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ABSTRACT

This report evaluates the effectiveness of a reading program known as "The Reading Renaissance/Accelerated Reader Program" as implemented at Gardner Middle School in San Manuel, Arizona, during the period of April 1997 to April 1998. Before the program was implemented, students were achieving at a low level in reading. Students in the seventh and eighth grades were pretested and posttested with the Gates-MacGinitie Reading Tests Form K (pretest) and Form L (posttest). The mean pretest scores and the mean posttest scores were compared using t tests to determine if there were statistically significant changes (gains or losses). Gates-MacGinitie Test scores were presented as Extended Scale Scores and Grade Equivalents as recorded in categories of Vocabulary, Comprehension, and Total Scores. Total score represent Vocabulary and Comprehension scores combined. For the 1997-98 school year, the total population of 282 students, representing all seventh and eighth grade students, participated in the program. In summary, students showed statistically significant improvement in Vocabulary and in Total Scores (Vocabulary and Comprehension combined) in all areas as recorded in Extended Scale Scores and Grade Equivalent scores. Many aspects of the Reading Renaissance/Accelerated Reader Program mirror the School-to-Work concept in the way the program addresses accountability for both students and educators. Contains 12 tables of data; appended are a description of Gates-MacGinitie Reading Tests and a summary of test characteristics. (NKA)

THE READING RENAISSANCE/ ACCELERATED READER PROGRAM

PINAL COUNTY SCHOOL-TO-WORK EVALUATION REPORT GARDNER MIDDLE SCHOOL, SAN MANUEL PINAL COUNTY, ARIZONA

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EXECUTIVE SUMMARY

The purpose of this evaluation report was to determine the effectiveness of a reading program known as The Reading Renaissance/Accelerated Reader Program as implemented at Gardner Middle School in San Manuel, Arizona, during the period of April 1997 to April 1998. Students in the 7th and 8th grades were pretested and posttested with the Gates-MacGinitie Reading Tests Form K (pretest) and Form L (posttest). The mean pretest scores and the mean posttest scores were compared using t tests to determine if there were statistically significant changes (gains or losses). Gates-MacGinitie Reading Test scores were presented as Extended Scale Scores and Grade Equivalents as recorded in categories of Vocabulary, Comprehension, and Total Scores. Total Scores represent Vocabulary and Comprehension scores combined.

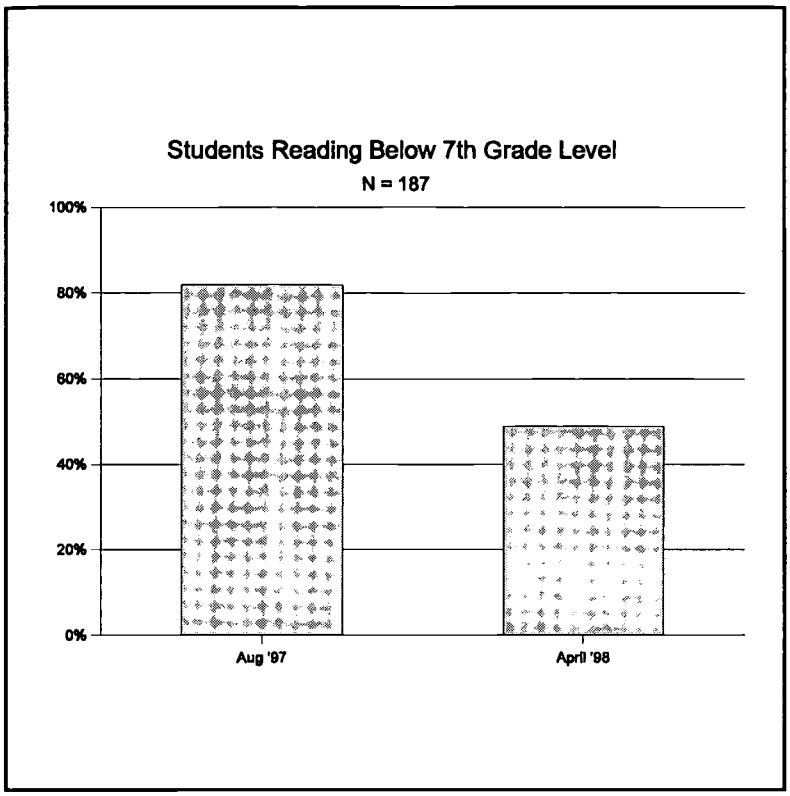
The communities which the school district serves, San Manuel and Mammoth, have three major job markets: BHP Copper, The Biosphere, and the San Manuel Healthcare Center. A significant number of students that flow through the school district eventually work for one of these three entities. San Manuel's main employer is the Broken Hill Properties Company Limited (BHP Copper). As such, San Manuel is the largest underground operation in the United States and one of the largest underground copper mines in the world. As shown by previous reading test results at Gardner Middle School, not all students have developed reading skills to an acceptable level. The problem has become so pronounced that BHP Copper Co. has instituted a comprehensive reading test for all prospective employees. Only those who show strength in this skill are eligible for employment. BHP has found this lack of reading skill prevalent enough that they have set up a program to further develop this skill among their employees. The information in this report serves interests beyond San Manuel, Arizona and Pinal County. It addresses the concerns of Morrison Institute and the State of Arizona -- as well as School-to-Work Partnerships around the country. Some of these concerns and issues include the following:

- Does a specific STW program prepare young people to enter the work force with the appropriate skills?
- Does the program address the concern of how to involve communities in helping to prepare their young people for the future?
- Does the program operate on the belief that curricula should link learning to the world beyond the classroom, and does it allow students to explore ideas based on their own interests?
- Does the program operate on the basis of team-work, partnership governance, and working with businesses in the community?
- Can the program be replicated by other interested parties?

In the Spring of 1995, Gardner Middle School administrators administered their first Gates-McGinitie Reading test and were concerned to see how low the reading levels of the students were. The results of this test scored as Grade Equivalents showed a mean score 5.5 grade level for seventh graders and a mean score of 6.5 grade level for eighth graders. Further analysis of the results revealed that approximately 75% of the student body were reading below their grade level. Searching for some way to help raise the reading skills of their students, Language Arts teacher Chaille McGrew and Gardner Middle School were referred by a Northern Arizona University professor to a reading program in Page, Arizona. That contact lead them to their first introduction to the Reading Renaissance/Accelerated Reader Program.

