Chino Fundamental School a study of achievement

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Chino Fundamental School
A Study of Achievement
A Project Submitted to
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In Fulfillment of the Requirements of the Degree of
Master of Arts
in
Education: Administration Option
By

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APPROVED BY:
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Statement of Purpose

The United States has many unique services for its huge population, one of which is a free public education for its youth. Throughout the United States, states are collecting taxes and spending enormous amounts of money to educate their children. Community leaders, parents, and educators are constantly searching for the best way to accomplish this service.

Public elementary schools generally support a variety of teaching styles and philosophies. Staff members do not necessarily agree as to what methods or curriculum should be emphasized to provide the student with the best education. Programs vary from teacher to teacher and range from the very structured to the non-structured along the continuum. It is felt by some members of the academic community that any environment can be successful if given the right teacher. However, the student has a greater chance for success if the staff members share consistent goals and attitudes which create greater harmony and cooperation throughout the school. As a result, special programs have developed which vary from the "regular" method of education.

One type of special program is the Fundamental School approach. Fundamental Schools place great emphasis on the so-called "3 R's" - Reading, 'Riting, and 'Rithmetic. Patriot-
ism is another area which is heavily stressed. However, the most significant difference between Fundamental Schools and regular public schools is the consistent attitude of all staff members at the Fundamental School to use similar methods to educate and discipline the student. Teachers at Fundamental Schools volunteer to become staff members because they agree with the basic philosophy of the school and feel that this approach is the best one to educate the student.

Studies of the Fundamental Schools have not shown, however, any significant differences in providing a better education for elementary school children. All elementary schools vary their programs, curriculum teaching methods with the intent of providing the best educational program for the community they serve. Many community members, administrators and teachers feel that Chino Fundamental School is meeting the needs of the community. The purpose of this investigation therefore is to compare the difference on the Stanford Achievement Test scores between students at Chino Fundamental School and those of other students within other districts throughout the United States to ascertain if there are significant differences. The Stanford Achievement Test is a standardized test given to students throughout the United States as a means of measuring individual students knowledge of specific facts.

The norm-reference Model 5 was chosen by the author to compare the students in grades two through six at Chino
Fundamental School with a national representative sample of children. By analyzing the data between the pre and post-test, one of two results will be found:

1). The students at the Fundamental School will maintain, at post-testing, the same achievement status with respect to the norm group as they had at pre-testing (no treatment expectation).

2). The students at the Fundamental School will have a higher score on the posttest than the norm group, therefore, having a higher achievement status than the norm group.

By comparing the data between the pretest and posttest any significant improvement in the scores can be associated with the participation in the special program.
Delimitations

For the purpose of this investigation the following delimitations are made:

1). The study will be limited to the Stanford Achievement Test results for the 1980-81 school year.

2). The study will be limited to the literature available as of June 1981. As of this time, no articles or books have been written concerning the results of Fundamental Schools taking the Stanford Achievement Test.

3). The comparison will be limited to those students attending Chino Fundamental School during the 1980-81 school year.

4). The students at the Chino Fundamental School do not represent a cross-section of individuals who live in the United States.

5). The resulting comparison will be limited to the norm-reference test model 5.
Procedure

The writer gathered pre and posttest scores for the Stanford Achievement Test which were given during the 1980 and 1981 school year at Chino Fundamental School. The scores included only those students who were present at the school for both tests. From the data collected, the means and standard deviations were computed for each grade level. Next, the correlation between pre and posttest scores were computed and the no-treatment post expectation score was recorded. A comparison was computed between the posttest mean and the expected mean. Next the statistical significance of the difference was computed by using Norm Reference Model 5.

Project children are compared to a norm group usually comprised of a nationally representative sample of children at the same grade level. The no-treatment expectation is that the project pupils will maintain, at posttesting, the same achievement status with respect to the norm group as they had at pretesting. If their posttest status is higher, the assumption is made that the improvement resulted from participation in the special project.

