 16.10		SD= 18.46	SD= 10.82	
	Rural	**48.10**	**63.74**	**15.64**	**70.05**	**78.45**	**8.40**
		N= 47	N= 47		N= 47	N= 47	
		SD= 13.35	SD= 18.22		SD= 15.36	SD= 14.23	
Totals for Pre & Post	Urban	**49.47**	**61.90**	**12.43**	**67.71**	**80.67**	**12.96**
		N= 107	N= 107		N= 107	N= 107	
		SD= 17.82	SD= 17.75		SD= 19.71	SD= 11.89	
	Rural	**52.02**	**63.96**	**11.94**	**70.07**	**80.61**	**10.54**
		N= 139	N= 139		N= 139	N= 139	
		SD= 14.78	SD= 16.19		SD= 15.32	SD= 12.25	

Table 22

Third Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Location

TreatmentGroup	Location	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Urban	**40.05**	**62.18**	**22.13**	**73.61**	**86.00**	**12.39**
		N= 48	N= 30		N= 48	N= 30	
		SD= 13.55	SD= 12.25		SD= 11.54	SD= 8.80	
	Rural	**46.55**	**60.34**	**13.79**	**76.00**	**81.11**	**5.11**
		N= 116	N= 92		N= 116	N= N= 92	
		SD= 15.02	SD= 12.79		SD= 10.27	SD= 8.45	
Control Total Sample	Urban	**48.07**	**60.61**	**12.54**	**74.37**	**80.24**	**5.87**
		N= 105	N= 112		N= 105	N= 112	
		SD= 15.71	SD= 15.90		SD= 11.90	SD= 11.80	
	Rural	**45.55**	**64.56**	**19.01**	**70.03**	**80.45**	**10.42**
		N= 66	N= 49		N= 66	N= 49	
		SD= 13.42	SD= 15.32		SD= 10.84	SD= 11.21	
Totals for Total Sample	Urban	**45.55**	**60.94**	**15.39**	**74.13**	**81.46**	**7.33**
		N= 153	N= 142		N= 153	N= 142	
		SD= 15.48	SD= 15.17		SD= 11.76	SD= 11.45	
	Rural	**46.19**	**61.80**	**15.61**	**73.83**	**80.88**	**7.05**
		N= 182	N= 141		N= 182	N= 141	
		SD= 14.43	SD= 13.82		SD= 10.84	SD= 9.47	
FAD Pre & Post	Urban	**44.90**	**62.55**	**17.65**	**76.66**	**86.41**	**9.75**
		N= 26	N= 26		N= 26	N= 26	
		SD= 14.88	SD= 12.81		SD= 10.10	SD= 8.67	
	Rural	**47.06**	**60.40**	**13.34**	**76.31**	**81.70**	**5.39**
		N= 82	N= 82		N= 82	N= 82	
		SD= 14.18	SD= 12.86		SD= 10.54	SD= 8.31	
Control Pre & Post	Urban	**49.06**	**60.98**	**11.92**	**74.64**	**79.92**	**5.28**
		N= 93	N= 93		N= 93	N= 93	
		SD= 15.69	SD= 15.66		SD= 12.38	SD= 11.55	
	Rural	**47.03**	**64.54**	**17.51**	**71.55**	**79.77**	**8.22**
		N= 40	N= 40		N= 40	N= 40	
		SD= 13.65	SD= 16.39		SD= 11.56	SD= 11.88	
Totals for Pre & Post	Urban	**48.15**	**61.32**	**13.17**	**75.08**	**81.34**	**6.26**
		N= 119	N= 119		N= 119	N= 119	
		SD= 15.55	SD= 15.05		SD=11.91	SD= 11.28	
	Rural	**47.05**	**61.75**	**14.70**	**74.75**	**81.07**	**6.32**
		N= 122	N= 122		N= 122	N= 122	
		SD= 13.95	SD= 14.18		SD= 11.07	SD= 9.62	