After receiving information about the program and feeling it was exactly what was needed, the school purchased their first test disks and sets of books. McGrew and program administrators started a very basic trial run of the program during the Spring semester of 1996-1997. It was at that time that Ms. McGrew was made aware of the School-to-Work Grant program and subsequently wrote a grant, which was approved. With part of the grant money, three staff members including McGrew went to San Antonio, Texas for a three-day training seminar. At that point, the staff had gained perspective on how 'basic' their first attempt was. Ms. McGrew then spent the remainder of the summer contacting businesses to support the program and organize the 'newly understood' reading program.

Last Spring of 1998, Ms. McGrew presented the program's progress report to the school board -- they were impressed enough to vote the same night to give program administrators $5,000 to buy more books and test disks. Program administrators now have over 2,000 books in the program and hope to be adding to that number each year. The primary school (Grades K-3) is starting the program this year (1998-1999), and the remedial reading class at the District's high school is also set to utilize the program. Both the San Manuel Public Library and the Mammoth Public Library have placed their full support behind this program by allowing Gardner Middle School program administrators to utilize the libraries' facilities and equipment to enable students to further improve their reading skills during the summer. Both libraries use volunteers to help man their facilities. These community members were also willing to give their time to support the efforts of the students.



Results. There were three categories of scoring -- Vocabulary, Comprehension, and Total Scores (Vocabulary and Comprehension combined). Scores were recorded as Extended Scale Scores (ESS) and Grade Equivalents (GE) (see definitions below). Students showed statistically significant gains in Vocabulary in all areas from pretest to posttest as an overall group and at each grade level, as recorded in Extended Scale Scores and Grade Equivalents. Students showed significant gains in Comprehension from pretest to posttest as an overall group and at each grade level, as recorded in Extended Scale Scores -- but not in Grade Equivalent scores. Students did show a gain in Comprehension in Grade Equivalent scores, but not statistically significant gains. Students showed statistically significant gains in Total Scores (Vocabulary and Comprehension combined) from pretest to posttest as an overall group and at each grade level, as recorded in both Extended Scale Scores and Grade Equivalent scores. In summary, students showed statistically significant improvement in Vocabulary and in Total Scores (Vocabulary and Comprehension combined) in all areas as recorded in Extended Scale Scores and Grade Equivalent scores. In the category of Comprehension, students showed statistically significant gains as recorded in Extended Scale Scores. Students did show a gain in Comprehension in Grade Equivalent scores, but not statistically significant gains.

Extended Scale Score (ESS): An equal-unit scale extending from the lowest achievement in Grade 1 to the highest achievement in Grade 12. It is developed in a way that progress in reading

can be followed over a period of years.

Grade Equivalent (GE): Tells the grade level for which the score would have been the median score, if the test had been given at that grade level. Scores range from 1.0 to 12.9. A GE of 6.0 means that the student's score is about the same as would be expected of an average student in September of Grade 6, if that student had taken the same test. A GE of 6.5 for an individual would mean that the individual's score represents a level of performance at Grade 6, month of February. The second number after the decimal represents the month of the school year, with 0 starting at September i.e., .0 is September, .1 is October, .2 is November etc.

Statistics Definitions

N (Number); The number of subjects within the sample.
M (Mean or Average); The average of the scores.
SD (Standard Deviation); The variability of scores in the distribution.
Diff (Difference); Difference between the pretest and posttest means. This indicates gains or losses from pretest to posttest.
T Test; Used to determine whether or not the difference between two means arose by chance.
p (probability); Asks the question, 'How likely is it that the differences between these variables were a random event?' If the 'p' value is less than .05 it is statistically significant, and indicates that differences between pretest scores and posttest scores are not a random or 'chance' event.

Seventh-grade students in the category of Total Scores as recorded in Extended Scale Scores showed a pretest mean of 521.11 and a posttest mean of 540.85. The difference showed a gain of 19.74, and a t test analysis showed a statistically significant gain (improvement) from pretest to posttest with p = .000. Eighth-grade students in the category of Total Scores as recorded in Extended Scale Scores showed a pretest mean of 530.83 and a posttest mean of 570.36. The difference showed a gain of 39.53, and a t test analysis showed a statistically significant gain (improvement) from pretest to posttest with p = .000.

Total Scores - ESS Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	521.11	45.78	540.85	48.62	19.74	6.36	.000
Grade 8	94	530.83	48.29	570.36	80.04	39.53	6.06	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

Seventh-grade students in the category of Total Scores as recorded in Grade Equivalent scores showed a pretest mean of 5.54 and a posttest mean of 6.32. The difference showed a gain of .78. A t test analysis showed a statistically significant gain (improvement) from pretest to posttest with p = .000. Eighth-grade students in the category of Total Scores as recorded in Grade Equivalent scores showed a pretest mean of 5.61 and a posttest mean of 6.88. The difference showed a gain of 1.27. A t test analysis showed a statistically significant gain (improvement) from pretest to posttest with p = .001.

Total Scores - Grade Equivalent Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	5.54	1.99	6.32	2.43	.78	4.09	.000
Grade 8	94	5.61	2.28	6.88	3.21	1.27	3.44	.001

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

As an overall group in the area of Total Scores (Vocabulary and Comprehension combined) as recorded in Extended Scale Scores, students showed a pretest mean of 525.89 and a posttest mean of 555.37. The difference (Diff) showed a gain of 29.48. A t test analysis showed a statistically significant gain (improvement) from pretest to posttest with p = .000.

Total Scores - ESS Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
7th & 8th	191	525.89	47.16	555.37	67.45	29.48	8.10	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

As an overall group in the area of Total Scores (Vocabulary and Comprehension) as recorded in Grade Equivalent scores, students showed a pretest mean of 5.58 and a posttest mean of 6.59. The difference showed a gain of 1.01. A t test analysis showed a statistically significant gain (improvement) from pretest to posttest with p = .000.

Total Scores - Grade Equivalent Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
7th & 8th	191	5.58	2.13	6.59	2.85	1.01	4.95	.000

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

SCHOOL-TO-WORK

School-to-Work (STW) is a legislative initiative passed by Congress and signed by President Clinton in 1994. It is the only federal initiative under the jurisdiction of two departments -- Education and Labor. It represents a systemic approach towards curricula that emphasizes school-based activities with work-based activities, and the connection between the two. STW is an initiative that encourages students, parents, and entire communities to band together in a concerted effort to connect the activities of the classroom with the demands of the work place. Career awareness and development in the classroom is integrated with business consortiums that provide job-shadowing activities, co-op work experiences, internships, and actual employment. It helps prepare students for the world of work by creating relationships with potential employers on what types of skills students need to become qualified for and compete in the market place.

The Pinal County School-to-Work Partnership was organized under the federal School-to-Work Opportunities Act of 1994 -- which directs that all of America's children will be prepared for economic self-sufficiency through exposure to career choices and pathways as part of their educational experience. All school districts, colleges and universities, economic development offices, employers, professional organizations, labor unions, community agencies serving youth, governmental entities, apprenticeship sponsors and many others are automatically part of the partnership and are invited to assist with this undertaking.