Where no comparison group is available, the norm group provides a plausible estimate of no-treatment posttest scores. Even where a comparison group is available, unless it comes from the same population as the treatment group, the Norm-referenced Model offers a more defensible estimate of posttest performance at substantially less cost and effort than a comparison-group design.
The validity of the model rests on the assumption that the achievement status of a particular subgroup remains constant relative to the norm group over the pre- to posttest interval if no special treatment is provided. Empirical support for this assumption is minimal. It is conceivable that some subgroups would move up and others move down in the normal course of events. When the norm group is like the treatment group, the plausibility of the underlying assumption is greatly enhanced; thus, for example, norms for gifted children would be best for assessing a project serving such pupils.

Norm-reference Model 5 is widely applicable as it does not require a comparison group. The model requires the use of standardized tests. The same level of the same test should be used for both pre- and posttesting. Program participants may not be chosen on the basis of their pretest scores. Both pre- and posttesting must be accomplished on dates corresponding to the ones on which the test publisher collected normative data.

Based upon the data collected and the review of the literature the writer was able to make some conclusions concerning Chino Fundamental School, a special program.
Fundamental Education—History & Overview

Throughout the United States many people feel that public education has become inadequate. The 1976 Gallup Polls of the Public's Attitude Toward Education revealed that 59 percent of the public felt "the quality of education today is declining."

Elementary school education can be traced to the fifteenth century. The demand for schools arose which would give training in writing and reckoning in the commercial cities. Prior to that period in time schooling existed primarily to promote Christian spiritual interest. Consequently, the Roman Catholic Church monopolized the control of education. The commercial demand for an elementary vernacular education was restricted to larger cities. However, at the end of the Middle Ages a few elementary schools appeared in the villages and rural areas.

The Protestant Reformation introduced a new basis for elementary vernacular education, the necessity of personal study of the Scriptures in order to secure salvation. The protestant theory, the circulation of vernacular Bible, was fundamental and necessary. This created a new reading public who circulated pamphlets and discussed the controversial issues.

of the Reformation. Religious issues dominated the thoughts of Europe after the Reformation. Consequently, the elementary schools were dominated by religious ideals.

The schools of Puritan Massachusetts are good representatives of the narrow religious attitude. Because of the poor teaching methods and poor equipment used in Colonial schools up to two-thirds of the time was wasted. Very little of the teacher's activity was actual instruction. Instead, it was simply hearing recitations. The use of blackboards and slates brought about a great improvement in the students' ability to practice writing and computations. However, the Puritans learned reading and writing, occasionally arithmetic, but all in the field of theology. The fields of art, literature, and science were viewed with indifference, opposition, ignorance and superstition.

It was not until 1783 when Webster published his speller that spelling became one of the most important subjects in the curriculum. The Primer and the Bible were the primary books used to teach reading.\(^2\)

Around 1800 the Lancaster Bell system was developed in England which included many innovations in classroom management.\(^3\)

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In addition, teachers manuals by La Salle, founder of the Christian Brethren, an order of Catholic laymen who maintained free schools for the poor. These schools developed in Europe, provided many new innovations in class management in addition to the employment of the older or more competent children as teachers of the others. They stressed such things as organizing the routine to eliminate waste of time; paying special attention to classroom construction; devising apparatus; providing a careful, flexible classification of the children and in making school work an active social process.

Modern democracy with its principles of freedom and self-government, provided another stepping stone of education. Locke and the English Revolution of 1688, Rousseau and the French Revolution of 1789, and the Declaration of Independence and the American Revolution all contributed to this development. 4

John Locke's theories on education are contained for the most part in two of his works which consisted of letters to a friend. These ideas profoundly influenced Rousseau as well as other thinkers in Europe during his time. Locke emphasized physical health, learning based on natural activities, learning games and interesting story books in place of religious reading material. Locke probably didn't influence elementary school practice as much as he provided ideas for later educational leaders to follow.

Rousseau, an avid reader of Locke, went one step farther. His book "Emile" was the inspiring source of nineteenth century

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4. Ibid., page 101
His book "Emile" was the inspiring source of nineteenth century educational reforms. "Emile" was written as a book on child study and children's characteristics. His premise that the child should be treated as a child and not as a miniature adult was contrary to the accepted attitude of the time. Applying this general theory, Rousseau emphasized the following principles:

a). The physical activity of children is important, b). Motor activity with experimental investigation is fundamental in elementary school, c). Scientific problems should be part of their education, d). Premature memorizing of words spoils a child's judgement.  

