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ABSTRACT

A study used 1999-2000 data from Accelerated Reader and STAR Reading to assess students' reading practice, growth in reading performance, and effects of Reading Renaissance training on students' reading development. The study included 10 schools that participated in the 1998-99 study and 27 additional schools. Data from 7876 students enrolled in grades 1-9 at elementary, middle, and junior high schools is analyzed. Although the 37 schools are at varying stages of Reading Renaissance (RR) implementation, overall, they show an encouraging amount of growth in reading skills. On average, students gained over 1.5 NCEs and 3 percentile ranks, while students in grade 1-4 gained substantially more. In addition, students in schools with more in-depth Renaissance implementation achieved more growth than students in schools with less Renaissance implementation. However, analysis of good Renaissance implementation revealed that most schools are falling short of good implementation. Fully implemented Renaissance would result in significantly higher gains than students are currently achieving. Among the recommendations are that schools provide at least 60 minutes of daily reading practice and that educators incorporate RR techniques and practices into their daily classroom activities.(Contains 15 tables of data and a 19-item bibliography. A data chart is appended.) (NKA)

Second-Year (1999-2000) Implementation of Reading Renaissance in Idaho: Summary of Second Year's Results.

Monograph

Second-year (1999–2000) Implementation of Reading Renaissance® in Idaho

Summary of Second Year's Results

School Renaissance™ Institute

A School Renaissance Institute Monograph

In 1998, as part of a major three-year reading initiative, the J.A. and Kathryn Albertson Foundation generously provided $27 million to improve the reading performance of all Idaho elementary, middle, and junior high school students. The foundation's grant enabled many schools to purchase the School Renaissance academic improvement process.

Reading components of School Renaissance include Accelerated Reader (AR) computerized reading management software, STAR Reading computer-adaptive norm-referenced reading test, and Reading Renaissance Professional Development seminars—all products from Renaissance Learning (formerly Advantage Learning Systems) and School Renaissance Institute (formerly the Institute for Academic Excellence).

To fulfill the foundation's requirement for vendor program evaluations and to meet School Renaissance Institute's research and product development needs, the Institute conducts annual studies to assess the reading progress achieved by Idaho schools that have implemented Accelerated Reader, STAR Reading, and Reading Renaissance. This report evaluates the results of the second year of implementation (1999–2000).

The first study, *Idaho Statewide Implementation of Reading Renaissance: Summary of First Year's Results* (Institute for Academic Excellence 1999b), examined the progress of 50 schools during the 1998–99 school year. Results show that students gained, on average, 1.84 normal-curve equivalents (NCEs)—an accelerated level of reading improvement compared to a national sample of their peers. Students in schools that more fully implemented Reading Renaissance did better than students in schools with less implementation of Reading Renaissance. Students in schools that sent at least one teacher to Reading Renaissance training experienced 50% more reading growth than students in schools that sent no teachers to training. Even more notable, students in schools with at least one Renaissance Model Educator had nearly twice the growth of students in schools that sent no teachers to training.

This report uses 1999–2000 data from Accelerated Reader and STAR Reading to assess students' reading practice, growth in reading performance, and effects of Reading Renaissance training on students' reading development. The study includes 10 schools that participated in the 1998–99 study and 27 additional schools.

Description of the School Renaissance Model

The School Renaissance process for academic improvement incorporates the use of computerized learning information systems, combined with the implementation of proven classroom motivational strategies and techniques. School Renaissance is based on four fundamental concepts:

1) *Professional, trained teachers are the key to any significant long-term improvement in schools.* Although technology works, it works best when used by teachers as a tool; it doesn't replace teachers. Because teachers are key, their professional development training is also essential.

2) *Schools need to significantly increase time spent on key tasks.* For reading, the key task is having students read books matched to their individual reading level for 60 minutes a day (30 minutes for pre-K and K). For math, the key task is having students solve math problems matched to their individual math level for 30 minutes a day.

3) *Reading and math are the core subjects in K–12 schools.* Reading and math are the fundamental skills for problem-solving and higher-order thinking skills in all subjects. They are the fundamental skills for improving test scores and meeting demanding state standards.

4) *Curriculum is not the problem—information is the problem.* There is a tremendous lack of learning information in schools at all levels for students, teachers, librarians, principals, and districts. When information is lacking, accountability is lacking. Teachers are burdened with outdated paper record-keeping systems and do not have sufficient information to effectively manage reading, writing, and math practice. Computerized learning information systems, such as Accelerated Reader and STAR Reading, which continuously monitor and track learning tasks and assess student progress, close the information gap.

Reading Components of the School Renaissance Model

Accelerated Reader

Accelerated Reader consists of computerized reading management software that is used in over 50,000 schools nationwide and AR Reading Practice quizzes for over 33,000 children's books. The AR system assigns a point value (AR points) to each book, based on the number of words in the book and its reading level. After reading a book, students go to the computer and take Reading Practice quizzes corresponding to the books they just read. Reading Practice quizzes are carefully designed assessments that determine whether or not a student has read a book. Questions are presented in an order that matches the chronology of the book and typically focus on the book's significant events, characters, and literary features. These quizzes are encouraging, motivating, and focus on literal comprehension. If students read the book they should be able to pass the AR Reading Practice quiz. Students must score at least 60 percent on 5- and 10-question quizzes and 70 percent on 20-question quizzes to earn any points. The AR program scores the quiz, assigns a proportion of points according to how well the student did, adds the result to its database, and generates a report for the teacher and student. All together, AR can generate up to 33 separate reports that track the quantity, quality, and challenge levels of students' reading practice.