Table 23

Fourth Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Location

TreatmentGroup	Location	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Urban	**42.15**	**55.78**	**13.63**	**75.13**	**87.40**	**12.27**
		N= 43	N= 29		N= 43	v29	
		SD= 15.58	SD= 15.28		SD= 10.02	SD= 6.94	
	Rural	**39.80**	**53.16**	**13.36**	**73.49**	**81.68**	**8.19**
		N= 102	N= 94		N= 102	N= 94	
		SD= 17.44	SD= 14.82		SD= 12.13	SD= 11.05	
Control Total Sample	Urban	**43.18**	**53.14**	**9.96**	**75.53**	**80.43**	**4.90**
		N= 88	N= 99		N= 88	N= 99	
		SD= 19.83	SD= 19.15		SD= 10.77	SD= 10.83	
	Rural	**44.39**	**63.65**	**19.26**	**73.97**	**82.42**	**8.45**
		N= 57	N= 52		N= 57	N= 52	
		SD= 16.52	SD= 15.43		SD= 10.95	SD= 9.17	
Totals for Total Sample	Urban	**42.84**	**53.74**	**10.90**	**75.40**	**82.01**	**6.61**
		N= 131	N= 128		N= 131	N= 128	
		SD= 18.49	SD= 18.33		SD= 10.49	SD= 10.4	
	Rural	**41.45**	**56.90**	**15.45**	**73.66**	**81.94**	**8.28**
		N= 159	N= 146		N= 159	N= 146	
		SD= 17.21	SD= 15.81		SD= 11.69	SD= 10.40	
FAD Pre & Post	Urban	**44.44**	**56.48**	**12.04**	**76.19**	**86.99**	**10.80**
		N= 27	N= 27		N= 27	N= 27	
		SD= 16.54	SD= 15.14		SD= 10.67	SD= 6.88	
	Rural	**41.03**	**53.35**	**12.32**	**73.61**	**81.75**	**8.14**
		N= 82	N= 82		N= 82	N= 82	
		SD= 17.35	SD= 14.40		SD= 12.51	SD= 11.11	
Control Pre & Post	Urban	**45.20**	**56.15**	**10.95**	**76.92**	**81.19**	**4.27**
		N= 72	N= 72		N= 72	N= 72	
		SD= 20.02	SD= 19.28		SD= 10.68	SD= 11.27	
	Rural	**45.98**	**63.87**	**17.89**	**74.99**	**82.79**	**7.80**
		N= 51	N= 51		N= 51	N= 51	
		SD= 16.17	SD= 15.50		SD= 10.95	SD= 8.85	
Totals for Pre & Post	Urban	**45.00**	**56.24**	**11.24**	**76.72**	**82.77**	**6.05**
		N= 99	N= 99		N= 99	N= 99	
		SD= 19.05	SD= 18.17		SD= 10.63	SD= 10.55	
	Rural	**42.93**	**57.38**	**14.45**	**74.14**	**82.15**	**8.01**
		N= 133	N= 133		N= 133	N= 133	
		SD= 17.02	SD= 15.64		SD= 11.92	SD= 10.28	

Table 24

Second Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and School Type

TreatmentGroup	School Type	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Catholic	**54.94**	**63.87**	**8.93**	**69.20**	**79.46**	**10.26**
		N= 56	N= 51		N= 56	N= 51	
		SD= 14.80	SD= 15.09		SD= 14.50	SD= 12.68	
	Protestant	**49.44**	**64.59**	**15.15**	**71.11**	**84.40**	**13.29**
		N= 54	N= 29		N= 54	N= 29	
		SD= 14.12	SD= 13.47		SD= 13.55	SD= 7.78	
	Independent	**45.51**	**57.84**	**12.33**	**61.88**	**77.37**	**15.49**
		N= 60	N= 60		N= 60	N= 60	
		SD= 19.70	SD= 19.79		SD= 20.89	SD= 13.18	
Control Total Sample	Catholic	**54.94**	**64.46**	**9.52**	**64.82**	**80.46**	**15.64**
		N= 56	N= 60		N= 56	N= 60	
		SD= 14.80	SD= 15.48		SD= 19.73	SD= 11.54	
	Protestant	**51.85**	**59.45**	**7.60**	**72.41**	**78.14**	**5.73**
		N= 53	N= 51		N= 53	N= 51	
		SD= 16.41	SD= 18.79		SD= 16.44	SD= 14.21	
	Independent	**50.14**	**64.23**	**14.09**	**73.68**	**78.13**	**4.45**
		N= 38	N= 43		N= 38	N= 43	
		SD= 12.14	SD= 15.04		SD= 12.66	SD= 16.17	
Totals for Total Sample	Catholic	**52.26**	**64.19**	**11.93**	**67.01**	**80.00**	**12.99**
		N= 112	N= 111		N= 112	N= 111	
		SD= 15.68	SD= 15.23		SD= 17.38	SD= 12.03	
	Protestant	**50.63**	**61.32**	**10.69**	**71.75**	**80.41**	**8.66**
		N= 107	N= 80		N= 107	N= 80	
		SD= 15.27	SD= 17.14		SD= 15.00	SD= 12.59	
	Independent	**47.30**	**60.50**	**13.20**	**66.45**	**77.69**	**11.24**
		N= 98	N= 103		N= 98	N= 103	
		SD= 17.25	SD= 18.16		SD= 18.98	SD= 14.43	
FAD Pre & Post	Catholic	**54.40**	**63.49**	**9.09**	**67.83**	**80.17**	**12.34**
		N= 45	N= 45		N= 45	N= 45	
		SD= 14.74	SD= 15.41		SD= 14.80	SD= 12.60	
	Protestant	**53.87**	**64.58**	**10.71**	**76.04**	**84.48**	**8.44**
		N= 24	N= 24		N= 24	N= 24	
		SD= 14.52	SD= 14.45		SD= 14.33	SD= 7.63	
	Independent	**45.37**	**58.47**	**13.10**	**62.91**	**78.15**	**15.24**
		N= 49	N= 49		N= 49	N= 49	
		SD= 18.68	SD= 18.94		SD= 19.40	SD= 12.52	
Control Pre & Post	Catholic	**50.33**	**66.36**	**16.03**	**66.22**	**81.17**	**14.95**
		N= 49	N= 49		N= 49	N= 49	
		SD= 16.36	SD= 15.28		SD= 19.86	SD= 11.98	
	Protestant	**53.13**	**58.97**	**5.84**	**72.78**	**78.92**	**6.14**
		N= 44	N= 44		N= 44	N= 44	
		SD= 16.95	SD= 20.02		SD= 16.65	SD= 13.91	
	Independent	**50.15**	**68.45**	**18.30**	**73.64**	**83.49**	**9.85**
		N= 35	N= 35		N= 35	N= 35	
		SD= 12.53	SD= 12.76		SD= 13.08	SD= 10.24	
Total	Catholic	**52.28**	**64.99**	**12.71**	**66.99**	**80.69**	**13.70**