These principles were used by many educational reforms to build upon their new systems of education. Secular public school interest developed throughout the educational system. The fight for secular public schools began actively in 1807 and continued without any great success until 1870. Various social changes included those produced by the factory system, religious jealousies, payment of public funds to private schools, the conception that free schools were pauper schools and local self-government by very small units were all factors which contributed to the educational system.

The Pestalozzian Movement was a major factor which reformed elementary school practice between 1800-1860. This

5. Canfield, United States in the Making, page 68.

6. Ibid., page 70.
movement was inspired by the teachings of Rousseau's revolutionary books. Elementary school curriculum changed in four areas during the nineteenth century, science, geography, arithmetic and language were emphasized.\(^7\)

In the later part of the 19th century, other schools of thought emerged. Progressive Education was developed, many based on Pestalozzi's general principles. Some however, emphasized other areas such as history and literature, these were the Herbartians. These based their principles on the teachings of Johann Herbart.\(^8\)

By 1880, American schools studied American history for patriotic purposes. At this time, new interesting developments were occurring in American elementary education. Along with the emphasis in patriotism, correlation of courses of study became important and the methodical treatment of every subject complied into units of instruction. Disciples of Froebel established Kindergarten and an elementary school training manual was developed. America experienced a tremendous migration of people during the later part of the 19th century, the country's population doubled. Throughout the country an effort to reach the lower portions of the controls held by the rest of society prevailed.\(^9\)

Many schools of thought were born from these desires. Horace Mann, for example, rejected the methods of previous

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7. Ibid., page 72  
8. Ibid., page 74  

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generations and sought to have non-sectarian morality taught in the schools. Although many of Mann's ideals, advocacy of Pestalozzian educational ideals did not change American Education they are included in the foundation which shaped it. C.W. Parker another pioneer of American Education promoted ideals which had sprouted from the thinking of Pestalozzi, Herbart, and Froebel.

John Dewey, like Parker, used previous teachings and some new ideals to teach young people, by experience not rote. The Progressive influence in American education has brought about the birth of the movement which we see in existence today: the Essentialists.  

The Essentialists (a group consisting of religious and community leaders), emerged during the 1930's. They insisted that the schools first and all-important business is to ground its pupils effectively in fundamentals, to wit, "reading, writing, arithmetic, history, and English", in addition to training students in discipline and obedience.

The Essentialists movement was not strong enough to have an overwhelming influence on American education but it has influenced a segment of the public in the 1970's and 80's which favors a back-to-basics movement. Today they are referred to as the Fundamentalists. 

Fundamentalists have become very disenchanted with the

10. Brodinsky, Defining the Basics, page 10
11. Ibid., page 12
quality of the public schools product and the permissive attitude which peaked in the sixties. They want a conservative approach to education where basic Anglo Saxon values are stressed.

Fundamentalists view education as the means of transmitting and preserving the dominant culture. In addition, because of the uniformity in teaching method, subject matter and behavior, many "extras" can be eliminated from the school's budget and consequently, reducing the cost of operation.

It is important to note that no two Fundamental Schools are exactly the same in operation. They are established because of the unique needs of the community. Since communities' values, desires, and needs, vary greatly, so do their Fundamental Schools.

According to the Council for Basic Education, the first Fundamental School was established in San Geroninio, California in the early 1970's. Since then, many other communities have felt it necessary to establish other Fundamental Schools.

Due to the urgings of parents and school board members, Fundamental Schools range from California to New York and Florida to Wisconsin. In California, there are Fundamental Schools in Cupertino, Lagunitas, Monterey Peninsula, Mt. Diablo, Palo Alto, Pasadena, San Diego and others are emerging yearly.