The goal of the partnership is to establish an enduring system in which many individual agencies and projects join in achieving the task set out under the law. Pinal County School to Work initiatives include contracts with existing groups whose services help tie curriculum-driven learning to worksite applications, community wide seminars during which ideas, techniques and tactics are shared, publications that document and describe existing successful school to work activities, and a competitive mini-grant process to provide seed money for new, easily replicated school to work ventures that partner educators and employers in workforce development.

PROGRAM DESCRIPTION

The Community

Gardner Middle School is located in San Manuel, Arizona, located 50 miles Northeast of Tucson. General demographics of the San Manuel community include the following:

- Total population, 4,009
- 0-17 years of age, 37.5%
- 18-65 years of age, 57.6%
- Over 65, 4.9%
- Per Capita Income, $9,471
- Median Household Income, $29,058
- Mammoth-San Manuel Unified District 8 Per Pupil Expenditure, $7,081
- Mammoth-San Manuel Unified District 8 Student/Teacher Ratio, 16:1

San Manuel's main employer is the Broken Hill Properties Company Limited (BHP Copper). As such, San Manuel is the largest underground operation in the United States and one of the largest underground copper mines in the world. San Manuel consists of a block-caving underground copper mine, a 62,000 ton-per-day concentrator, a 1,300,000 ton-per-year smelter with a 3,000 ton-per-day acid plant and a 345,000 ton-per-year electrolytic refinery, and a 180,000 ton-per-year rod plant. San Manuel produced 107,000 tons of copper in the fiscal year that ended May 1, 1997. BHP's San Manuel smelter accounts for about 25 percent of the U.S. copper smelting capacity.

The communities which the school district serves, San Manuel and Mammoth, have three major job markets: BHP Copper, The Biosphere, and the San Manuel Healthcare Center. A significant number of students that flow through the school district eventually work for one of these three entities. All three facilities, like all other organizations beyond this area, need workers with good basic skills -- reading being one of those skills. As shown by previous reading test results at Gardner Middle School, not all students have developed reading skills to an acceptable level. The problem has become so pronounced that BHP Copper Co. has instituted a comprehensive reading test for all prospective employees. Only those who show strength in this skill are eligible for employment. BHP has found this lack of reading skill prevalent enough that they have set up a program to further develop this skill among their employees.

The Reading Renaissance Program

The main elements of Reading Renaissance are designed to empower the classroom teacher to motivate and manage extensive amounts of in-class reading practice time, to monitor student performance, and to intervene with individualized strategies for students. An hour of reading practice daily, in grade-appropriate combinations of Read To, Read With, and Independent reading activities is the program's cornerstone. Reading practice time is integrated in a Reading Workshop approach that permits the teacher to use mini-lessons to present appropriate skills; while students are reading, teachers monitor each student's reading activity by taking the Status of the Class, provide intervention assistance to at-risk students, and model reading themselves.

The Role of Accelerated Reader Within Reading Renaissance

The Accelerated Reader is a computerized reading management program, which provides teachers a method to assess individual achievement. Individualized diagnosis and intervention techniques allow teachers to detect when students are struggling and help each student concentrate practice within his or her zone of proximal development (ZPD). Students go to the library and check out a book from the designated titles at a difficulty level appropriate for their current reading level. They read the book, take the computerized test (Accelerated Reader), and receive points based on the length and difficulty of the book plus his/her score on the test. At Gardner Middle School, these points go towards a goal that was assigned to the student based on his/her Gates-MacGinitie Reading Test score. The success of the program is based on the premise that students have the fundamentals of reading, but must practice these skills to the point necessary for future academic and vocational success.

Students pick books that are at what is called the 'recreational' reading level. This means they can read the book comfortably. As the students read more and more books, this recreational reading level increases. As this skill-increase occurs, the student reaches his/her assigned goal and objective. Accelerated Reader is a three-step process.

- A student self-selects a book from a comprehensive reading list.
- After reading the book, the student then takes a computerized quiz containing objective questions on incidents from the book.
- Based on the length and difficulty of the book and how well the student did on the quiz, the computer awards points, which can then be used as the basis of reading incentive programs and as a source of information on how well each student in a class is reading at any given time.

Within the database of Accelerated Reader there are more than 8,000 books to choose from, and students are free to select books that correspond to their own needs, interests, and reading abilities. Students receive points and progress reports from the computer which allows them to pace themselves and work toward goals and objectives. Passing an Accelerated Reader

test proves basic literal comprehension--the first level of reading comprehension without which the more advanced levels cannot take place. It is an approach that attempts to answer some of the chief questions that are asked about traditional, independent reading regimens in the classroom - such as; How does the teacher motivate hesitant readers to read for an hour a day? How do teachers provide accountability to keep students reliably on-task? With 20 or 30 students each reading different books at a wide range of ability levels, how do teachers assess individual progress, and know who and how to help?

The Program as Implemented at Gardner Middle School, San Manuel, Arizona

To further the objective of sending Gardner Middle School graduates as "reading-ready" to high school and then into the job market or college, Chaille McGrew and the San Manuel Public Library submitted a proposal to the Pinal County School-to-Work Partnership. The proposal's detailed budget indicated that more than half the money would be used to purchase the Accelerated Reader reading management system and S.T.A.R. computer-adaptive reading test and database, and some 1,500 books. Another third of the grant was apportioned for training of educators at a Reading Renaissance seminar. At such seminars, educators learn to apply the techniques and tactics of learning information systems, including the Accelerated Reader.

In the Spring of 1995, Gardner Middle School administered their first Gates-McGinitie test and were concerned to see how low the reading levels of the students were. The results of this test showed a mean score 5.5 grade level for seventh graders and a mean score of 6.5 grade level for eighth graders. Further analysis of the results revealed that approximately 75% of the student body were reading below their grade level. Searching for some way to help raise the reading skills of their students, McGrew and the school were referred by a Northern Arizona University professor to a reading program in Page, Arizona. That contact lead them to their first introduction to Accelerated Reader. After receiving information about the program and feeling it was exactly what was needed, the school purchased their first test disks and sets of books. McGrew and program administrators started a very basic trial run of the program during the Spring semester of 1996-1997. It was at that time that Ms. McGrew was made aware of the School-to-Work Grant program and subsequently wrote a grant, which was approved. With part of the grant money, three staff members including McGrew went to San Antonio, Texas for a three-day training seminar. At that point, the staff had gained perspective on how 'basic' their first attempt was. Ms. McGrew then spent the remainder of the summer contacting businesses to support the reward component of the program and organizing the 'newly understood' reading program.