STAR Reading

STAR Reading is a computer-adaptive, norm-referenced reading assessment that provides an accurate measure of students' reading comprehension in less than 10 minutes. STAR Reading serves two purposes. First, it provides teachers with quick and accurate estimates of students' reading levels so they can match students with the appropriate levels of books to maximize their reading growth. Second, STAR Reading provides sound estimates of students' reading levels relative to a nationally representative sample of 30,000 K–12 students. The results of STAR Reading are highly correlated with traditional standardized tests. But unlike these lengthy, high-stakes assessments, STAR Reading can be administered several times per year to identify the reading level for a student and predict the student's performance on a high-stakes test (Advantage Learning Systems 2000).

STAR Reading includes a bank of over 1,100 vocabulary-in-context items and over 260 authentic text passage items. When students take a test, they begin with an item at the low end of their ability level. As students answer questions correctly, the computer presents more difficult items. When a student makes an error, the computer presents a less difficult item. This Adaptive Branching testing method is both efficient and powerful because it produces valid and reliable results in one-fifth the time of a traditional standardized test. Moreover, the program can create five or six unique "forms" so the same student can be tested often without encountering the same item twice.

Reading Renaissance

Reading Renaissance refers to the program of motivation strategies and effective teaching techniques that help educators monitor and guide reading practice. Based on the principle that "practice makes perfect," Reading Renaissance combines the power of computer technology (learning information systems) with sound teaching strategies, resulting in continuous growth of reading skills and the development of lifelong readers. The following activities are incorporated in successful Reading Renaissance classrooms:

- At least 60 minutes are set aside each day for reading practice with trade books selected by the students themselves.
- While students are reading, the teacher visits briefly with each of them to monitor progress, provide encouragement and praise, integrate skills taught previously in lessons, and intervene if problems have arisen.
- After finishing a book, students take an AR Reading Practice quiz, which is a brief check of reading comprehension. Both the student and the teacher receive immediate feedback.
- The teacher employs motivation strategies that get children excited about books.

The following formula serves as shorthand for describing Reading Renaissance:

TWI + LIS + RMS + MIMI = Reading Renaissance, where

TWI = "Reading To, Reading With, and Reading Independently"—the reading practice that forms the foundation of the program

LIS = "Learning Information System"—the computer software (Accelerated Reader) that monitors and manages student reading practice

RMS = "Reading Motivation System"—the techniques that encourage students to read

MIMI = "Motivate, Instruct, Monitor, and Intervene"—the teacher's essential role

Previous Studies of Reading Practice, Accelerated Reader, and Reading Renaissance

There is a large and growing body of research demonstrating the effectiveness of the Accelerated Reader computerized reading management software and Reading Renaissance techniques. Students in classrooms that adopt Accelerated Reader do better in reading and other subjects, including math, science, social studies, and writing (Institute for Academic Excellence 1996, 1997; Vollands, Topping, and Evans 1999). Attendance is also better at AR schools. Likewise, many Reading Renaissance classroom teachers and schools report growth in reading achievement of up to two grade levels in only one year.

One of the largest studies of reading ever conducted collected reading performance data from 659,214 K–12 students during the 1994–95 school year (Paul 1996, Topping and Paul 1999). This study found that, on average, K–12 students spent only seven minutes per day practicing reading. Reading practice declines markedly after fifth grade: For example, high school students spend about as much time practicing reading as kindergarten students do—only three minutes per day. Furthermore, when ranked according to the amount of reading they do, students in the top five percent read 144 times more than students in the bottom five percent. The study also found that students in states in the top quartile on the National Assessment of Educational Progress reading test engaged in 59 percent more reading practice than those in states in the bottom quartile.

The value of reading practice and general exposure to lexically rich print media for the development of reading skills and other cognitive abilities is outlined in an article by Cunningham and Stanovich (1998). Their findings from several longitudinal studies show that children's books and popular magazines offer nearly three times as many opportunities for vocabulary development as does television or adult conversation. They cite a study by Anderson, Wilson, and Fielding (1998) that shows children who score at the 90th percentile on standardized tests read 228 times more words per year outside of school than children who score at the 10th percentile. Two crucial messages emerge: 1) the importance of early development of decoding and word recognition, and 2) all children, regardless of their achievement levels, should be provided with as many reading experiences as possible. Guthrie, Wigfield, Metsala, and Cox (1999) further support these findings by showing that students' reading volume and motivation to read are significant predictors of text comprehension.

The National Research Council examined factors that put children at risk of poor reading and identified effective instruction for preschool and early grades (Snow, Burns, and Griffen 1998). The council summarized the work of several renowned researchers who emphasize the importance of practicing reading through daily reading of a variety of texts at a level that is challenging but beneath the student's frustration level. The council's own recommendations for early literacy programs include attention to the development of comprehension and fluency through daily reading, either independently, in pairs, in groups, or by being read aloud to.