Pre & Post		N= 94	N= 94		N= 94	N= 94	
		SD= 15.66	SD= 15.33		SD= 17.55	SD= 12.22	
	Protestant	**53.39**	**60.95**	**7.56**	**73.93**	**80.88**	**6.95**
		N= 68	N= 68		N= 68	N= 68	
		SD= 16.03	SD= 18.34		SD= 15.84	SD= 12.30	
	Independent	**47.36**	**62.62**	**15.26**	**67.38**	**80.38**	**13.00**
		N= 84	N= 84		N= 84	N= 84	
		SD= 16.48	SD= 17.28		SD= 17.78	SD= 11.86	

Table 25

Third Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and School Type

TreatmentGroup	School Type	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD Total Sample	Catholic	**46.60**	**59.77**	**13.17**	**77.37**	**79.65**	**2.28**
		N= 54	N= 45		N= 54	N= 45	
		SD= 16.01	SD= 12.27		SD= 11.57	SD= 9.57	
	Protestant	**44.69**	**67.94**	**23.25**	**73.02**	**83.43**	**10.41**
		N= 50	N= 24		N= 50	N= 24	
		SD= 15.18	SD= 10.76		SD= 9.59	SD= 7.41	
	Independent	**42.86**	**58.41**	**15.55**	**75.33**	**84.07**	**8.74**
		N= 60	N= 53		N= 60	N= 53	
		SD= 13.49	SD= 12.75		SD= 10.48	SD= 8.19	
Control Total Sample	Catholic	**50.02**	**60.44**	**10.42**	**73.50**	**81.44**	**7.94**
		N= 53	N= 60		N= 53	N= 60	
		SD= 16.59	SD= 16.07		SD= 13.28	SD= 12.42	
	Protestant	**46.37**	**61.22**	**14.85**	**72.13**	**80.18**	**8.05**
		N= 61	N= 50		N= 61	N= 50	
		SD= 14.34	SD= 15.54		SD= 10.82	SD= 11.67	
	Independent	**45.15**	**63.99**	**18.84**	**72.55**	**79.09**	**6.54**
		N= 57	N= 51		N= 57	N= 51	
		SD= 13.55	SD= 15.76		SD= 11.10	SD= 10.55	
Totals for Total Sample	Catholic	**48.29**	**60.16**	**11.87**	**75.45**	**80.68**	**5.23**
		N= 107	N= 105		N= 107	N= 105	
		SD= 16.31	SD= 14.50		SD= 12.54	SD= 11.27	
	Protestant	**45.61**	**63.40**	**17.79**	**72.53**	**81.23**	**8.70**
		N= 111	N= 74		N= 111	N= 74	
		SD= 14.68	SD= 14.44		SD= 10.24	SD= 10.54	
	Independent	**43.97**	**61.15**	**17.18**	**73.98**	**81.62**	**7.64**
		N= 117	N= 104		N= 117	N= 104	
		SD= 13.51	SD= 14.51		SD= 10.83	SD= 9.70	
FAD Pre & Post	Catholic	**47.83**	**60.28**	**12.45**	**77.49**	**80.74**	**3.25**
		N= 39	N= 39		N= 39	N= 39	
		SD= 14.56	SD= 12.26		SD= 12.32	SD= 9.31	
	Protestant	**50.37**	**67.44**	**17.07**	**74.55**	**83.33**	**8.78**
		N= 22	N= 22		N= 22	N= 22	
		SD= 15.48	SD= 11.12		SD= 8.34	SD= 7.72	
	Independent	**43.68**	**58.40**	**14.72**	**76.36**	**84.35**	**7.99**
		N= 47	N= 47		N= 47	N= 47	
		SD= 13.24	SD= 13.23		SD= 9.57	SD= 8.20	
Control Pre & Post	Catholic	**51.10**	**61.02**	**9.92**	**73.70**	**81.41**	**7.71**
		N= 49	N= 49		N= 49	N= 49	
		SD= 16.23	SD= 15.77		SD= 13.70	SD= 11.48	
	Protestant	**48.03**	**61.43**	**13.40**	**74.02**	**79.26**	**5.24**
		N= 39	N= 39		N= 39	N= 39	
		SD= 14.16	SD= 15.53		SD= 11.31	SD= 12.72	
	Independent	**45.94**	**63.72**	**17.78**	**73.48**	**78.77**	**5.29**
		N= 45	N= 45		N= 45	N= 45	
		SD= 14.43	SD= 16.60		SD= 11.40	SD= 10.81	
Total	Catholic	**49.65**	**60.69**	**11.04**	**75.38**	**81.11**	**5.73**