These schools include in their curriculum certain basic subject areas. These include reading, writing, spelling and

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computations. History, heritage and government also are generally taught. Other concepts stressed include discipline, competitive spirit, accountability, patriotism, and the reinforcement of parental attitudes and values. The amount of stress given to each area depends on the local school board and the community needs.
The back-to-basics movement affected a group of parents and one school board member in the community of Chino, California in the fall of 1976. By word of mouth interested parents who shared common interests in the Fundamental School concept met and a committee was selected. The committee was given the task of visiting several Fundamental Schools, combining the information collected and presenting it at a general meeting. This small group visited Fundamental Schools in California including Cupertino and Pasadena. The committee then reported its findings to all the interested parents at a public meeting held at the community center during the Winter Quarter of 1977. At this time, another committee was organized to prepare a statement to present before the school board as a proposal to start a Fundamental School within the district. Due to the strong support of the proposal the Chino Unified School District initiated a study to determine if the entire community was in favor of a Fundamental School. The response was very positive. A school site and principal were selected and through the community meeting process a program emerged which the parents felt would meet the needs of their children.

During the Spring Quarter of 1977 a flyer was sent throughout the district announcing that interested personnel should apply for teaching positions. Those who indicated
an interest were interviewed by the newly appointed principal, district personnel and interested parents. Each prospective teacher had to share certain common goals: discipline, patriotism, a belief that certain basics in the curriculum should be stressed and the willingness to devote long hours to insure that the program would be successful were all prerequisites.

The next step was the development of the curricula. They were written with the support of staff, parents, and administration. It was agreed that the curricula would stay within the district guidelines, only the emphasis would be changed. The emphasis would be on reading, writing, and mathematics. Patriotism and discipline would also be given strong consideration. The administration and staff did not want the fundamental School to be considered a "Maverick School" but instead an alternative program which might benefit students. It was agreed upon by the administration and staff that homework and a dress code would be mandatory. Pupils in Kindergarten through third grade would be assigned one-half hour of homework per evening while grades four through six would receive one hour. The dress code was kept very simple and included such things as: no open-toe shoes, spaghetti-strap dresses, or monogramed tee shirts were allowed.

Because the Fundamental School is a "community school" communication with it's parents is of vital importance. A newsletter written by the parents was to be published monthly as well as a "Meet the Teacher Day" which was held several
days before school started. Two forms were devised to notify the parents when their children was experiencing any problems or showing outstanding skills or characteristics. These were to be preceded by phone calls or written messages. Parent-teacher general meetings were to be held once a month.

The 1978-79 school year began with great enthusiasm. Administration, staff, and parents were all determined to do whatever necessary to make Chino Fundamental School successful. They stressed reading, math, spelling, and English. Constant communication and evaluation between parents and staff was practiced. Parent support was very high as evident by the large number who attended meetings and offered assistance to classroom teachers. Even though the school's basic philosophy was stressing the "basics" extra curricular activities such as can drives, jog-a- thons, picnics, and various holiday parties were not excluded.

At the end of the 1978-79 school year an evaluation of the school was sent to each students parents. The response was highly favorable, ninety-one percent of the parents returned the questionnaire which was used as a tool to plan for the 1979-80 school year.

The parent survey highlighted the following areas: satisfaction with the child's academic progress, basic skills and disciplines, student attitudes, report cards, homework, dress code, and citizenship/values education.

Satisfaction with Child's Academic Progress
Eighty-one percent of the parents were more satisfied with their child's academic progress this year than in the past. Eighty percent reported that their child's progress in the areas of reading, writing, spelling, arithmetic, and citizenship/discipline was better this year compared to past years.

**Basic Skills and Discipline**

Nearly all ninety-six percent believed that the Fundamental School's program is fulfilling its objective of placing greater emphasis on basic skills and discipline. Half of the parents would even like to see more emphasis on basic skills. Eighty-four percent felt that their child had adequate opportunity to participate in physical education, art, and music. Almost all ninety-four percent were satisfied with the discipline maintained in the Fundamental School. Only a small number, two percent were dissatisfied.

**Students Attitudes**

Eighty percent of the parents reported that their child's attitude toward school was better this year. Nearly the same number of parents, seventy-four percent, believed that their child's attitude at home was also better this year. This attitude change was based completely on the observation and opinion of the parent.

**Report Cards**

A very large number, ninety percent of their parents preferred a card which included letter grades.
Homework

An overwhelming number, ninety-two percent believed that the homework their child received this year was realistic and meaningful.