A more recent report from the National Reading Panel (2000) summarizes the panel's review of hundreds of studies in the areas of alphabetics, fluency, and comprehension and the impact of teacher education and computer technology on reading instruction. The panel found that guided, repeated oral reading procedures that include guidance from teachers, peers, or parents have a significant and positive impact on word recognition, fluency, and comprehension. This finding supports the use of Duolog Reading, or paired reading, a guided reading technique used in Reading Renaissance. The

panel also reviewed research on the effect of independent silent reading on reading fluency. Although it found the research on *unguided* independent reading inconclusive, they did not directly address the concept of *guided* reading practice. However, other research has found that when teachers monitor and guide reading practice, higher levels of reading practice can lead to higher reading achievement (Topping and Sanders 2000).

In addition to more general research about reading practice, several independently published articles and theses specifically address the effectiveness of Accelerated Reader and Reading Renaissance. For example, a five-year longitudinal study tracked the progress of 50 ninth-grade Accelerated Reader students who used the program since third grade (Peak and Dewalt 1994). The AR students showed improved reading attitudes and higher reading scores on the California Achievement Test (CAT) than a control group of 50 students. AR students gained an average of 15.3 and 13.2 scale score points per year between grades three and six and between grades six and eight, respectively. Control students gained only 10.2 and 5.5 scale score points per year. Similarly, McKnight (1992) discovered that more than one-half of a fifth-grade class whose students lacked motivation to read showed greatly improved reading habits and attitudes after using Accelerated Reader for 11 weeks.

Topping and Sanders (2000) collected 1996–1997 Accelerated Reader and Tennessee Value-Added Assessment System (TVAAS) data from nearly 63,000 Tennessee students in grades two through eight. The study found that student reading volume and percent correct on AR quizzes have a positive impact on test score improvement. In addition, the study found that students whose teachers carefully monitored and guided their reading practice experienced more growth in reading achievement than students whose teachers did not monitor their reading practice. Teachers completing Reading Renaissance training were significantly more effective than teachers who had not completed training. Reading Renaissance model classrooms also showed higher effectiveness than non-model classrooms in fourth and fifth grades. The study also confirmed the value of maintaining at least 85 percent correct on AR Reading Practice quizzes as recommended by Reading Renaissance (based on Vygotsky's zone of proximal development principles—see Institute for Academic Excellence 1999d).

Methods

This study is based on STAR Reading and Accelerated Reader data supplied voluntarily by schools across Idaho. Data from 7,876 students enrolled in grades one through nine during the 1999–2000 school year at 37 elementary, middle, and junior high schools is analyzed. To be included, students must have both AR and STAR Reading records and have taken two STAR Reading tests at least 100 days apart. During March and April 2000, School Renaissance Institute conducted mail and phone campaigns to solicit participation in this study. Of the 110 schools that initially agreed to share their student data, data was received from 51 schools. Only 37 schools sent both AR and STAR Reading records for at least 10 students. However, as shown in the table below, the demographic characteristics of these 37 schools are similar to the characteristics of the state as a whole.

Table 1. Demographic Characteristics of Idaho Schools and Study Schools

Demographics	All Idaho Elementary, Middle, and Junior High Schools	37 Study Schools
Poverty Rate		
% of Schools with 0–5.9% Poverty Rate	1.4%	0.0%
% of Schools with 6–15.9% Poverty Rate	58.1%	60.6%
% of Schools with 16–29.9% Poverty Rate	39.2%	36.4%
% of Schools with 30% or More Poverty Rate	1.4%	3.0%
Race/Ethnicity		
Asian American/Pacific Islander	0.6%	0.5%
Black/African American	0.3%	0.3%
Hispanic American/Latino	4.6%	3.1%
Native American/American Indian	1.4%	0.8%
White	94.8%	96.9%

STAR Reading tracks students' progress with normal curve equivalents, percentile ranks, and grade equivalents. Both percentile ranks and NCEs illustrate reading progress. When students experience growth in achievement over time that is consistent with a national sample of students in their grade, their percentile rank and NCE measures will remain unchanged from one STAR Reading administration to a later one. When students improve their reading skills at a faster rate than their peers, their percentile ranks and NCEs will increase over the school year. NCEs are similar to percentile ranks but express reading achievement data on an equal-interval scale and can be arithmetically averaged across all students in all grades. Therefore, to calculate average percentile ranks, we first compute average NCEs and then convert the NCEs to equivalent percentile ranks.

Since students in different schools often take the STAR Reading test on different dates, we use a measure of NCE change that accounts for differences in time elapsed between test administrations. First, we calculate NCE change per day by dividing the NCE change by the number of calendar days between STAR Reading tests. Then, to give some idea of what this change would look like over the course of a year, we multiply the per-day change by 120 calendar days for first-graders and 240 days for all other students. We use a shorter time period for first-graders because they often have not acquired the necessary skills to take STAR Reading tests until later in the school year.

Accelerated Reader data provides measures of the *quantity, quality,* and *challenge* of students' reading practice. Since we use the STAR Reading tests as our measure of change in reading achievement over time, we examine only reading practice that occurs between the earliest and latest STAR Reading test dates for each student.