Program administrators learned a great deal from the first year and have made revisions and adjustments for the program since. Last year there were five different teachers administering the program in their own classrooms. The students would do their silent reading and take their tests in the classroom and then be given permission to go to the library to check out a new book. Difficulties would ensue. This caused some discipline problems, as students would do many

things on their way to and from the library. While in the library, the librarian would not know exactly what the teacher wanted the student to read. Many times the student would have to be sent back to exchange the book as the teacher would not approve it. Also, it proved to be difficult having many different teachers handle the program -- because even though the program offers structure, everyone interprets differently.

This year, program administrators divided each grade level in half, and one-half at a time meets in the library with one teacher being the 'Reading Teacher' for that grade level. Other teachers are assigned to be in the library to handle disciplinary problems - which are reported to be minimal. The students sit at tables and silent-read; there are four computers to take tests on, and the Reading Teacher is there to oversee the selection of appropriate books. Program administrators feel this is a much better way to handle the process.

Last Spring of 1998, Ms. McGrew presented the program's progress report to the school board -- they were impressed enough to vote the same night to give program administrators $5,000 to buy more books and test disks. Administrators now have over 2,000 books in the program and hope to be adding to that number each year. The primary school (Grades K-3) is starting the program this year (1998-1999), and the remedial reading class at the District's high school is also set to utilize the program.

Both the San Manuel Public Library and the Mammoth Public Library have placed their full support behind this program by allowing Gardner Middle School program administrators to utilize the libraries' facilities and equipment to enable students to further improve their reading skills during the summer. Both libraries use volunteers to help man their facilities. These community members are also willing to give their time to support the efforts of the students.

Sample List of Classic Books Read and Successfully Tested On by Some of Gardner Middle School's Higher Readers

Title >	Author	Title >	Author
Diary of a Young Girl	Anne Frank	A Tree Grows in Brooklyn	Betty Smith
Dr. Jekyll and Mr. Hyde	Robert L. Stevenson	War of the Worlds	H.G. Wells
Adventures of Huckleberry Finn	Mark Twain	Little Women	Louisa May Alcott
Adventures of Tom Sawyer	Mark Twain	Little Men	Louisa May Alcott
Robinson Crusoe	Daniel Defoe	Ramona	Helen Hunt Jackson
Swiss Family Robinson	Robert L. Stevenson	Black Arrow	Robert L. Stevenson
My Friend Flicka	Mary O'Hara	Hobbit	J.R. Tolkiens
Rebecca of Sunnybrook Farm	Kate Wiggins	Crime and Punishment	Fyodor Dostoyevsky
Wizard of Oz	Frank L. Baum	Good Earth	Pearl S. Buck
Alas, Babylon	Pat Frank	Jane Eyre	Charlotte Bronte
Brave New World Revisited	Aldous Huxley	Last of the Mohicans	James F. Cooper
Christy	Catherine Marshall	Pride and Prejudice	Jane Austen
Cold Sassy Tree	Olive Burns	Sea Wolf	Jack London
Color Purple	Alice Walker	To Kill a Mockingbird	Harper Lee
Joy Luck Club	Amy Tan	Yearling	Marjorie Rawlings
Legend of Sleepy Hollow	Washington Irving	Death Be Not Proud	John Gunther
A Separate Peace	John Knowles	Frankenstein	Mary Shelley
Rebecca	Daphne duMaurier	The Member of the Wedding	Carson McCullers
The Scarlet Pimpernel	B.Emma Orczy	Go Ask Alice	Anonymous

PARTICIPANTS

For the 1997-1998 school year, the total student population of 282 students from Gardner Middle School, representing all students in the 7th and 8th grades, participated in the Reading Renaissance/Accelerated Reader Program. From this number (282), 134 (47.5%) were female, and 148 (52.5%) were male. Ethnic categories for the student population include 144 Hispanics (51.3%), and 137 Caucasians (48.7%). The 7th Grade student population is 152 (53.9%) and the 8th Grade population is 130 (46.1%). Hispanics make up 53.3% of the 7th Grade population and Caucasians, 46.7%. Hispanics make up 48.5% of the 8th Grade student population and Caucasians, 51.5%.

There were 130 students (46.1%) who were economically disadvantaged i.e., 130 students who had parent(s) who's annual income was at or below the official poverty line and eligible for free or reduced-priced school lunch. This meant that 152 students (53.9%) were not considered economically disadvantaged. Forty students (14.2%) required special services and assistance (resource). Every student enrolled at Gardner Middle School is a participant in the program. These students basically come from the communities of San Manuel and Mammoth, Arizona. The age range of the participants were approximately 12 to 15 years of age.

INSTRUMENT

The Gates-MacGinitie Reading Tests, Third Edition, are a standardized survey of achievement of reading for students from the end of Kindergarten through Grade 12. Levels 1 through 10/12 (Grades 1-12) each include two tests -- a Vocabulary test and a Comprehension test. The materials represent a wide cross-section of semantic structures. All comprehension passages were selected from published materials. The passages represent a balance of narrative and non-narrative modes, and of fiction, poetry, and content area materials. Vocabulary words were chosen from authoritative lists and are appropriately representative of different parts of speech. Answer choices for both the Vocabulary and Comprehension tests were constructed to give clues to common, unproductive reading strategies that students may use.

The national standardization and norming of the Gates-MacGinitie Reading Tests were done in the 1987-1988 school year. Procedures for establishing empirical norms and deriving NCE scores conform to Title I guidelines. The median empirical fall and spring norms dates are October 19 and April 21. Some state departments of education require that Title I reports include a standard score scale that was jointly normalized within grade. The Gates-MacGinitie 'extended scale score' meets this requirement. At each of Levels 1 through 10/12, scores are available for the Vocabulary test, the Comprehension test, and the total. Scores for each test and the Total score are reported as percentile ranks, national stanines, normal curve equivalents, extended scale scores, and grade-equivalents.

Percentile Rank (PR): Indicates where a raw score fits within the range of scores obtained by the national norming group. Tells the percentage of students in the same grade in the norming group whose raw scores were lower. A PR of 60 means that the student's raw score was higher than that of 60% of the students in the same grade in the norming group.

Stanines: A statistical (normalized) transformation of percentile ranks in which the range of reading achievement is divided into 9 equal units with a mean of 5 and a standard deviation of 2. The lowest and highest stanine units are larger than the others, since they include all extreme scores at the ends of the scales. A stanine of 6 means that the raw score is above average. Limitation; each stanine provides only a broad measure of achievement. Stanines are more useful for individual than for group scores.