Dress Code

Eighty-eight percent were satisfied with the Fundamental School's dress code. There was more satisfaction with the dress code among parents with students in grades 4-6, ninety-two percent than for parents with students in grades K-3, eighty-seven percent.

Citizenship and Values Education

A large number of parents eighty-eight percent would like to see even more emphasis on citizenship and values education in the Fundamental School. Only a small number five percent felt there was enough emphasis.

During the second year, the Fundamental School's favorable reputation within the community became even more widespread. Because the school was operating at capacity attendance, many parents put their children on waiting lists in order to allow them to attend the school. Based upon the questionnaire, parent input and their own observations, the administration and staff made no changes in the curricula and school procedures. As the 1979-80 school year ended, a second questionnaire was sent to the parents and ninety-six percent responded.

The results of the parent survey were as follows:

Satisfaction with Child's Academic Progress

Eighty-six percent of the parents were more satisfied
with their child's academic progress this year than in the past. Ninety percent reported that their child's progress in the areas of reading, writing, spelling, arithmetic, and citizenship/discipline was better this year compared to past years.

**Basic Skills and Discipline**

Nearly all ninety-four percent believed that the Fundamental School's program is fulfilling its objective of placing greater emphasis on basic skills and discipline. Eighty-four percent felt that their child had adequate opportunity to participate in physical education, art, and music. Almost all ninety-eight percent were satisfied with the discipline maintained in the Fundamental School. Only a small number, one percent were dissatisfied.

**Student Attitudes**

Seventy-seven percent of the parents reported that their child's attitude toward school was better this year than in preceding years. Nearly the same number of parents, seventy-four percent believed that their child's attitude at home was also better this year than in preceding years. Once again, this attitude change was based upon whatever criteria each parent chose.

**Report Cards**

A very large number, ninety-three percent of the parents preferred a report card which included letter grades.

**Homework**

A great number ninety-three percent, believed that the homework their child received that year was realistic and
meaningful.

Once again the questionnaire was used as an evaluation tool to make adjustments for the 1980-81 school year which was felt by the administration, staff, and community as the most successful thus far. The school has now been in existence for three years.
DATA ANALYSIS

Data was gathered for each grade level of the school. The obtained information is included in Tables I-V. The tables display the observed mean pretest scale score, the observed mean posttest scale score, an expected mean posttest scale score, a pretest standard deviation, a posttest standard deviation, a score which shows the correlation between the pre and posttest scores, the number of students tested, the number of degrees of freedom, and the difference between the expected and observed mean posttest scale scores. For each grade level there is a reading achievement table, math achievement table and reading and math achievement graph which shows the grades mean percentile ranking as compared to the national more group. In addition to a table and graph, a narrative summarizes the results of the computations using the norm-reference model 5 discussed in the procedure section. The statistical significance of the difference of the scores is stated as the score as well as the degrees of freedom, df, and p the probability of the computed t.
## READING AND MATH ACHIEVEMENT
### GRADE 2

### TABLE I

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<th>Observed Mean Pretest Scale Score</th>
<th>Observed Mean Posttest Scale Score</th>
<th>Expected Mean Posttest Scale Score</th>
<th>Difference Between Students</th>
<th>Number of Students</th>
<th>Pretest Standard Deviation</th>
<th>Posttest Standard Deviation</th>
<th>Correlation Between Pre and Posttest Scores</th>
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<td>71</td>
<td>12.20</td>
<td>10.16</td>
<td>.61</td>
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Graph I
Reading and Math Achievement
Mean Percentile Ranks
Grade 2

71 pupils
DATA ANALYSIS FOR TABLE I

Grade 2 Reading

Table I displays the mean total reading pretest and posttest scores for grade 2 students. In addition, Table I includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest score.

The observed grade 2 total reading posttest score was lower than the expected posttest score ($t = -2.03$, $df = 70$, $p < .025$).

Grade 2 Math

Table I shows the mean total math pretest and posttest scores for grade 2 students. It also includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest score.

The observed grade 2 total math posttest score was less than the expected posttest score ($t = 1.98$, $df = 70$, $p < .05$).