We measure the quantity of reading practice by the number of books students read, points earned, and amount of time spent reading. Prior research (Institute for Academic Excellence 1999d) examined reading practice data from approximately 80,000 students to establish the link between tested reading level, number of points earned, and time spent reading. This analysis was used to develop the Goal-Setting Chart (Appendix A), enabling us to estimate the time spent reading per day from the number of AR points students earned. Since full Reading Renaissance implementation is marked by at least 60 minutes of reading practice per day, we measure progress toward this goal by calculating the average proportion of an hour students spent reading.

We also measure progress toward sustaining sufficient amounts of reading practice by comparing time spent reading by the students in this study to the amount of time spent reading by a national sample of students. Paul (1996) calculated, by grade, the average amount of time a sample of nearly 660,000 students in kindergarten through twelfth grades spent reading in school. We express the amount of time students in this study spent reading as a percentage above the amount of time students in the national sample spent reading.

The quality of reading practice is indicated by how well students score on AR Reading Practice quizzes on the books they read. Prior research (Topping and Sanders 2000) found that students gain the most from their reading practice when they obtain at least 85 percent correct on the AR quizzes covering the books they read. We measure progress toward this quality goal by examining the proportion of students who averaged at least 85 percent correct on their AR quizzes.

Finally, the level of challenge students experience in their reading practice arises from the relationship between the difficulty of the books read and the students' tested reading ability. School Renaissance Institute has established guidelines for the recommended ranges of book difficulty that maximize reading growth (Appendix A). These guidelines, based on Russian child-development psychologist Lev Vygotsky's (1978) theory of the zone of proximal development (ZPD), recommend that students should read books at difficulty levels that challenge them without frustrating them. Challenging literature helps students expand their vocabulary and develop new language skills, while literature that is too difficult may cause frustration and loss of motivation. Reading Renaissance shows educators how to establish ZPD ranges for their students, based upon the students' tested reading levels. Educators are trained to help students select and read books within their ZPD ranges to maximize reading growth. We measure progress toward appropriate challenge levels by comparing the average level of books read to the midpoint of student ZPD ranges. When students are reading at an appropriate level of challenge, the ratio of the average level of books read to the midpoint of their ZPD range will be close to 100 percent. The ratio will be less than 100 percent when students are reading books below their ZPD midpoint and greater than 100 percent when students are reading books above their ZPD midpoint.

Results

The 1998–99 study defined three stages or levels of Reading Renaissance implementation. The first stage consisted of schools that had purchased Accelerated Reader, but had not yet sent teachers to Reading Renaissance training. In this stage there is often less focus on reading challenging literature in one's ZPD while averaging 85 percent correct, and more focus on reading a greater quantity of lower level books in order to earn points.

The second stage of implementation consisted of schools that had sent at least one staff member to Reading Renaissance training. After attending training, educators tend to engage in more diagnosis and intervention to ensure that students are reading in their ZPD ranges, maintaining an average of at least 85 percent correct on quizzes, and reading 60 minutes a day.

Interestingly, while only a little more than half the schools in the 1998–99 study had sent at least one teacher to training (Institute for Academic Excellence 1999b), all but one of the 37 schools in the 1999–2000 study have sent at least one teacher to training. Therefore, to distinguish between schools in this study at earlier and later stages of implementation, we have defined schools with fewer than five Reading Renaissance trained teachers as the first level of Reading Renaissance implementation and schools with five or more trained teachers as the second level of implementation.

The third stage of Reading Renaissance implementation in both studies is Renaissance Certification. When teachers provide evidence that quantity, quality, and challenge goals have been met, School Renaissance Institute recognizes these educators through the Renaissance Certification program. This program was designed to acknowledge educators who have fully implemented Reading Renaissance principles in their daily classroom and library practices. Idaho schools that have at least one Renaissance Model Educator are defined as nearest to full Renaissance implementation in reading, and are compared to schools that have received no Renaissance Certifications.

Table 2 displays estimated yearly reading growth by level of Reading Renaissance implementation. The results show that, on average, all students, regardless of the level of Reading Renaissance implementation in their school, improved their reading skills at a faster rate than a national sample of their peers. Overall, the students achieved average growth of 1.53 NCE units and 3 percentile ranks, indicating accelerated improvement in reading skills compared to a national sample. Additionally, Reading Renaissance training has a positive impact on helping students achieve more reading growth. Students from schools with more Reading Renaissance-trained staff attained three times as much growth as students from schools with fewer Reading Renaissance-trained teachers. Likewise, students from schools with at least one Renaissance Certification experienced more than twice as much growth as students in schools with no Renaissance Certifications. The overall improvement as well as the improvement in each category is statistically significant.

Obviously the results from schools with Renaissance Certifications need to be interpreted with caution since there is only one school in this category. However, this school, along with the three schools from the 1998–99 study, indicate the possibilities for reading improvement when schools embrace full implementation of Reading Renaissance practices.