Normal Curve Equivalent (NCE): A statistical (normalized) transformation of percentile ranks in which the range of reading achievement is divided into 99 equal units with a mean of 50 and a standard deviation of 21.06. The lowest and highest NCE units are larger than the others, since they include all extreme scores at the ends of the scales. An NCE of 60 means the raw score is

about one-half standard deviation above average (it corresponds to a PR of 68).

Extended Scale Score (ESS): An equal-unit scale extending from the lowest achievement in Grade 1 to the highest achievement in Grade 12. It is developed in a way that progress in reading can be followed over a period of years. The ESS has no direct normative meaning. One can learn from the norms tables, the Extended Scale Scores that are characteristic of the grade level of the students being tested.

Grade Equivalent (GE): Tells the grade level for which the score would have been the median score, if the test had been given at that grade level. Scores range from 1.0 to 12.9. Scores below Grade 1 are labeled K (Kindergarten); scores above Grade 12 are labeled PHS (Post High School). A GE of 6.0 means that the student's score is about the same as would be expected of an average student in September of Grade 6, if that student had taken the same test. A GE of 6.5 for an individual would mean that the individual's score represents a level of performance at Grade 6, month of February.

Statistical Significance: Student test results were compared as an entire group and for each grade (7th and 8th Grades) using a statistical test called a t test. This test indicated if there was a significant improvement or significant loss from pretest to posttest. The letter "p" inside the tables of the results section of the report means "probability." If the "p" is a number less than .05, then one concludes there was a statistically significant change from pretest to posttest.

Statistics Definitions

N (Number)	The number of subjects within the sample.
M (Mean or Average)	The average of the scores.
SD (Standard Deviation)	The variability of scores in the distribution.
Diff (Difference)	Difference between the pretest and posttest means. This indicates gains or losses from pretest to posttest.
t (t test result)	Used to determine whether or not the difference between two means arose by chance.
p (probability)	Asks the question, 'How likely is it that the differences between these variables were a random event?'

PRETEST TO POSTTEST STATISTICAL RESULTS

Tables 1 through 12 present the pretest/posttest comparisons for the Reading Renaissance/Accelerated Reader Program as implemented at Gardner Middle School in San Manuel, Arizona during the period of April 1997 to April 1998. Students in the 7th and 8th grades were pretested and posttested with the Gates-MacGinitie Reading Tests Form K (pretest) and Form L (posttest). The mean pretest scores and the mean posttest scores were compared using t tests to determine if there were statistically significant changes (gains or losses). Gates-MacGinitie Reading Test scores were presented as Extended Scale Scores and Grade Equivalents as recorded in Vocabulary, Comprehension, and Total Scores. Total Scores represent Vocabulary and Comprehension scores combined.

In April of 1997, Form K (pretest) of the Gates-MacGinitie Reading Test was administered to the students at Gardner Middle School, followed by Form L (posttest) a year later -- April of 1998. All of the students participated in the Reading Renaissance Program during the 1997-1998 school year after taking the pretest in April, 1997. Staff members would then await administering the posttest towards the end of the school year in April of 1998.

Statistical Significance. Student test results were compared for each grade (7th and 8th grades) and as an overall group using a statistical test called a t test. This test indicated if there was a significant improvement or significant loss from pretest to posttest. The letter 'p' in the statistics tables mean "probability." If the 'p' is a number less than .05, then one concludes there was a statistically significant change from pretest to posttest.

Results. There were three categories of scoring -- Vocabulary, Comprehension, and Total Scores (Vocabulary and Comprehension combined). Scores were recorded as Extended Scale Scores (ESS) and Grade Equivalents (GE) (see definitions below). Students showed statistically significant gains in Vocabulary in all areas from pretest to posttest as an overall group and at each grade level, as recorded in Extended Scale Scores and Grade Equivalents. Students showed significant gains in Comprehension from pretest to posttest as an overall group and at each grade level, as recorded in Extended Scale Scores -- but not in Grade Equivalent scores. Students did show a gain in Comprehension in Grade Equivalent scores, but not statistically significant gains. Students showed statistically significant gains in Total Scores (Vocabulary and Comprehension combined) from pretest to posttest as an overall group and at each grade level, as recorded in both Extended Scale Scores and Grade Equivalent scores. In summary, students showed statistically significant improvement in Vocabulary and in Total Scores (Vocabulary and Comprehension combined) in all areas as recorded in Extended Scale Scores and Grade Equivalent scores. In the category of Comprehension, students showed statistically significant

gains as recorded in Extended Scale Scores. Students did show a gain in Comprehension in Grade Equivalent scores, but not statistically significant gains.

Statistical Results of the Overall Group - Grades 7th and 8th

As an overall group in the category of Vocabulary as recorded in Extended Scale Scores, students showed a pretest mean of 526.40 and a posttest mean of 555.03. The difference (Diff) showed a gain of 28.63. A Paired Samples t test analysis revealed a statistically significant gain with p = .000 (see Table 1).

Table 1
Vocabulary ESS Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grades 7 and 8	191	526.40	44.19	555.03	48.92	28.63	12.56	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

As an overall group in the category of Comprehension as recorded in Extended Scale Scores, students showed a pretest mean of 526.00 and a posttest mean of 563.16. The difference (Diff) showed a gain of 37.16. A t test analysis showed a statistically significant gain with p = .000 (see Table 2).

Table 2
Comprehension ESS Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grades 7 and 8	191	526.00	60.20	563.16	68.18	37.16	10.24	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

As an overall group in the area of Total Scores (Vocabulary and Comprehension combined) as recorded in Extended Scale Scores, students showed a pretest mean of 525.89 and a posttest mean of 555.37. The difference (Diff) showed a gain of 29.48. A t test analysis showed a statistically significant gain with p = .000 (see Table 3).

Table 3
Total Scores - ESS Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
7th & 8th	191	525.89	47.16	555.37	67.45	29.48	8.10	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

As an overall group in the category of Vocabulary as recorded in Grade Equivalents, students showed a pretest mean of 5.78 and a posttest mean of 6.79. The difference represented a gain of 1.01. A t test analysis showed a statistically significant gain with p = .000 (see Table 4).

Table 4
Vocabulary Grade Equivalent Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grades 7 and 8	191	5.78	1.98	6.79	2.40	1.01	5.68	.000

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

As an overall group in the category of Comprehension as recorded in Grade Equivalent scores, students showed a pretest mean of 5.55 and a posttest mean of 5.86. The difference showed a gain of .31. A t test analysis revealed that the differences between pretest and posttest scores were not statistically significant with p = .280 (see Table 5).