While the second grade students did not score at or above the expected posttest score, their observed posttest reading and math scores still remained in the high average compared to the national norm group (see graph I).
# READING AND MATH ACHIEVEMENT
## GRADE 3
### TABLE II

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<th>Observed Mean Pretest Score</th>
<th>Observed Mean Posttest Score</th>
<th>Expected Mean Posttest Scale Score</th>
<th>Difference Between Scores</th>
<th>Number of Students</th>
<th>Pretest Standard Deviation</th>
<th>Posttest Standard Deviation</th>
<th>Correlation Between Pre and Posttest Scores</th>
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<td>.81</td>
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<td>139.13</td>
<td>149.66</td>
<td>152.00</td>
<td>-2.35</td>
<td>119</td>
<td>10.62</td>
<td>11.53</td>
<td>.82</td>
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Graph II
Reading and Math Achievement
Mean Percentile Ranks
Grade 3

Reading Math

Pupils 71
DATA ANALYSIS FOR TABLE II

Grade 3 Reading

Table II displays the mean total reading pretest and posttest scores for grade 3 students. In addition, Table III includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest scores.

The observed grade 3 total reading posttest score was higher than the expected posttest score ($t = 2.44$, $df = 118$, $p < .01$).

Grade 3 Math

Table II shows the mean total math pretest and posttest scores for grade 3 students. It also includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest score.

The observed grade 3 total math posttest scores was less than the expected posttest score ($t = 3.76$, $df = 118$, $p < .0005$).

The third grade observed reading posttest mean reading score was higher than the expected posttest score however, it was not different beyond chance expectation. The third grade math posttest mean score was lower than the expected posttest score. Both groups of scores though still remain in the high average compared to the national norm group (see graph II).
<table>
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<th>Observed Mean Posttest Scale Score X</th>
<th>Observed Mean Posttest Scale Score Y</th>
<th>Expected Mean Posttest Scale Score Y</th>
<th>Difference Between Y- \bar{Y}</th>
<th>Number of Students</th>
<th>Pretest Standard Deviation Sx</th>
<th>Posttest Standard Deviation Yx</th>
<th>Correlation Between Pre and Posttest Scores</th>
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<td><strong>READING</strong></td>
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<td>160.87</td>
<td>166.00</td>
<td>-5.13</td>
<td>60</td>
<td>14.75</td>
<td>15.81</td>
<td>.79</td>
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<tr>
<td><strong>MATH</strong></td>
<td>150.15</td>
<td>160.47</td>
<td>162.00</td>
<td>-1.53</td>
<td>60</td>
<td>11.37</td>
<td>12.90</td>
<td>.80</td>
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Graph III
Reading and Math Achievement
Mean Percentile Ranks
Grade 4

Pretest
Posttest
Norm

Reading
Math

Pupils 119
DATA ANALYSIS FOR TABLE III

Grade 4 Reading

Table III displays the mean total reading pretest and posttest scored for grade 4 students. In addition, Table V includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest scores.

The observed grade 4 total reading posttest score was lower than the expected posttest score ($t = 3.92$, $df = 60$, $p < .0005$).

Grade 4 Math

Table III shows the mean total math pretest and posttest scores for grade 4 students. It also includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest scores.

The observed grade 4 total Math posttest score was less than the expected score ($t = 2.51$, $df = 59$, $p < .01$).

While the fourth grade students did not score at or above the expected posttest score, their observed posttest reading and math scores still remained in the high average compared to the national norm group (see graph III).
# Reading and Math Achievement
## Grade 5
### Table IV

<table>
<thead>
<tr>
<th>Observed Mean Pretest Scale Score X</th>
<th>Observed Mean Posttest Scale Score Y</th>
<th>Expected Mean Posttest Scale Score Ŷ</th>
<th>Difference</th>
<th>Number of Students</th>
<th>Standard Deviation of Pretest Scores Sx</th>
<th>Standard Deviation of Posttest Scores Yx</th>
<th>Correlation Between Pretest and Posttest Scores</th>
<th>Reading</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>160.70</td>
<td>172.74</td>
<td>170.00</td>
<td>2.74</td>
<td>42</td>
<td>12.31</td>
<td>17.84</td>
<td>.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>159.43</td>
<td>169.39</td>
<td>171.00</td>
<td>-1.62</td>
<td>42</td>
<td>14.07</td>
<td>12.96</td>
<td>.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Graph IV
Reading and Math Achievement
Mean Percentile Ranks
Grade 5

- Pretest
- Posttest
- Norm

Reading  |  Math
---|---
64 | 70
50 | 62
60 | 50

Pupils 42
Grade 5 Reading

Table IV displays the mean total reading pretest and posttest scores for grade 5 students. In addition, Table VII includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest scores.