Table 2: Reading Achievement Growth by Level of Reading Renaissance Implementation
1999–2000 Results for Idaho Students, Grades 1 through 9

Level of Reading Renaissance Implementation	Number of Schools	Number of Students	Estimated Yearly NCE Growth Per Student	Average Percentile Rank Growth
Fewer than 5 staff members Reading Renaissance trained[a]	8	1077	0.40*	1*
Five or more staff members Reading Renaissance trained[a]	28	6550	1.62**	3**
At least one Renaissance Certification	1	249	3.97**	9**
All Students	**37**	**7876**	**1.53****	**3****

[a] *Reading Renaissance training had to have occurred before 2/1/00.*
* *Statistically significant, p<.005.*
** *Statistically significant, p<.001.*

In order to achieve maximum reading growth, it is recommended that schools not only use the Accelerated Reader reading management software to monitor daily reading practice, but also implement Reading Renaissance principles into their daily classroom activities. The results achieved by the Idaho students during the previous two school years thus far support this recommendation—students in schools that have committed to using AR *and* Reading Renaissance practices are experiencing more growth in reading skills than those in schools with less intense implementation.

Table 3 summarizes reading achievement data by grade; Tables 4A & 4B assesses the progress made toward the quantity, quality, and challenge goals recommended by the Reading Renaissance program. Table 3 shows that students in grades one through four experienced the most growth in reading skills. Students in grades one through three also had the highest average AR quiz percent correct and the largest proportion of students averaging at least 85 percent correct (Table 4A). The fact that these grades also had the highest growth underscores the importance of reading books that are challenging, but not too difficult.

Tables 3, 4A & 4B illustrate that, overall, the schools in this study are falling short of full Reading Renaissance implementation. Students are reading much less than 60 minutes a day while nearly 50 percent of students are averaging less than 85 percent correct on quizzes. While students are generally reading books in their ZPD, the low percent correct indicates they may be reading books quickly and carelessly in order to earn points.

Table 3. 1999–2000 Reading Achievement Growth for All Participating Idaho Schools

Grade	Number of Schools	Number of Students	Average Student NCE Growth per Day	Estimated Student NCE Growth per Year	Average Pretest Percentile Rank	Average Post-test Percentile Rank	Average Percentile Rank Gain	Average Number of Days Between Tests
1	20	624	0.0746	8.95	44	67	23	180
2	23	1078	0.0126	3.02	53	57	4	223
3	25	901	0.0091	2.18	44	48	4	228
4	22	909	0.0086	2.06	51	55	4	217
5	18	621	-0.0024	-0.58	55	54	-1	225
6	17	1054	-0.0039	-0.94	50	49	-1	227
7	8	1248	0.0015	0.36	47	48	1	222
8	10	1110	0.0002	0.05	48	49	1	238
9	3	931	0.0025	0.60	48	49	1	223
All Students	**37**	**7876**	**0.0093**	**1.53**	**49**	**52**	**3**	**222**

Table 4A. 1999–2000 Reading Practice Quantity, Quality and Challenge

Grade	Number of Schools	Number of Students	Average Number of Books per Student	Average Level of Books	Median Number of Points Earned per Student	Average AR Quiz Percent Correct	Percent of Students Averaging ≥85% Correct on Quizzes
1	20	624	37	1.9	11	86%	63%
2	23	1078	73	2.6	27	83%	57%
3	25	901	66	3.1	30	83%	51%
4	22	909	40	3.9	37	81%	47%
5	18	621	26	4.7	47	80%	41%
6	17	1054	23	5.3	75	82%	53%
7	8	1248	14	5.7	45	79%	48%
8	10	1110	15	6.0	65	80%	47%
9	3	931	8	6.3	30	80%	48%
All Students	**37**	**7876**	**35**	**4.4**	**44**	**81%**	**51%**

Table 4B. 1999–2000 Reading Practice Quantity, Quality and Challenge

Grade	Number of Schools	Number of Students	Average Minutes Spent Reading per Day	Average Percent of an Hour Spent Reading per Day	Percent Above Typical Time Spent Reading	Average Book Level Read/ZPD Midpoint
1	20	624	13.2	22%	164%	86
2	23	1078	19.3	32%	144%	90
3	25	901	19.2	32%	92%	94
4	22	909	20.6	34%	61%	95
5	18	621	20.3	34%	60%	99
6	17	1054	23.1	39%	117%	100
7	8	1248	16.7	28%	101%	100
8	10	1110	16.8	38%	121%	98
9	3	931	8.5	14%	136%	99
All Students	**37**	**7876**	**18.3**	**31%**	**158%**	**96**

Tables 5, 6A & 6B display the reading practice and achievement data by level of Reading Renaissance implementation. Schools with fewer than five trained teachers are compared to schools with five or more trained teachers. When the results are computed by grade, some of the groups contain data from fewer than five schools. To prevent the results from being overly affected by one or two schools we grouped together grades 1–3, 4–6, and 7–9. One group still only contains data from three schools so results from that group should be interpreted cautiously.

The results in Table 5 show that, overall, students in schools with more Reading Renaissance-trained teachers experienced greater reading achievement growth than students in schools with fewer trained teachers. Students in schools with more trained teachers, on average, gained 1.71 NCEs and 3 percentile ranks while students in schools with fewer trained teachers gained, on average, 0.40 NCEs and 1 percentile rank.

