Final Report to Renaissance Learning, Inc.

Findings from a Three-Year Study of Reading Renaissance in a Title I Urban Elementary School

The Effects of Reading Renaissance on Students’ Standardized Reading Performance and Motivation towards Independent Reading
Executive Summary

This study was undertaken to examine the long-term effects of participation in the Reading Renaissance program on student reading performance and motivation for independent reading. The study was situated at an urban, Title I elementary school in the Southwestern US, serving a diverse population of Latino/a, White, and Native American children, 36% of whom received free or reduced-lunch benefits.

Over a three year period, a team of researchers consisting of two professors, 6 graduate students, and the Title I coordinator for the district, engaged in intensive data collection and analysis. Data sources included SAT9 Reading scores over a 6 year period; interviews with librarians and reading specialists; focus groups with teachers, students, and parents; survey data from approximately 20 teachers, 150 parents, and 300 students; measures of student motivation from approximately 300 students; and data for approximately 1150 students from Accelerated Reader.

SAT9 Reading data and interviews with librarians and reading specialists were also conducted at a “control” school that had not implemented Reading Renaissance. This school is located in the same district and geographical location as Harris, is of similar size and student body composition (though slightly more affluent), and is subject to all the same administrative and financial policies as Harris.

Research Questions

• Would participation in Reading Renaissance result in gains in students’ reading performance, both within the treatment school, and in comparison to the control school?

• Would students, parents, teachers, and staff express satisfaction with their experience with Reading Renaissance, and/or any concerns about the program?

• Would students’ motivation for independent reading be affected by their participation in the program, and if so, would the effect be positive (i.e., in the direction of increased interest in mastery rather than competition), or negative (i.e., in the direction of increased concern for performance over learning)?

Key Findings

• In Year 1 of the study, a five-year retrospective analysis of student achievement on the SAT9 Reading showed substantial and significant gains in reading performance from the incept of Reading Renaissance at Harris Elementary.
• The results from Year 1 also suggest a strong correlation between students’ performance on the internal *Reading Renaissance* summative assessment (STAR), and their SAT9 performance, suggesting that STAR results may be used as a reasonable predictor of SAT9 performance.

• Surveys, interviews, and focus groups from Year 1 indicated an overall high level of satisfaction with the program among parents, teachers and students. There were, however, concerns as to whether the use of points and goals could result in children's motivation for recognition and rewards overshadowing their motivation for reading. That is, that extrinsic or performance-based motives might subsume intrinsic or mastery-based motives.

• In Year 2, we determined that gains in reading performance occurred primarily in the initial years of students’ use of the program. These gains were maintained in subsequent years, but did not continue to increase appreciably.

• In Years 2 and 3, we determined that students participating in Reading Renaissance maintained a high level of mastery-oriented motivation towards independent reading, and actually became less performance-oriented over time. This should assuage fears of “damaging” students’ motivation for reading; on the contrary, if there is any evidence for an effect on motivation, it is that students’ motivation is enhanced by the program.

• In Years 2 and 3, we also established that students’ perceptions of each teachers’ goals for the class was related to the students’ motivational orientations for *Reading Renaissance*. Specifically, performance orientation in teachers was associated with performance orientation in students. Mastery orientation in teachers, however, was associated with stronger student goal orientation overall. We speculate mastery orientation in teachers may encourage students to “try harder,” and students do not clearly differentiate trying to learn from trying to get a high score.
Study Rationale

Our goal in conducting this study was to compile a comprehensive account of the longitudinal effects of a naturalistic implementation of *Reading Renaissance* in a Title I elementary school. Much of the research on curriculum reform either cannot provide a description of the reform over time or is suspect because of its pristine implementation, overseen by the researchers and developer, or both. We attempted to avoid these pitfalls by conducting a study that was both retrospective and prospective, allowing us to examine the effects of implementation before the school came under the scrutiny of researchers, while being able to address specific questions that arose out of the retrospective analysis. In the course of doing so, we collected data from seven years of using *Reading Renaissance*, allowing us to address sustainability issues.

The primary foci of our examination are academic performance and student motivation. In the initial report, published in 2001, we emphasized analyses of academic performance; some of those analyses are included here, to provide context and to present some new analyses of that data. This report emphasizes student motivation regarding independent reading and *Reading Renaissance* in particular.