Pre & Post		N= 88	N= 88		N= 88	N= 88	
		SD= 15.51	SD= 14.25		SD= 13.17	SD= 10.52	
	Protestant	**48.88**	**63.60**	**14.72**	**74.21**	**80.73**	**6.52**
		N= 61	N= 61		N= 61	N= 61	
		SD= 14.56	SD= 14.30		SD= 10.27	SD= 11.28	
	Independent	**44.79**	**61.00**	**16.21**	**74.95**	**81.62**	**6.67**
		N= 92	N= 92		N= 92	N= 92	
		SD= 13.81	SD= 15.13		SD= 10.55	SD= 9.92	

Table 26

Fourth Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and School Type

Treatment Group	School Type	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD	Catholic	**42.62**	**56.31**	**13.69**	**74.46**	**82.94**	**8.48**
Total Sample		N= 41	N= 42		N= 41	N= 42	
		SD= 18.26	SD= 14.05		SD= 13.76	SD= 12.67	
	Protestant	**39.09**	**50.34**	**11.25**	**73.14**	**83.12**	**9.98**
		N= 44	N= 22		N= 44	N= 22	
		SD= 16.97	SD= 15.68		SD= 11.04	SD= 10.69	
	Independent	**40.08**	**53.26**	**13.18**	**74.25**	**83.05**	**8.80**
		N= 60	N= 59		N= 60	N= 59	
		SD= 15.99	SD= 15.14		SD= 10.35	SD= 8.77	
Control	Catholic	**45.85**	**55.45**	**9.60**	**77.90**	**80.33**	**2.43**
Total Sample		N= 47	N= 49		N= 47	N= 49	
		SD= 20.10	SD= 19.88		SD= 10.33	SD= 12.23	
	Protestant	**40.09**	**58.21**	**18.12**	**69.65**	**78.76**	**9.11**
		N= 54	N= 47		N= 54	N= 47	
		SD= 18.33	SD= 18.74		SD= 10.29	SD= 9.61	
	Independent	**45.68**	**56.68**	**11.00**	**78.20**	**83.82**	**5.62**
		N= 44	N= 55		N= 44	N= 55	
		SD= 16.74	SD= 17.51		SD= 9.63	SD= 8.38	
Totals for	Catholic	**44.35**	**55.85**	**11.50**	**76.30**	**81.53**	**5.23**
Total Sample		N= 88	N= 91		N= 88	N= 91	
		SD= 19.23	SD= 17.34		SD= 12.10	SD= 12.43	
	Protestant	**39.64**	**55.70**	**16.06**	**71.22**	**80.15**	**8.93**
		N= 98	N= 69		N= 98	N= 69	
		SD= 17.64	SD= 18.09		SD= 10.72	SD= 10.10	
	Independent	**42.45**	**54.91**	**12.46**	**75.92**	**83.42**	**7.50**
		N= 104	N= 114		N= 104	N= 114	
		SD= 16.47	SD= 16.35		SD= 10.19	SD= 8.55	
FAD	Catholic	**42.62**	**56.77**	**14.15**	**74.46**	**83.08**	**8.62**
Pre & Post		N= 41	N= 41		N= 41	N= 41	
		SD= 18.26	SD= 13.90		SD= 13.76	SD= 12.80	
	Protestant	**44.86**	**49.03**	**4.17**	**74.15**	**82.65**	**8.50**
		N= 18	N= 18		N= 18	N= 18	
		SD= 18.04	SD= 15.03		SD= 11.80	SD= 10.60	
	Independent	**40.20**	**53.80**	**13.60**	**74.12**	**83.18**	**9.06**
		N= 50	N= 50		N= 50	N= 50	
		SD= 16.01	SD= 14.74		SD= 10.93	SD= 8.26	
Control	Catholic	**47.50**	**56.10**	**8.60**	**78.97**	**80.29**	**1.32**
Pre & Post		N= 43	N= 43		N= 43	N= 43	
		SD= 19.87	SD= 20.24		SD= 9.92	SD= 12.09	
	Protestant	**41.67**	**59.71**	**18.04**	**70.54**	**79.59**	**9.05**
		N= 39	N= 39		N= 39	N= 39	
		SD= 19.03	SD= 18.63		SD= 10.97	SD= 9.62	
	Independent	**47.13**	**62.44**	**15.31**	**78.45**	**85.66**	**7.21**
		N= 41	N= 41		N= 41	N= 41	
		SD= 16.10	SD= 14.95		SD= 9.66	SD= 7.83	
Total	Catholic	**45.12**	**56.42**	**11.30**	**76.77**	**81.65**	**4.88**

Pre & Post		N= 84	N= 84		N= 84	N= 84	
		SD= 19.15	SD= 17.34		SD= 12.09	SD= 12.44	
	Protestant	**42.68**	**56.33**	**13.65**	**71.68**	**80.55**	**8.87**
		N= 57	N= 57		N= 57	N= 57	
		SD= 18.62	SD= 18.14		SD= 11.26	SD= 9.95	
	Independent	**43.32**	**57.69**	**14.37**	**76.07**	**84.30**	**8.23**
		N= 91	N= 91		N= 91	N= 91	
		SD= 16.33	SD= 15.37		SD= 10.54	SD= 8.12	