Tables 5, 6A & 6B also illustrate the importance of not just attending Reading Renaissance training, but implementing Reading Renaissance practices. Students in grades one through three in schools with more trained teachers have the largest test score advantage over their peers in schools with fewer trained teachers. These students also have a higher average percent correct on AR quizzes, have more students maintaining an average of 85 percent correct or better on quizzes, spend more time reading each day, and read more books than students in schools with fewer trained teachers.

Students in grades seven through nine also demonstrate the significance of Reading Renaissance practices. In schools with fewer trained teachers, students show slightly greater NCE and percentile rank gains. However, these students, rather than the students in schools with more trained teachers, scored higher on AR quizzes, spent more time reading, and read more books. These results emphasize the value of working toward the Renaissance quantity, quality, and challenge goals.

Table 5. Effect of Reading Renaissance Training on Reading Achievement Growth

Number of Reading Renaissance-Trained Teachers	Grade	Number of Schools	Number of Students	Average NCE Growth per Day per Student	Estimated NCE Growth per Year per Student	Average Pretest Percentile Rank	Average Post-test Percentile Rank	Average Percentile Rank Gain	Average Number of Days Between Tests
< 5	1–3	5	318	0.0156	2.09	53	58	5	198
≥ 5	1–3	22	2285	0.0277	4.44	47	56	9	217
< 5	4–6	6	369	-0.0048	-1.16	50	49	-1	219
≥ 5	4–6	24	2215	0.0018	0.44	52	52	0	224
< 5	7–9	3	390	0.0021	0.50	49	50	1	244
≥ 5	7–9	7	2299	0.0009	0.21	47	48	1	226
< 5	**All Students**	**14**	**1077**	**0.0037**	**0.40**	**51**	**52**	**1**	**222**
≥ 5	**All Students**	**53**	**6799**	**0.0122**	**1.71**	**49**	**52**	**3**	**222**

Table 6A. Effect of Reading Renaissance Training on Reading Practice Quantity, Quality, and Challenge

Number of Reading Renaissance-Trained Teachers	Grade	Number of Schools	Number of Students	Average Number of Books per Student	Average Level of Books	Median Number of Points Earned per Student	Average AR Quiz Percent Correct	Percent of Students Averaging ≥85% Correct on Quizzes
< 5	1–3	5	318	27	2.8	10	78%	35%
≥ 5	1–3	22	2285	67	2.6	25	84%	60%
< 5	4–6	6	369	22	4.7	50	82%	50%
≥ 5	4–6	24	2215	31	4.6	52	81%	47%
< 5	7–9	3	390	20	5.7	101	84%	57%
≥ 5	7–9	7	2299	13	5.9	44	79%	46%
< 5	**All Students**	**14**	**1077**	**23**	**4.5**	**58**	**82%**	**48%**
≥ 5	**All Students**	**53**	**6799**	**37**	**4.4**	**42**	**81%**	**51%**

Table 6B. Effect of Reading Renaissance Training on Reading Practice Quantity, Quality, and Challenge

Number of Reading Renaissance-Trained Teachers	Grade	Number of Schools	Number of Students	Average Minutes Spent Reading per Day	Average Percent of an Hour Spent Reading per Day	Percent Above Typical Time Spent Reading	Average Book Level Read/ZPD Midpoint
< 5	1–3	5	318	8.7	15%	0%	91
≥ 5	1–3	22	2285	19.1	32%	118%	90
< 5	4–6	6	369	20.0	33%	67%	96
≥ 5	4–6	24	2215	21.8	36%	82%	98
< 5	7–9	3	390	24.2	40%	213%	95
≥ 5	7–9	7	2299	14.3	24%	85%	100
< 5	**All Students**	**14**	**1077**	**18.2**	**30%**	**86%**	**94**
≥ 5	**All Students**	**53**	**6799**	**18.3**	**31%**	**87%**	**96**

The final level of Renaissance implementation consists of schools with teachers who have attained Renaissance Certification. To be eligible for Renaissance Certification, teachers demonstrate that they are using Renaissance techniques in their classroom. Only one school that submitted both AR and STAR Reading data has teachers who have attained Renaissance Certification. While we must be cautious about drawing conclusions from the results of one school, examining the practices and test scores of this school can help show what a school can accomplish when it fully implements Reading Renaissance.

Tables 7, 8A & 8B show the reading achievement growth and the progress toward the quantity, quality, and challenge goals of an Idaho elementary school that has eight teachers who have qualified for Renaissance Certification.

Table 7. Reading Achievement Growth in Idaho School with Eight Renaissance Model Educators

Grade	Number of Students	Average NCE Growth per Day per Student	Estimated NCE Growth per Year per Student	Average Pretest Percentile Rank	Average Post-test Percentile Rank	Average Percentile Rank Gain	Average Number of Days Between Tests
1	28	0.1215	14.58	39	71	31	159
2	84	0.0110	2.64	46	51	5	245
3	92	0.0121	2.90	42	47	5	251
4	45	0.0084	2.02	38	42	4	244
All Students	**249**	**0.0234**	**3.97**	**42**	**50**	**8**	**237**

Table 8A. Progress Toward Quantity, Quality, and Challenge Goals in Idaho School with Eight Renaissance Model Educators