We believe that the results may be useful to a variety of stakeholders. Administrators and teachers who are interested in implementing a program to support sustained, silent reading will find an in-depth discussion of the benefits and challenges of implementing *Reading Renaissance*, with information about students, but also parents and teachers. Likewise, parents may find it useful in knowing what to expect and how to maximize their children’s gains in the program. Policymakers will find a detailed examination of the outcomes associated with using a standardized, computer-based program for establishing accountability in independent reading while supporting teachers in reading instruction and intervention. Researchers may be interested in the study as one of the first naturalistic examinations of how standardized formative assessment influences student motivation for independent reading. Finally, Renaissance Learning, Inc., the publishers of *Reading Renaissance*, may find it useful in future development, honing both the classroom and teacher development components to support learning and motivation even more strongly.
Method

Over the three-year course of the study, we amassed data from parents, teachers, and students, using a variety of methodologies, in order to create the most complete description and assessment of the effects of implementing Reading Renaissance.

Data Sources

1. Stanford Achievement Test 9, Total Reading NCE scores, 1997 to 2004.


3. STAR test scores from the beginning and end of the academic year, 1997 to 2004, measuring reading comprehension.

4. Accelerated Reader data, 1997 to 2004: number of points earned, book levels and number of books read.

5. Survey data parents, teachers, and students addressing reading attitudes and attitudes about Accelerated Reader and Reading Renaissance, 2000-2001.

6. Focus groups with students, teachers, and parents addressing reading attitudes and attitudes about Accelerated Reader and Reading Renaissance, 2000-2001.


8. Students data from an adapted version of the Patterns of Adaptive Learning Strategies (PALS) instrument to assess student motivation regarding Accelerated Reader and Reading Renaissance.

Description of Reading Renaissance & Control Schools

Harris Elementary School, Gilbert Unified School District, AZ. Harris is a K-6 urban, Title I elementary school with 36% of its 625 students qualifying for free or reduced lunch. Twenty-four percent of the school’s population comes from minority backgrounds. On-site programs for gifted students English as a second language learners, special education students, an all-day kindergarten program, a pre-school, before school math labs, an after school homework club and the services of a full-time social worker allow the school to best meet the diverse needs of its community. Before and after school day care is also available on site. Parent involvement includes volunteer
readers, site council membership, a parent-teacher organization and Active Parenting classes.

The school has supplemented the district adopted reading series with other programs designed to meet the needs of at-risk students. Their first grade teachers are trained to use CLIP strategies, and that training is currently being implemented at the kindergarten level. They purchased Accelerated Reader in 1992 with 200 books/tests and had their first Reading Renaissance training in the Fall of 1998. The reading specialist at the time remembers that as a school they earned about 3,000 points a year prior to the training. During the 1998-99 school year, they earned over 30,000 points. They have received Model School recognition in each year since 1999. In the spring of 2000 Master School certification was awarded. This site was chosen because of this extended experience with Accelerated Reader both before and after the Renaissance program model was introduced.

**Control School, Gilbert Unified School District, AZ.** A matched site was desired in order to report comparative data. This site was selected because it is also a Title I elementary school in the same district as School A. It has used Accelerated Reader since 1996, but has not chosen to be involved in the Reading Renaissance program model. It is this distinction that makes it an interesting comparative site. The distinguishing variable becomes the actual implementation of the Renaissance model. This study examines the impact of Reading Renaissance strategies and the potential acceptance of the program model as an acceptable Comprehensive School Reform Demonstration (CSRD) program.

Of the 617 K-6 students, 18% qualify for free and reduced lunch. School B offers a variety of special programs designed to meet the needs of its community including programs for gifted, English Language Learners (ELL) and special education students. School B also offers an all day kindergarten program, pre-school and on site day care. A full-time social worker is also on site daily. Parents take an active role in the school's site council and parent-teacher organization, and volunteer in classrooms. Active Parenting classes are also offered in the evenings.