Table 27

Second Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Geographic Region

Treatment Group	Region	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD	Ouest	**56.06**	**65.05**	**8.99**	**73.73**	**82.60**	**8.87**
Total Sample		N= 81	N= 77		N= 81	N= 77	
		SD= 14.76	SD= 14.94		SD= 14.11	SD= 9.48	
	Nord	**44.22**	**57.01**	**12.79**	**61.29**	**75.90**	**14.61**
		N= 89	N= 63		N= 89	N= 63	
		SD= 16.76	SD= 18.72		SD= 17.62	SD= 14.24	
Control	Ouest	**47.03**	**62.72**	**15.69**	**65.56**	**77.62**	**12.06**
Total Sample		N= 80	N= 84		N= 80	N= 84	
		SD= 14.96	SD= 16.64		SD= 18.28	SD= 12.83	
	Nord	**54.74**	**62.76**	**8.02**	**74.96**	**80.75**	**5.79**
		N= 67	N= 70		N= 67	N= 70	
		SD= 14.67	SD= 16.65		SD= 14.63	SD= 14.80	
Totals	Ouest	**51.58**	**63.84**	**12.26**	**69.67**	**80.00**	**10.33**
Total Sample		N= 161	N= 161		N= 161	N= 161	
		SD= 15.49	SD= 15.84		SD= 16.77	SD= 11.59	
	Nord	**48.74**	**60.03**	**11.29**	**67.16**	**78.45**	**11.29**
		N= 156	N= 133		N= 156	N= 133	
		SD= 16.69	SD= 17.83		SD= 17.70	SD= 14.68	
FAD	Ouest	**54.82**	**65.89**	**11.07**	**73.00**	**83.54**	**16.38**
Pre & Post		N= 60	N= 60		N= 60	N= 60	
		SD= 15.30	SD= 14.83		SD= 15.01	SD= 9.03	
	Nord	**46.12**	**57.21**	**11.09**	**61.72**	**76.76**	**10.54**
		N= 58	N= 58		N= 58	N= 58	
		SD= 17.44	SD= 17.83		SD= 17.85	SD= 13.45	
Control	Ouest	**47.75**	**64.04**	**16.29**	**66.38**	**78.73**	**15.04**
Pre & Post		N= 69	N= 69		N= 69	N= 69	
		SD= 15.17	SD= 17.14		SD= 18.01	SD= 12.84	
	Nord	**55.33**	**64.80**	**9.47**	**75.34**	**83.73**	**12.35**
		N= 59	N= 59		N= 59	N= 59	
		SD= 15.15	SD= 16.63		SD= 15.27	SD= 11.12	
Totals	Ouest	**51.04**	**64.90**	**13.86**	**69.46**	**80.97**	**11.51**
Pre & Post		N= 129	N= 129		N= 129	N= 129	
		SD= 15.58	SD= 16.07		SD= 16.95	SD= 11.45	
	Nord	**50.76**	**61.04**	**10.28**	**68.59**	**80.27**	**11.68**
		N= 117	N= 117		N= 117	N= 117	
		SD= 16.90	SD= 17.58		SD= 17.89	SD= 12.77	

Table 28

Third Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Geographic Region

Treatment Group	Region	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD	Ouest	**45.07**	**58.10**	**13.03**	**74.32**	**80.25**	**5.93**
Total Sample		N= 81	N= 62		N= 81	N= 62	
		SD= 15.53	SD= 13.60		SD= 10.62	SD= 8.16	
	Nord	**44.23**	**63.57**	**19.34**	**76.25**	**84.44**	**8.19**
		N= 83	N= 60		N= 83	N= 60	
		SD= 14.27	SD= 10.99		SD= 10.70	SD= 8.92	
Control	Ouest	**44.35**	**59.65**	**15.30**	**70.31**	**80.53**	**10.22**
Total Sample		N= 89	N= 79		N= 89	N= 79	
		SD= 13.50	SD= 15.86		SD= 12.14	SD= 12.41	
	Nord	**50.07**	**63.89**	**13.82**	**75.28**	**80.08**	**4.80**
		N= 82	N= 82		N= 82	N= 82	
		SD= 15.79	SD= 15.52		SD= 10.61	SD= 10.81	
Totals	Ouest	**44.69**	**58.97**	**14.28**	**72.22**	**80.41**	**8.19**
Total Sample		N= 170	N= 141		N= 170	N= 141	
		SD= 14.46	SD= 14.87		SD= 11.58	SD= 10.72	
	Nord	**47.14**	**63.75**	**16.61**	**75.77**	**81.92**	**6.15**
		N= 165	N= 142		N= 165	N= 142	
		SD= 15.28	SD= 13.75		SD= 10.64	SD= 10.25	
FAD	Ouest	**44.22**	**57.94**	**13.72**	**74.32**	**80.95**	**6.63**
Pre & Post		N= 54	N= 54		N= 54	N= 54	
		SD= 14.08	SD= 13.68		SD= 11.13	SD= 7.85	
	Nord	**48.87**	**63.91**	**15.04**	**78.48**	**84.73**	**6.25**
		N= 54	N= 54		N= 54	N= 54	
		SD= 14.30	SD= 11.27		SD= 9.25	SD= 8.97	
Control	Ouest	**44.80**	**60.16**	**15.36**	**71.39**	**80.00**	**8.61**
Pre & Post		N= 63	N= 63		N= 63	N= 63	
		SD= 13.78	SD= 16.17		SD= 13.03	SD= 11.95	
	Nord	**51.75**	**63.76**	**12.01**	**75.81**	**79.78**	**3.97**
		N= 70	N= 70		N= 70	N= 70	
		SD= 15.55	SD= 15.59		SD= 11.05	SD= 11.38	
Totals	Ouest	**44.53**	**59.13**	**14.60**	**72.74**	**80.44**	**7.7**
Pre & Post		N= 117	N= 117		N= 117	N= 117	
		SD= 13.86	SD= 15.05		SD= 12.23	SD= 10.23	
	Nord	**50.49**	**63.82**	**13.33**	**76.97**	**81.94**	**4.97**
		N= 124	N= 124		N= 124	N= 124	
		SD= 15.03	SD= 13.8		SD= 10.35	SD= 10.65	