Grade	Number of Students	Average Number of Books per Student	Average Level of Books	Median Number of Points Earned per Student	Average AR Quiz Percent Correct	Percent of Students Averaging ≥85% Correct on Quizzes
1	28	95	1.9	32	85%	64%
2	84	150	2.6	74	83%	54%
3	92	146	3.0	71	85%	64%
4	45	51	3.7	45	81%	49%
All Students	**249**	**124**	**2.9**	**63**	**84%**	**58%**

Table 8B. Progress Toward Quantity, Quality, and Challenge Goals in Idaho School with Eight Renaissance Model Educators

Grade	Number of Students	Average Minutes Spent Reading per Day	Average Percent of an Hour Spent Reading per Day	Percent Above Typical Time Spent Reading	Average Book Level Read/ZPD Midpoint
1	28	38.8	65%	676%	90
2	84	36.6	61%	363%	95
3	92	34.3	57%	243%	90
4	45	20.3	34%	59%	98
All Students	**249**	**33.1**	**55%**	**241%**	**93**

Although the school highlighted in Tables 7, 8A & 8B has still not completely achieved the quantity, quality, and challenge goals on a schoolwide level, its students are showing remarkable improvement in reading skills as shown by their NCE gains. In addition, students at this school are reading more and scoring higher on AR quizzes than the state as a whole (compare to Tables 3, 4A & 4B). This school demonstrates the powerful impact that full implementation of Reading Renaissance can have on student achievement.

Longitudinal Results

The single-year results from the 1998–99 Idaho study and the results presented in this paper show the positive effects of Accelerated Reader and Reading Renaissance on student achievement. Although single-year results are important, it is also important to investigate whether students continue to show reading gains as they progress through school with different teachers and classmates and become more accustomed to the programs. We received complete data for both the 1998–99 and 1999–2000 school years from 10 schools. Tables 9, 10A, 10B & 10C display the reading achievement and reading practice results.

The percentile rank change between the pretests in 1998 and the post-tests in 2000 show that over the two-year period, students are experiencing accelerated growth in reading achievement. While the gains during the 1999–2000 school year are not as great as the 1998–99 gains, by the end of the 1999–2000 school year these students will have still achieved more reading improvement than a national sample of students. However, the data also show that over the summer, students are losing a little bit of their advantage over their peers. Students' 1999 pretest percentile ranks are lower than their post-test percentile ranks from the previous school year. Students make up the loss over the school year, but this summer loss does dampen their overall growth. Summer reading programs could help students sustain their gains across school years. Nevertheless, over the two school years, students are improving their reading skills at a faster rate than their peers.

This growth is occurring despite only partial implementation of Reading Renaissance. Implementation improved in some areas from 1998–99 to 1999–2000 and became less satisfactory in other areas. Percent correct increased slightly from the first school year to the next, but nearly half the students are still falling short of maintaining an average of 85 percent correct. Students spent more time reading during the 1999–2000 school year than they did in 1998–99, but the

books they read were easier in relation to their ZPD. These results indicate that improvements in all areas of implementation could lead to even greater long-term reading gains.

Table 9. Reading Achievement Growth 1998–2000

Grade 1999–2000	Number of Students	Pretest Percentile Rank 1998–1999	Post-Test Percentile Rank 1998–1999	Pretest Percentile Rank 1999–2000	Post-Test Percentile Rank 1999–2000	Percentile Rank Change 1998–2000
2	182	53	74	66	68	15
3	227	51	58	54	54	3
4	277	56	65	63	64	8
5	221	57	57	59	57	0
6	103	60	62	61	61	1
8	25	8	14	13	15	7
9	18	16	20	18	19	3
All Students	**1053**	**53**	**61**	**59**	**59**	**6**

Table 10A. Progress Towards Quantity, Quality, and Challenge Goals 1998–2000

Grade 1999–2000	Number of Students	Average Number of Books per Student 1998–1999	Average Number of Books per Student 1999–2000	Average AR Quiz Percent Correct 1998–1999	Average AR Quiz Percent Correct 1999–2000	Percent of Students Averaging ≥85% Correct on Quizzes 1998–1999	Percent of Students Averaging ≥85% Correct on Quizzes 1999–2000
2	182	40	84	83%	89%	59%	59%
3	227	58	69	83%	85%	54%	55%
4	277	52	44	85%	84%	52%	57%
5	221	33	28	82%	83%	43%	45%
6	103	21	18	81%	82%	54%	42%
8	25	10	9	75%	83%	56%	24%
9	18	7	7	75%	69%	33%	28%
All Students	**1053**	**42**	**49**	**83%**	**84%**	**52%**	**52%**

Table 10B. Progress on Quantity, Quality, and Challenge Goals 1998–2000

Grade 1999–2000	Number of Students	Median Points Earned per Student 1998–1999	Median Points Earned per Student 1999–2000	Percent of Students Averaging ≥ 85% Correct on Quizzes 1998–1999	Percent of Students Averaging ≥ 85% Correct on Quizzes 1999–2000	Average Book Level Read/ZPD Midpoint 1998–1999	Average Book Level Read/ZPD Midpoint 1999–2000
2	182	10	46	59%	59%	119	98
3	227	22	51	55%	54%	103	97
4	277	29	48	57%	52%	94	87
5	221	32	59	45%	43%	91	86
6	103	24	60	42%	54%	80	77
8	25	13	20	24%	56%	100	87
9	18	7	2	28%	33%	81	83
Total	**1053**	**24**	**50**	**52%**	**52%**	**98**	**90**