In addition to the district adopted reading series, the control school has always been involved in literature studies and promoting the use of trade books in the classroom. At one time, they used a program called Quest. Quest was a collection of about 300 multiple choice, true false tests on trade books. Each test was assigned a number of points, but books were not leveled. Since the district adoption of Accelerated Reader, there has been only sporadic use of the program, with individual teacher's using it when and how they see fit. They have seen some increase in library circulation in recent years.

We were not permitted access to the parents or students of the control, and only the librarian and reading specialist are data sources for this study. Thus, we have only SAT9 data and the interviews with the librarian and reading specialist.
As reported in the previous report, from 1997 to 2002, the Reading Renaissance school showed an 18% increase in SAT9 reading NCE scores. This increase is significant by the nonparametric Kruskal-Wallis test, $\chi^2(5) = 35.9$, $p < 0.001$; the effect size is 0.57, or moderate. During this time, there were no significant changes in performance at the control school.

Figure 1. Scores at the school using Reading Renaissance rose significantly from 1997 to 2002; during the same period, there was no significant change in scores for the control school.

These results include all students for whom data was available in a given year. However, with high student mobility, a change could be due to an influx or outflow of students, rather than changes in the students who remain in the school. We therefore computed average change scores by subtracting scores from each year, starting with 1998, from the scores for the previous year (i.e., 1997 from 1998, 1998 from 1999, and so on). Thus, only students who have scores for at least two consecutive years are represented. We also computed an average annual change scores by taking the mean of the change scores from all 5 years.
In Figure 2, we see that this strengthens the evidence for reading gains at the Reading Renaissance school, and also strengthens the argument against gains for the control school. The former shows positive gain every year; the latter shows positive gains for only 3 out of 5 years, and all gains are smaller than those at Hawkeye. The difference between the annual average change at the Reading Renaissance and control schools is significant ($t(1238)=3.59, p< 0.001$).

![Graph showing annual changes in control and Reading Renaissance schools](image)

Figure 2. When we limit the analysis to only those students with two consecutive years in a school, the Reading Renaissance school shows positive gains for every year. The control school shows positive gains for only 3 of 5 years, and smaller gains than the Reading Renaissance school in these years.
Correlating STAR & SAT9: STAR as a predictor of SAT9 Performance

A potential asset of the Reading Renaissance program is that the year-end STAR testing could be used to get some idea of how students will perform on the year-end SAT9. We therefore examined the correlation between students’ STAR pretest and their scores on the SAT9 over four consecutive years.

We found that in each year, the correlation between the two summative measures was significant and in the range of moderate to strong. Moreover, all of the correlations held up when the data were broken down by gender, Title I eligibility, and student ethnicity (for breakdowns, see Sadusky & Brem, 1999).

Of course, there is still a substantial portion of unexplained variance (47% to 56%), and therefore STAR performance should not be used as a substitute for the SAT9, or treated as “guaranteeing” a better or worse performance on the SAT9. Still, the STAR might be used to identify students who are likely to do particularly well or poorly on the SAT9, and perhaps help teachers respond appropriately and proactively.

<table>
<thead>
<tr>
<th></th>
<th>SAT9, Total Reading, 1998</th>
<th>SAT9, Total Reading, 1999</th>
<th>SAT9, Total Reading, 2000</th>
<th>SAT9, Total Reading, 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAR posttest, 1998</td>
<td>0.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAR posttest, 1999</td>
<td></td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAR posttest, 2000</td>
<td></td>
<td></td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>STAR posttest, 2001</td>
<td></td>
<td></td>
<td></td>
<td>0.73</td>
</tr>
</tbody>
</table>

Table 1. STAR annual posttest are moderately to strongly correlated with performance on the Reading portion of the SAT9, suggesting that STAR can be used as a predictor of year-end SAT9 performance.
In Year 1 of the study, as noted above, we conductive extensive focus groups and survey administrations to examine the perceived affective and motivational affects of Reading Renaissance on students’ orientation towards independent reading. Although almost all parents, teachers, and students were favorably inclined towards Reading Renaissance, they also frequently voiced concerns about the effects the program might have on motivation.

Specifically, critics of Reading Renaissance and other programs that use standardized quizzes and chart progress towards quantitative goals claim that such programs reduce students’ intrinsic motivation to read. Critics assert that students focus on performance and scoring points, and lose sight of the real pleasures and utility of reading. Given the volume of such attacks there is surprisingly little data on the motivational effects of participating in these programs; moreover, much of the data is anecdotal or comes from studies with serious methodological weaknesses.