Table 5
Comprehension Grade Equivalent Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grades 7 and 8	191	5.55	2.67	5.86	3.48	.31	1.08	.280

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

As an overall group in the area of Total Scores (Vocabulary and Comprehension) as recorded in Grade Equivalent scores, students showed a pretest mean of 5.58 and a posttest mean of 6.59. The difference showed a gain of 1.01. A t test analysis showed a statistically significant gain with p = .000 (see Table 6).

Table 6
Total Scores - Grade Equivalent Pretest/Posttest Comparisons for Both Groups

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
7th & 8th	191	5.58	2.13	6.59	2.85	1.01	4.95	.000

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

Statistical Results by Grade

Tables 7 through 12 show results between each grade level -- grades 7 and 8. Seventh-grade students in the category of Vocabulary as recorded in Extended Scale Scores showed a pretest mean of 520.71 and a posttest mean of 537.61. The difference showed a gain of 16.90, and a t test analysis showed a statistically significant gain with p = .000. Eighth-grade students in the category of Vocabulary as recorded in Extended Scale Scores showed a pretest mean of 532.28 and a posttest mean of 573.01. The difference showed a gain of 40.73. A t test analysis showed a statistically significant gain with p = .000 (see Table 7).

Table 7
Vocabulary ESS Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	520.71	43.81	537.61	42.40	16.90	6.24	.000
Grade 8	94	532.28	44.06	573.01	48.89	40.73	12.48	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

Seventh-grade students in the category of Comprehension as recorded in Extended Scale Scores showed a pretest mean of 520.51 and a posttest mean of 544.61. The difference showed a gain of 24.10, and a t test analysis showed a statistically significant gain with p = .000. Eighth-grade students in the category of Comprehension as recorded in Extended Scale Scores showed a pretest mean of 531.67 and a posttest mean of 582.32. The difference showed a gain of 50.65, and a t test analysis showed a statistically significant gain with p = .000 (see Table 8).

Table 8
Comprehension ESS Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	520.51	56.30	544.61	63.57	24.10	5.02	.000
Grade 8	94	531.67	63.79	582.32	67.79	50.65	9.88	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

Seventh-grade students in the category of Total Scores as recorded in Extended Scale Scores showed a pretest mean of 521.11 and a posttest mean of 540.85. The difference showed a gain of 19.74, and a t test analysis showed a statistically significant gain with p = .000. Eighth-grade students in the category of Total Scores as recorded in Extended Scale Scores showed a pretest mean of 530.83 and a posttest mean of 570.36. The difference showed a gain of 39.53, and a t test analysis showed a statistically significant gain with p = .000 (see table 9).

Table 9
Total Scores - ESS Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	521.11	45.78	540.85	48.62	19.74	6.36	.000
Grade 8	94	530.83	48.29	570.36	80.04	39.53	6.06	.000

Note. ESS = Extended Scale Score; N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

Seventh-grade students in the category of Vocabulary as recorded in Grade Equivalent scores showed a pretest mean of 5.52 and a posttest mean of 6.29. The difference showed a gain of .77, and a t test analysis showed a statistically significant gain with p = .000. Eighth-grade students in the category of Vocabulary as recorded in Grade Equivalent scores showed a pretest mean of 6.07 and a posttest mean of 7.31. The difference showed a gain from pretest to posttest of 1.24, and a t test analysis showed a statistically significant gain with p = .000 (see table 10).

Table 10
Vocabulary Grade Equivalent Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	5.52	1.85	6.29	2.04	.77	6.08	.000
Grade 8	94	6.07	2.09	7.31	2.64	1.24	3.72	.000

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

Seventh-grade students in the category of Comprehension as recorded in Grade Equivalent scores showed a pretest mean of 5.50 and a posttest mean of 5.78. The difference showed a gain of .28. A t test analysis revealed that the gain between pretest and posttest was not statistically significant with p = .377. Eighth-grade students in the category of Comprehension as recorded in Grade Equivalent scores showed a pretest mean of 5.61 and a posttest mean of 5.95. The difference showed a gain of .34. A t test analysis showed that the gain between pretest and posttest was not statistically significant with p = .485 (see Table 11).

Table 11
Comprehension Grade Equivalent Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	5.50	2.51	5.78	3.05	.28	.888	.377
Grade 8	94	5.61	2.84	5.95	3.89	.34	.700	.485

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

Seventh-grade students in the category of Total Scores as recorded in Grade Equivalent scores showed a pretest mean of 5.54 and a posttest mean of 6.32. The difference showed a gain of .78. A t test analysis showed a statistically significant gain with p = .000. Eighth-grade students in the category of Total Scores as recorded in Grade Equivalent scores showed a pretest mean of 5.61 and a posttest mean of 6.88. The difference showed a gain of 1.27. A t test analysis showed a statistically significant gain with p = .001 (see table 12).

Table 12
Total Scores - Grade Equivalent Pretest/Posttest Comparisons by Grade

Group		Pretest		Posttest				
	N	M	SD	M	SD	Diff	t	p
Grade 7	97	5.54	1.99	6.32	2.43	.78	4.09	.000
Grade 8	94	5.61	2.28	6.88	3.21	1.27	3.44	.001

Note. N = Number, M = Mean, SD = Standard Deviation, Diff = Difference, t = t test, p = probability.

SUMMARY

There are many aspects of the Reading Renaissance/Accelerated Reader Program that mirror the STW concept in the way the program addresses increased accountability for both students and educators.

- The Reading Renaissance/Accelerated Reader Program and STW operate on the belief that curriculums should link learning to the world beyond the classroom, and both allow students to explore ideas based on their own interests.
- Both operate on the basis of team-work and partnership governance.
- The Reading Renaissance/Accelerated Reader Program and STW document student progress and form concerted partnerships with educators, other educational institutions, and their surrounding communities.
- Both are fundamentally about helping students.
- The Reading Renaissance/Accelerated Reader Program and STW work against current public sentiment, that many young people are ill-prepared to enter the work force and don't have the appropriate skills to keep the economy competitive in an increasingly global market.
- The Reading Renaissance/Accelerated Reader Program and STW address the concern of how to change school structure to enable students to reach their goals.
- The Reading Renaissance/Accelerated Reader Program and STW give students an opportunity to increase their basic skills so that more options and choices emerge when they continue life beyond high school.