Table 29

Fourth Grade Mean Percent Correct on Math and Reading Tests as a Function of Treatment Group and Geographic Region

Treatment Group	Region	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
FAD	Ouest	**36.74**	**49.96**	**13.22**	**71.29**	**79.46**	**8.17**
Total Sample		N= 72	N= 63		N= 72	N= 63	
		SD= 16.58	SD= 15.49		SD= 12.16	SD= 10.91	
	Nord	**44.21**	**57.79**	**13.58**	**76.63**	**86.77**	**10.14**
		N= 73	N= 60		N= 73	N= 60	
		SD= 16.47	SD= 13.25		SD= 10.31	SD= 8.65	
Control	Ouest	**42.77**	**57.91**	**15.14**	**74.64**	**80.99**	**6.35**
Total Sample		N= 82	N= 80		N= 82	N= 80	
		SD= 18.21	SD= 18.79		SD= 10.89	SD= 10.97	
	Nord	**44.80**	**55.47**	**10.67**	**75.28**	**81.24**	**5.96**
		N= 63	N= 71		N= 63	N= 71	
		SD= 19.07	SD= 18.42		SD= 10.83	SD= 9.56	
Totals	Ouest	**39.95**	**54.41**	**14.46**	**73.07**	**80.32**	**7.25**
Total Sample		N= 154	N= 143		N= 154	N= 143	
		SD= 17.67	SD= 17.80		SD= 11.58	SD= 10.93	
	Nord	**44.49**	**56.53**	**12.04**	**76.01**	**83.77**	**7.76**
		N= 136	N= 131		N= 136	N= 131	
		SD= 17.66	SD= 16.24		SD= 10.53	SD= 9.53	
FAD	Ouest	**37.50**	**49.28**	**11.78**	**70.64**	**79.04**	**8.40**
Pre & Post		N= 52	N= 52		N= 52	N= 52	
		SD= 16.40	SD= 14.93		SD= 12.71	SD= 10.85	
	Nord	**45.88**	**58.55**	**12.67**	**77.55**	**86.72**	**9.17**
		N= 57	N= 57		N= 57	N= 57	
		SD= 16.97	SD= 12.86		SD= 10.57	SD= 8.67	
Control	Ouest	**44.39**	**58.45**	**14.06**	**75.57**	**81.25**	**5.68**
Pre & Post		N= 74	N= 74		N= 74	N= 74	
		SD= 17.98	SD= 18.87		SD= 10.83	SD= 10.57	
	Nord	**47.24**	**60.73**	**13.49**	**76.97**	**82.78**	**5.81**
		N= 49	N= 49		N= 49	N= 49	
		SD= 19.22	SD= 17.11		SD= 10.81	SD= 9.99	
Totals	Ouest	**41.55**	**54.66**	**13.11**	**73.53**	**80.34**	**6.81**
Pre & Post		N= 126	N= 126		N= 126	N= 126	
		SD= 17.61	SD= 17.87		SD= 11.85	SD= 10.70	
	Nord	**46.51**	**59.56**	**13.05**	**77.28**	**84.90**	**7.62**
		N= 106	N= 106		N= 106	N= 106	
		SD= 17.97	SD= 14.94		SD= 10.63	SD= 9.47	

Table 30

Second Grade Mean Percent Correct on Math and Reading Tests for FAD Schools: Includes Students Taking Both Pre and Post Tests