The observed grade 5 total reading posttest score was higher than the expected posttest score ($t = 1.67$, $df = 41$, $p = .01$).

Grade 5 Math

Table IV shows the mean total math pretest and posttest scores for grade 5 students. It also includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest scores.

The observed grade 5 total math posttest score was less than the expected posttest score ($t = 1.35$, $df = 41$, $p = .01$).

The fifth grade observed reading posttest mean score was not different beyond chance expectation. The fifth grade math posttest mean score was lower than the expected posttest. Both groups of scores though remained in the high average compared to the national norm group (see graph IV).
## READING AND MATH ACHIEVEMENT

### GRADE 6

**TABLE V**

<table>
<thead>
<tr>
<th>Observed Mean Pretest Scale Score X</th>
<th>Observed Mean Posttest Scale Score Y</th>
<th>Expected Mean Posttest Scale Score Ŷ</th>
<th>Difference Between Ŷ - Ŷ</th>
<th>Number of Students</th>
<th>Pretest Standard Deviation Sx</th>
<th>Posttest Standard Deviation Yx</th>
<th>Correlation Between Pre and Posttest Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>READING</td>
<td>166.06</td>
<td>179.69</td>
<td>173.00</td>
<td>6.69</td>
<td>54</td>
<td>12.33</td>
<td>15.04</td>
</tr>
<tr>
<td></td>
<td>164.46</td>
<td>178.49</td>
<td>172.00</td>
<td>6.49</td>
<td>55</td>
<td>13.32</td>
<td>13.93</td>
</tr>
</tbody>
</table>


Graph V
Reading and Math Achievement
Mean Percentile Ranks
Grade 6

Reading

Pretest
Posttest
Norm

Math

Pupils 54
Grade 6 Reading

Table V displays the mean total reading pretest and posttest scores for grade 6 students. In addition, Table IX includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest scores.

The observed grade 6 total reading posttest score was higher than the expected posttest score (t = 5.23, df = 53, p < .0005).

Grade 6 Math

Table V shows the mean total math pretest and posttest scores for grade 6 students. It also includes the standard deviation, correlation between the pretest and posttest mean scores and expected posttest score.

The observed grade 6 total math posttest score was higher than the expected posttest score (t = 5.01, df = 54, p < .0005).

The sixth grade students observed reading and math post-test scores were higher than the expected posttest scores. Both groups of scores were in the high average compared to the national norm group (see graph V).
RESULTS AND CONCLUSIONS

Upon analyzing the data, there are two conclusions which can be drawn. Students in grades three, five, and six had higher observed mean posttest reading scale scores than were expected. Students in grade three were expected to have a mean posttest scale score of 146 but instead scored at 147.83. The students in grade five were expected to have a mean posttest scale score of 170; but they scored at 172.74. Finally the sixth grade students were expected to have a mean posttest scale score of 173 but their posttest scale score was 179.69. In grade five however, the observed mean and expected posttest scale scores were not different beyond chance expectations.

Students in grade six had higher observed mean posttest math scale scores than were expected. The expected mean posttest scale score was 172.00 while the observed mean posttest scale score was actually 178.49. Norm-reference Model 5 states that if the posttest status of the alternative group children is higher than the norm group the improvement resulted from participation in the special project. Therefore, children in grades three and six seem to be benefiting from the special Fundamental School Program.

Grades two, three, four, and five students did not score at or above the expected posttest scale score; however observed posttest achievement scores still remain in the high to
average range compared to the national norm group (see graphs one through four). Therefore, participation in the special project seems to have an effect, although this effect has not had as great of a significance as was shown in grades three and six.
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