The participants in this study voiced ambivalence; they were pleased with the amount of reading and enthusiastic about reading, but wondered if there might be motivational side-effects that they weren’t seeing. As one teacher responded, “You hope that’s not happening, but you don’t know.”

<table>
<thead>
<tr>
<th>Themes</th>
<th>PARENTS</th>
<th>STUDENTS</th>
<th>TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of reading</td>
<td>27.2%</td>
<td>7%</td>
<td>32.1%</td>
</tr>
<tr>
<td>AR generally, no specifics</td>
<td>16.7%</td>
<td>10.8%</td>
<td>14.3%</td>
</tr>
<tr>
<td>Providing positive motivation to read</td>
<td>13.2%</td>
<td>n/a</td>
<td>7.1%</td>
</tr>
<tr>
<td>Positive environment/staff</td>
<td>12.3%</td>
<td>11.6%</td>
<td>n/a</td>
</tr>
<tr>
<td>Enthusiasm about &amp; focus on reading</td>
<td>11.4%</td>
<td>n/a</td>
<td>14.3%</td>
</tr>
<tr>
<td>Accountability as a positive influence</td>
<td>7.9%</td>
<td>14.5%</td>
<td>n/a</td>
</tr>
<tr>
<td>Good reading resources</td>
<td>6.1%</td>
<td>7.5%</td>
<td>7.1%</td>
</tr>
<tr>
<td>The act of reading itself</td>
<td>22.3%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Rewards for reading</td>
<td>n/a</td>
<td>11.3%</td>
<td>n/a</td>
</tr>
<tr>
<td>Enjoyment of activities associated with reading</td>
<td>5.6%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Found nothing positive about AR</td>
<td>n/a</td>
<td>5.4%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Table 2: Survey participants were asked to list the things that they most liked about Reading Renaissance. Percentages refer to the percentage of participants who gave that response. Participants could give more than one response, and so percentages do not necessarily sum to zero.
Table 3: Survey participants were asked to list the things that they liked least about Reading Renaissance. Percentages refer to the percentage of participants who gave that response. Participants could give more than one response, and so percentages do not necessarily sum to zero.

Thus, in Year 2 of the study, we decided to assess whether apprehension about the effects of recognition and rewards on students’ motivation for “reading for readings’ sake” were justified in any way.

**Theoretical Foundation**

In motivation theory, the contrast between “learning for learning’s sake” and “working for the grade” is referred to as the difference between *mastery goal orientation* and *performance goal orientation*. Achievement Goal Theory (Kaplan, Middleton, Urdan, & Midgley, 2002) states that these two types of goal orientations have quite profound, and quite different, effects on students’ learning motivation and behaviors.

Mastery-oriented learners are focused on learning as something valuable and meaningful in itself. They view the learning task as an ongoing process, are more concerned with charting their own progress than comparing their progress to that of others, and view all
outcomes, better and worse, as opportunities to learn something about themselves and what they need to do to improve. Research has consistently shown that mastery-oriented learners are more willing to take risks, more likely to use deep processing strategies, and more willing and able to work on their own than performance-oriented learners (see Pintrich & Schunk, 2002 for review). The mastery-oriented learner is focused on learning for the sake of learning.

The performance-oriented learner is harder to pin down. He or she focuses on the learning product or outcome measure (Meece, Blumenfeld, & Hoyle, 1988) and proving their ability relative to others. Their chief concern is getting a good score or grade, as indicated by their performance relative to other students. The performance-oriented students want to be seen as being at the top of the class, or, just as importantly, not seen as being at the bottom.

Not surprisingly, this has been shown to be associated with less adaptive patterns of beliefs and behaviors (Meece et al., 1988), but the findings are not as clear as for mastery orientation (Pintrich, 2000). In particular, it seems there is not always a disadvantage associated with being performance-oriented, and unless we believe that performance is completely irrelevant to learning, this means being performance-oriented is at least sometimes desirable.