Appendix A:

Description of Gates-MacGinitie Reading Tests

Gates-MacGinitie Reading Tests (GMRT)

Copyright: 1989 • Third Edition • Forms K and L

Overview:

Type: Reading survey test

Purpose: To assess student achievement in reading

Grades: K–12

Time: See Table 1

Authors: Walter H. MacGinitie, Ruth K. MacGinitie

Scoring: See pp. 189–191

Features:

- Pre-Reading Evaluation Level (PRE) helps teachers find out what each child already knows about the concepts on which beginning reading development is built
- Separate test levels up through Grade 4 for better measurement of reading achievement in the important early grades
- Large pictures for all items in Levels PRE–2 (Grades K–2)
- Trans-Optic machine-scorable test booklets for Levels PRE–3 (Form K only)
- Contextual phrases for all vocabulary items for Grades 3–12
- Comprehension passages for Levels 3–10/12 include poetry as well as a balance of fiction and content area materials
- Levels 3 and above contain comprehension passages from published sources
- Computer software for score conversions and for generation of interpolated and local norms
- *A Manual for Scoring and Interpretation* provides norms tables and guidelines for interpreting scores, and extensive suggestions for using test results in teaching

Content

The *Gates-MacGinitie Reading Tests*, Third Edition, are a standardized survey of achievement in reading for students from the end of Kindergarten through Grade 12.

The Third Edition contains nine test levels:

Level PRE, Pre-Reading Evaluation: A readiness test that assesses the student's knowledge of important background concepts on which beginning reading development is built, including understanding of Literacy Concepts, Reading Instruction Relational Concepts, Oral Language Concepts, and Letters and Letter-Sound Correspondences.

Level R, Beginning Reading Skills: Measures beginning reading achievement in Grade 1 and makes possible the evaluation of growth in reading achievement between the beginning and end of first grade. It measures knowledge of Initial Consonants and Consonant Clusters, Final Consonants and Consonant Clusters, Vowels, and Use of Sentence Context.

Levels 1–10/12 (Grades 1–12) each include two tests—a Vocabulary test and a Comprehension test.

Comprehension materials have been carefully chosen. In Levels 1 and 2, the materials represent a wide cross-section of semantic structures. At Levels 3 and above, all comprehension passages were selected from published materials. The passages represent a balance of narrative and non-narrative modes, and of fiction, poetry, and content area materials. Vocabulary words were chosen from authoritative lists and are appropriately representative of different parts of speech. In Levels 3 and above, each word is presented in a brief context. In Levels 1 and 2, students choose the word that goes with a picture. Answer choices for both the Vocabulary and

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Table 1: Outline of the Gates-MacGinitie Reading Tests

Test Level	Forms	Designed for Grade*	Grade Norms Available**	Answer Format	No. of Items V: Vocab C: Comp	Testing Time (in min.)***
PRE	K	K.6–1.2	K.6–1.2	Booklet	98	85–105***
R	K	1.0–1.9	1.0–2.2	Booklet	60	55–70***
1	K	1.3–1.9	1.3–2.9	Booklet	V 45 C 46	20 35
2	K, L	2	1.3–3.9	Booklet	V 45 C 46	20 35
3	K, L	3	2.0–4.9	Booklet	V 45 C 48	20 35
4	K, L	4	3.0–6.9	Answer Sheet or Booklet	V 45 C 48	20 35
5/6	K, L	5–6	4.0–9.9	Answer Sheet or Booklet	V 45 C 48	20 35
7/9	K, L	7–9	5.0–12.9	Answer Sheet or Booklet	V 45 C 48	20 35
10/12	K, L	10–12	7.0–12.9	Answer Sheet or Booklet	V 45 C 48	20 35

* *Except for Level PRE, a level designed for a given grade is usually suitable for administering at the beginning of the following grade, particularly if the group being tested is average or below average, or at the end of the preceding grade, particularly if the group is above average.*

** *Median empirical norming dates were October 19 (.1) and April 21 (.7).*

*** *These levels are untimed and teacher-paced. The time ranges listed are the estimated totals for the separate sessions, including practice items but not distribution of materials. Each of the Levels 1–10/12 is administered in two timed sessions of 20 and 35 minutes; distribution of materials, practice items, and other administrative procedures take 15–20 minutes.*

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Comprehension tests were constructed to give clues to common, unproductive reading strategies that students may use.

Test Levels and Grades

The test level intended for a particular grade is suitable for most students and most classes in that grade. It is also suitable for students at the beginning of the following grade or at the end of the previous grade. Level PRE is an exception: it is most useful if it is given to students shortly before they begin to receive formal reading instruction, usually at the end of Kindergarten or the beginning of Grade 1.

Standardization and Norms

The national standardization and norming of the *Gates-MacGinitie Reading Tests* were done in the 1987–1988 school year. Procedures for establishing empirical norms and deriving NCE scores conform to Title I guidelines. The median empirical fall and spring norms dates are October 19 and April 21. Some state departments of education require that Title I reports include a standard score scale that was jointly normalized within grade. The *Gates-MacGinitie Reading Tests* extended scale score meets this requirement.

Scoring

For Levels PRE and R, four subtest scores and a total score are available. The subtest scores are national stanines. Total scores for Level PRE are reported as national stanines, normal curve equivalents, and national percentile ranks. In addition to these three scores, total scores for Level R are also reported as grade-equivalents and extended scale scores.

At each of Levels 1 through 10/12, scores are available for the Vocabulary test, the Comprehension test, and the total. Scores for each test and the Total score are reported as national stanines, normal curve equivalents, national percentile ranks, extended scale scores, and grade-equivalents. The Riverside Scoring Service™ reports also include raw scores and number of items attempted. Local percentile ranks, local stanines, and interpolated norms are optional scores available from the Riverside Scoring Service. Software for converting raw scores to derived scores and for obtaining interpolated norms is also available.

Pretest Materials

Examination Kits

Level PRE

Package includes hand-scorable test booklet, Directions for Administration, *and* Manual for Scoring and Interpretation.

	9-40190	$14.50

Levels PRE, R, and 1–5/6

Includes program summary; test booklets for Levels PRE, R, 1, 2, 3, 4, 5–6, Directions for Administration *for Levels PRE–2, Level PRE* Manual for Scoring and Interpretation, *Level 4* Manual for Scoring and Interpretation, *and Level 4 self-scorable answer sheet.*

	9-40191	$29.50

Level 5/6 and 7/9

Includes Level 5/6 and 7/9 test booklets, Level 5/6 Directions for Administration, *Level 5/6* Manual for Scoring and Interpretation, *and Level 7/9 Mark Reflex® answer sheets.*

	9-40192	$18.50

Level 7/9 and 10/12

Includes Level 7/9 test booklet, Levels 7–12 Directions for Administration, *Levels 7–12* Manual for Scoring and Interpretation, *Level 7/9 self-scorable answer sheet, and Level 7/9 Mark Reflex answer sheet.*

	9-40193	$18.50

Test Materials

Mark Reflex and Trans-Optic machine-scorable test booklets and hand-scored test booklets are available for Levels PRE, R, 1, 2, and 3. Test booklets for Levels 4–10/12 may be used with separate answer sheets or as consumable test booklets, with the students marking their answers directly in the booklets.