Table 10C. Progress on Quantity, Quality, and Challenge Goals 1998–2000

Grade 1999–2000	Number of Students	Average Minutes Spent Reading per Day 1998–1999	Average Minutes Spent Reading per Day 1999–2000	Average Percent of an Hour Spent Reading per Day 1998–1999	Average Percent of an Hour Spent Reading per Day 1999–2000	Percent Above Typical Time Spent Reading 1998–1999	Percent Above Typical Time Spent Reading 1999–2000
2	182	14.8	22.0	25%	37%	196%	178%
3	227	17.1	23.7	29%	40%	116%	137%
4	277	20.0	28.6	33%	48%	100%	123%
5	221	17.7	22.3	30%	37%	38%	76%
6	103	12.9	19.1	22%	32%	2%	80%
8	25	9.1	8.8	15%	15%	80%	16%
9	18	5.4	4.9	9%	8%	-30%	36%
All Students	**1053**	**16.8**	**23.3**	**28%**	**39%**	**95%**	**117%**

Conclusions

Although the 37 schools in this study are at varying stages of Reading Renaissance implementation, overall, they show a very encouraging amount of growth in reading skills. On average, students gained over 1.5 NCEs and 3 percentile ranks, while students in grades one through four gained substantially more. In addition, students in schools with more in-depth Renaissance implementation achieved more growth than students in schools with less Renaissance implementation. Students in schools with five or more Renaissance trained teachers gained about four times as many NCEs as students in schools with fewer than five Renaissance trained staff members.

However, analysis of Renaissance implementation—progress toward the quality, quantity, and challenge goals—revealed that most schools are falling short of good implementation. Only 51 percent of students are averaging at least 85 percent correct on Accelerated Reader quizzes and students are only averaging about 18 minutes a day of reading practice. In addition, students are tending to read books slightly below the middle of their ZPD range. Tables 5–8 indicate that the groups of students who are closer to the recommended quantity, quality, and challenge levels tend to show more NCE and percentile rank gain than other students. Fully implemented Renaissance would result in significantly higher gains than what students are currently achieving.

The results of this report suggest several recommendations to schools at all stages of Renaissance implementation to ensure continued progress and improvement of reading achievement:

1. Schools should try to provide at least 60 minutes of daily reading practice. School Renaissance Institute and independently published research indicate that students' achievement will improve as the amount of time they spend practicing reading increases.

2. Educators should incorporate Reading Renaissance techniques and practices into their daily classroom activities. These techniques can have a considerable impact upon reading growth.

3. It is important that students maintain an average of at least 85 percent correct on AR Reading Practice quizzes. Overall, the schools in this study are close to meeting that goal. However, higher average percent correct can be achieved by carefully monitoring student reading using the Reading Renaissance "Status of the Class" technique, and immediate intervention by the teacher when students are unsuccessful in choosing appropriate books within their zone of proximal development.

4. Strong commitment and leadership from administrators facilitates good implementation of Reading Renaissance. Administrators should consider making Renaissance Certification a goal for all classroom teachers and schools. Implementing the Renaissance techniques necessary to achieve certification helps educators achieve superior results.

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APPENDIX A

Goal-Setting Chart

Grade-Equivalent Score	ZPD		Point Values Expected from 60 Minutes per Day of Reading Practice			
	Average	Range	Week	6 Weeks	9 Weeks	Year
1.0	1.5	1.0 – 2.0	1.7	10	15	60
1.5	2.0	1.5 – 2.5	1.9	11	17	68
2.0	2.5	2.0 – 3.0	2.1	13	19	75
2.5	2.8	2.3 – 3.3	2.3	14	21	84
3.0	3.1	2.6 – 3.6	2.5	15	23	90
3.5	3.4	2.8 – 4.0	2.7	16	24	97
4.0	3.7	3.1 – 4.3	2.8	17	25	100
4.5	4.1	3.4 – 4.7	3.2	19	29	116
5.0	4.4	3.7 – 5.1	3.5	21	32	125
5.5	4.8	4.0 – 5.5	3.9	23	35	140
6.0	5.1	4.3 – 5.9	4.2	25	39	150
6.5	5.5	4.6 – 6.3	4.6	28	41	164
7.0	5.8	4.9 – 6.7	4.9	29	44	175
7.5	6.1	5.1 – 7.1	5.3	32	48	192
8.0	6.3	5.2 – 7.5	5.6	34	50	200
9.0	6.6	5.3 – 8.3	6.3	38	57	225
10.0	6.9	5.4 – 9.1	6.9	41	62	250
11.0	7.2	5.5 – 9.9	7.6	46	68	275
12.0	7.5	5.6 – 10.7	8.3	50	75	300

This chart is a guideline only. Both grade-equivalent scores and book-readability levels are approximations. Use your professional judgment to adjust ZPD ranges to match individual students, taking into account such factors as a student's prior knowledge, appetite for challenge, interest, and need for variety. When moving students to higher levels, consider suggesting shorter books.

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