School	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
Bon Samaritain	**53.87**	**64.58**	**10.71**	**76.04**	**84.48**	**8.44**
	N= 24	N= 24		N= 24	N= 24	
	SD= 14.52	SD= 14.45		SD= 14.33	SD= 7.63	
Saint Antoine de Padoue	**59.07**	**70.47**	**11.40**	**75.77**	**84.80**	**9.03**
	N= 13	N= 13		N= 13	N= 13	
	SD= 13.69	SD= 13.51		SD= 11.92	SD= 8.69	
Institution Joyau de Salem	**53.42**	**64.67**	**11.25**	**68.26**	**81.85**	**13.59**
	N= 23	N= 23		N= 23	N= 23	
	SD= 17.09	SD= 16.02		SD= 16.56	SD= 10.59	
Le Normalien	**38.26**	**52.97**	**14.71**	**58.17**	**74.88**	**16.71**
	N= 26	N= 26		N= 26	N= 26	
	SD= 17.33	SD= 19.92		SD= 20.78	SD= 13.37	
Notre-Dame de Lamercie	**52.51**	**60.66**	**8.15**	**64.61**	**78.28**	**13.67**
	N= 32	N= 32		N= 32	N= 32	
	SD= 14.94	SD= 15.41		SD= 14.78	SD= 13.54	
Total	**50.54**	**61.63**	**11.09**	**67.46**	**80.21**	**12.75**
	N= 118	N= 118		N= 118	N= 118	
	SD= 16.90	SD= 16.88		SD= 17.35	SD= 11.87	

Table 31

Third Grade Mean Percent Correct on Math and Reading Tests for FAD Schools: Includes Students Taking Both Pre and Post Tests

School	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
Bon Samaritain	**50.37**	**67.44**	**17.07**	**74.55**	**83.33**	**8.78**
	N= 22	N= 22		N= 22	N= 22	
	SD= 15.48	SD= 11.12		SD= 8.34	SD= 7.72	
Saint Antoine de Padoue	**35.81**	**47.87**	**12.06**	**70.71**	**74.54**	**3.83**
	N= 11	N= 11		N= 11	N= 11	
	SD= 11.56	SD= 9.05		SD= 18.02	SD= 6.77	
Institution Joyau de Salem	**42.18**	**53.26**	**11.08**	**75.98**	**81.80**	**5.82**
	N= 21	N= 21		N= 21	N= 21	
	SD= 11.03	SD= 12.12		SD= 9.10	SD= 6.94	
Le Normalien	**44.90**	**62.56**	**17.66**	**76.67**	**86.41**	**9.74**
	N= 26	N= 26		N= 26	N= 26	
	SD= 14.89	SD= 12.82		SD= 10.10	SD= 8.67	
Notre-Dame de Lamercie	**52.55**	**65.16**	**12.61**	**80.16**	**83.17**	**3.01**
	N= 28	N= 28		N= 28	N= 28	
	SD= 12.91	SD= 9.68		SD= 8.20	SD= 9.12	
Total	**46.54**	**60.92**	**14.38**	**76.40**	**82.84**	**6.44**
	N= 108	N= 108		N= 108	N= 108	
	SD= 14.31	SD= 12.83		SD= 10.40	SD= 8.60	

Table 32

Fourth Grade Mean Percent Correct on Math and Reading Tests for FAD Schools: Includes Students Taking Both Pre and Post Tests

School	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
Bon Samaritain	**44.86**	**49.03**	**4.17**	**74.15**	**82.65**	**8.50**
	N= 18	N= 18		N= 18	N= 18	
	SD= 18.04	SD= 15.03		SD= 11.80	SD= 10.60	
Saint Antoine de Padoue	**30.23**	**46.82**	**16.59**	**62.71**	**73.84**	**11.13**
	N= 11	N= 11		N= 11	N= 11	
	SD= 14.60	SD= 17.79		SD= 15.17	SD= 15.16	
Institution Joyau de Salem	**35.22**	**50.65**	**15.43**	**71.69**	**78.70**	**7.01**
	N= 23	N= 23		N= 23	N= 23	
	SD= 14.12	SD= 13.90		SD= 10.94	SD= 7.56	
Le Normalien	**44.44**	**56.48**	**12.04**	**76.19**	**87.00**	**10.81**
	N= 27	N= 27		N= 27	N= 27	
	SD= 16.54	SD= 15.15		SD= 10.68	SD= 6.89	
Notre-Dame de Lamercie	**47.17**	**60.42**	**13.25**	**78.78**	**86.46**	**7.68**
	N= 30	N= 30		N= 30	N= 30	
	SD= 17.52	SD= 10.30		SD= 10.50	SD= 10.12	
Total	**41.88**	**54.13**	**12.25**	**74.26**	**83.06**	**8.80**
	N= 109	N= 109		N= 109	N= 109	
	SD= 17.15	SD= 14.58		SD= 12.09	SD= 10.46	

Table 33

Second Grade Mean Percent Correct on Math and Reading Tests for Control Schools: Includes Students Taking Both Pre and Post Tests