Included with the Levels 1 and 2 hand-scorable test booklets only is a Decoding Skills Analysis *form which can help the teacher learn of decoding skills that the student may not yet use.*

Mark Reflex Machine-Scorable Test Booklets

Scored by Riverside. ***Package of 35,*** *includes 1* Directions for Administration *and materials needed for machine scoring.* Manual for Scoring and Interpretation *must be ordered separately.*

Level PRE, Form K	9-40002	$116.50
Level R, Form K	9-40006	107.00
Level 1, Form K	9-40010	107.00
Level 2, Form K	9-40014	107.00
Level 3, Form K	9-40020	107.00
Level 2, Form L	9-40016	107.00
Level 3, Form L	9-40022	107.00

Trans-Optic Machine-Scorable Test Booklets

For local scanning. ***Package of 35,*** *includes 1* Directions for Administration. Manual for Scoring and Interpretation *must be ordered separately.*

Level PRE, Form K	9-40204	$125.50
Level R, Form K	9-40206	115.00
Level 1, Form K	9-40208	115.00
Level 2, Form K	9-40210	115.00
Level 3, Form K	9-40212	115.00

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Appendix B:

Summary of Test Score Characteristics

Summary of Test Score Characteristics

Score	Description	Example	Limitations
Raw Score	The number of questions answered correctly.	A raw score of 40 means that the student answered 40 of the test questions correctly.	Raw scores are meaningful only within the context of a test's length and difficulty. Raw scores for one test or subtest should not be compared with those for another test or subtest.
PR (Percentile Rank)	Indicates where a raw score fits within the range of scores obtained by the national norming group. Tells the percentage of students in the same grade in the norming group whose raw scores were lower.	A PR of 60 means that the student's raw score was higher than that of 60% of the students in the same grade in the norming group.	PRs should not be averaged directly; a group PR can be obtained by averaging ESSs and finding the PR that corresponds to the average ESS. Should not be used to compare scores.
NCE (Normal Curve Equivalent)	A statistical (normalized) transformation of PRs in which the range of reading achievement is divided into 99 equal units with a mean of 50 and a standard deviation of 21.06.*	An NCE of 60 means the raw score is about one-half standard deviation above average. (It corresponds to a PR of 68.)	
Stanine	A statistical (normalized) transformation of PRs in which the range of reading achievement is divided into 9 equal units with a mean of 5 and a standard deviation of 2.*	A stanine of 6 means that the raw score is above average. (It corresponds to the group of PRs that range from 61–76.)	Each stanine provides only a broad measure of achievement. Stanines are more useful for individual than for group scores.
ESS (Extended Scale Score)	An equal-unit scale extending from the lowest achievement in Grade 1 to the highest achievement in Grade 12. Developed so that progress in reading can be followed over a period of years.	ESSs have no direct normative meaning. One can learn, from the norms tables, the ESSs that are characteristic of the grade level of the students being tested.	An unfamiliar scale. Vocabulary, Comprehension, and Total ESSs are not comparable.
GE (Grade Equivalent)	Tells the grade level for which the score would have been the median score, if the test had been given at that grade level. Scores range from 1.0 to 12.9. Scores below Grade 1 are labeled K (Kindergarten); scores above Grade 12 are labeled PHS (Post High School).	A GE of 6.0 means that the student's score is about the same as would be expected of an average student in September of Grade 6, if that student had taken the same test.	Less meaningful when GEs are not within the intended grade ranges of the test level taken, the next lower level, and the next higher level. GEs should not be averaged directly; a group GE can be obtained by averaging ESSs and finding the GE that corresponds to the average ESS. Should not be used to compare scores.

*The lowest and highest NCE and stanine units are larger than the others, since they include all extreme scores at the ends of the scales.

Appendix C:

Article Featuring Gardner Middle School Program in February, 1998 Issue of Advantage.

Successful Grant Proposal Stresses Reading as Key to Real-world Employment

Learning to read well was emphasized as a critically necessary real-world skill in a successful $11,529 grant proposal written at the Gardner Middle School, San Manuel, AZ.

In the proposal, language arts teacher Chaille McGrew described that real-world need in this way: "We feel that Gardner Middle School is, to many students, the 'last chance' to get the practice and help needed to develop their reading skills enough to be employable among our local job opportunities and the employment field in general."

Basic reading skills are crucial to success in real-world employment.

"... we can instill a desire to read that will be lifelong, thus allowing them to be successful in whatever paths their lives travel."

McGrew noted in the proposal that the area's largest single employer, BHP Copper Co., "instituted a comprehensive reading test for all prospective employees. Only those who show strength in this skill are eligible for employment." San Manuel and the neighboring community of Mammoth, isolated communities northeast of Tucson, offer few employment opportunities.

To further the objective of sending graduates from the 250-student, seventh- and eighth-grade facility "reading-ready" to high school and then into the job market or college, McGrew and the San Manuel Public Library submitted the proposal to the Pinal County School to Work Partnership. The proposal's detailed budget indicated that more than half the money would be used to purchase the Accelerated Reader reading management system and S.T.A.R. computer-adaptive reading test and database, and some 1,700 books. Another third of the grant was apportioned for training of educators at a Reading Renaissance seminar. At such seminars, educators learn to apply the techniques and tactics of learning information systems, including AR.

Ric Robles, a language arts teacher who also attended a Reading Renaissance seminar, said, "We had installed Accelerated Reader in spring 1997 with some success, but realized after the seminar that we had just been skirting the edges of the program's usefulness. The most important things we learned were the impact of extended reading practice time, the power of the zones of proximal development in individualizing the program, and the value of students scoring in the 85-92 percent range on their AR quizzes, showing they are challenging themselves, and succeeding."

Robles concluded, "About half of our students stay and work in the area after high school. By improving their reading skills through these programs, we are doing these students a service in preparing them for the real world of employment." McGrew's proposal put it a bit more broadly: "... we can instill a desire to read that will be lifelong, thus allowing them to be successful in whatever paths their lives travel." ■

Free Grant-writing Brochure Is Available

Grants are an increasingly important way to fund the components of learning information systems. To help you collect these funds, we've recently updated and expanded the brochure *Finding the Funds*. This brochure focuses on key elements grantors view when evaluating funding proposals, including information on budgeting and community fundraising, and funding professional development, books, computers, and other needs in addition to software. It is filled with actual paragraph samples from successful Accelerated Reader and Reading Renaissance grant requests.

To get your free copy of *Finding the Funds*, circle number 19 on the Free Information Request Card in this issue of *Advantage*. ■

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