School	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
Methodiste Libre de Violet	**45.34** N= 18 SD= 14.55	**53.17** N= 18 SD= 21.83	**7.83**	**62.36** N= 18 SD= 16.05	**68.75** N= 18 SD= 14.36	**6.39**
Notre-Dame du Mont Carmel	**47.00** N= 22 SD= 18.80	**64.69** N= 22 SD= 14.95	**17.69**	**58.52** N= 22 SD= 20.94	**79.32** N= 22 SD= 9.49	**20.80**
St Joseph de Bahon	**53.04** N= 27 SD= 13.83	**67.72** N= 27 SD= 15.69	**14.68**	**72.50** N= 27 SD= 16.83	**82.69** N= 27 SD= 13.67	**10.19**
Baptiste de la Grace	**58.52** N= 26 SD= 16.63	**62.98** N= 26 SD= 18.01	**4.46**	**80.00** N= 26 SD= 13.00	**85.96** N= 26 SD= 8.16	**5.96**
Mixte La Belle Etoile	**51.79** N= 6 SD= 13.69	**59.52** N= 6 SD= 14.45	**7.73**	**67.92** N= 6 SD= 12.89	**78.75** N= 6 SD= 8.18	**10.83**
Institution Classique Latremblay	**49.82** N= 29 SD= 12.50	**70.29** N= 29 SD= 11.82	**20.47**	**74.83** N= 29 SD= 13.02	**84.47** N= 29 SD= 10.47	**9.64**
Total	**51.24** N= 128 SD= 15.57	**64.39** N= 128 SD= 16.84	**13.15**	**70.51** N= 128 SD= 17.33	**81.03** N= 128 SD= 12.29	**10.52**

Table 34

Third Grade Mean Percent Correct on Math and Reading Tests for Control Schools: Includes Students Taking Both Pre and Post Tests

School	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
Methodiste Libre de Violet	**44.25**	**56.89**	**12.64**	**67.50**	**76.94**	**9.44**
	N= 16	N= 16		N= 16	N= 16	
	SD= 13.25	SD= 14.47		SD= 8.85	SD= 15.00	
Notre-Dame du Mont Carmel	**40.91**	**52.53**	**11.62**	**71.11**	**80.39**	**9.28**
	N= 23	N= 23		N= 23	N= 23	
	SD= 13.40	SD= 12.84		SD= 15.53	SD= 12.33	
St Joseph de Bahon	**60.13**	**68.52**	**8.39**	**75.98**	**82.31**	**6.33**
	N= 26	N= 26		N= 26	N= 26	
	SD= 12.94	SD= 14.40		SD= 11.69	SD= 10.84	
Baptiste de la Grace	**50.67**	**64.60**	**13.93**	**78.55**	**80.87**	**2.32**
	N= 23	N= 23		N= 23	N= 23	
	SD= 14.45	SD= 15.77		SD= 10.73	SD= 10.92	
Mixte La Belle Etoile	**42.57**	**56.95**	**14.38**	**72.59**	**75.45**	**2.86**
	N= 21	N= 21		N= 21	N= 21	
	SD= 14.64	SD= 15.05		SD= 10.21	SD= 11.81	
Institution Classique Latremblay	**48.89**	**69.64**	**20.75**	**74.26**	**81.67**	**7.41**
	N= 24	N= 24		N= 24	N= 24	
	SD= 13.89	SD= 15.86		SD= 12.52	SD= 9.13	
Total	**48.46**	**62.05**	**13.95**	**73.72**	**79.88**	**6.29**
	N= 133	N= 133		N= 133	N= 133	
	SD= 15.09	SD= 15.91		SD= 12.19	SD= 11.61	

Table 35

Fourth Grade Mean Percent Correct on Math and Reading Tests for Control Schools: Includes Students Taking Both Pre and Post Tests

School	Math Pretest	Math Posttest	Math Gain	Read Pretest	Read Posttest	Read Gain
Methodiste Libre de Violet	**45.56** N= 18 SD= 19.36	**60.28** N= 18 SD= 20.33	**14.72**	**67.23** N= 18 SD= 10.58	**77.21** N= 18 SD= 9.00	**9.98**
Notre-Dame du Mont Carmel	**40.87** N= 23 SD= 21.42	**46.41** N= 23 SD= 20.38	**5.54**	**76.84** N= 23 SD= 10.67	**77.82** N= 23 SD= 13.22	**.98**
St Joseph de Bahon	**55.13** N= 20 SD= 15.08	**67.23** N= 20 SD= 13.44	**12.10**	**81.43** N= 20 SD= 8.61	**83.13** N= 20 SD= 10.25	**1.70**
Baptiste de la Grace	**38.33** N= 21 SD= 18.55	**59.22** N= 21 SD= 17.54	**20.89**	**73.37** N= 21 SD= 10.73	**81.62** N= 21 SD= 9.89	**8.25**
Mixte La Belle Etoile	**50.94** N= 8 SD= 22.40	**48.44** N= 8 SD= 18.37	**-2.50**	**75.26** N= 8 SD= 13.11	**84.95** N= 8 SD= 10.52	**9.69**
Institution Classique Latremblay	**46.21** N= 33 SD= 14.48	**65.83** N= 33 SD= 12.03	**19.62**	**79.22** N= 33 SD= 8.71	**85.84** N= 33 SD= 7.23	**6.62**
Total	**45.53** N= 123 SD= 18.46	**59.36** N= 123 SD= 18.15	**13.83**	**76.12** N= 123 SD= 10.80	**81.86** N= 123 SD= 10.33	**5.74**