One suggested solution to this puzzle is to differentiate between performance-approach and performance-avoid goal orientations. A performance-approach student seeks out challenges as a way to establish themselves as a top student; though they are not focused on learning (as the mastery student would be), they nevertheless do learn and grow from these experiences. A performance-avoid student, however, is concerned with not failing, and runs from challenge, or engages in self-sabotaging behaviors in order to have an excuse for poor performance (Pintrich, 2000). Strong evidence suggests that performance-avoid goals are maladaptive and do not lead to positive outcomes.

In summary, then, mastery orientation is strongly associated with positive outcomes, and performance-avoid orientation is strongly associated with poor outcomes. Performance-approach goals, however, are a bit more slippery; they can lead to greater learning and better performance, but not always, and not without being paired with strong mastery orientation (Midgley, Kaplan, & Middleton, 2001).

Although goal orientation impacts post-secondary students as well as elementary and secondary students (Anderman & Maehr, 1994; Pintrich & Garcia, 1991; Thorkildsen & Nicholls, 1998), there are some developmental considerations. Differences in goal orientation exist at various ages, and the cause of these changes may by developmental (Nicholls, 1990; Ruble & Frey, 1991) as well as contextual (Rohensholtz & Simpson, 1984; Marshall & Weinstein, 1984). Dweck (1999) proposes children hold either an incremental or entity approach to intelligence. Younger children tend to hold the incremental view that intelligence and ability can change with time and experience. As children reach the ages of 10 to 12, an entity approach begins to develop. The entity
theory sees intelligence and ability as fixed and unchangeable. These two theories point
to different goal orientations: the incremental approach leading to mastery goals, and
the entity view leading to performance goals. All else being equal, research has generally
shown that students’ will become more performance oriented and less mastery oriented
as they approach middle school (Pintrich & Schunk, 2002).

Although there are developmental trends that support the development of performance
orientations, research also indicates that situational factors, specifically classrooms and
teachers, impact students’ personal goal orientations. The goal structures in the
environment may take the form of classroom goals (Ames, 1992; Anderman &
Anderman, 1999; Roeser, Midgley, & Urdan, 1996), school reform goals (Maehr &

In short, the effects of testing and evaluation are rarely simple; testing doesn’t necessarily
hurt motivation—it is the way it is done that determines whether it is beneficial or
detrimental. Evaluation can fuel mastery-oriented learning by giving them a way to
measure their improvement relative to their own past performance, helping them
identify opportunities to go even further, and treating failure as an opportunity for
growth. But, evaluation can also create performance orientation by emphasizing the
importance of high scores, comparing students to one another, and making failure seem
insurmountable and an opportunity for punishment or disappointment.

The most widely used measure of student goal orientation is the Patterns of Adaptive
Learning instrument (PALS, Midgley et al., 2000). For this study, we adapted the PALS
in two ways. First, the PALS had not been used with elementary aged students. The
PALS is typically used with students in fifth grade and above and most often with middle
school students. Item wording was adapted to accommodate vocabulary limitations of
2nd and 3rd grade students.

Second, the PALS was originally designed to address learning goals in general, rather
than learning in specific situations. We therefore decided to adapt the PALS to relate
specifically to Reading Renaissance. This is a stronger test of the effects of the program
than would be an instrument directed toward learning more generally, or toward reading
in general. Critics could counter that a child might not yet show a deleterious effect
regarding their motivation toward reading in general, and yet be experiencing effects
related to Reading Renaissance now that might affect other reading in the future.

Finally, we created two subscales: Personal Achievement Goal Orientation and
Perceptions of Teachers’ Goals. Because students can take their cue from the adults
around them, we hypothesized that any changes in students’ motivation might be related
to their beliefs about their teachers’ motivation. It is important to note that this measure
examines children’s perceptions, not teachers’ actual goals, which may be very different.
We discussed our adaptations with the current head of the PALS program, Michael Middleton, and received enthusiastic support for the project. In fall of 2002, a pilot study of second and third grade students was conducted using the adapted subscales at a school where the Reading Renaissance program was not employed. The demographics of the school were similar to the school of primary interest. An exploratory principal component analysis was conducted on the pilot study data. Data was collected in the formal study in the spring of 2003, the fall of 2003, and the spring of 2004, and additional confirmatory principal component analyses and reliability analyses were conducted.

**Psychometrics of the Personal Achievement Goal Orientations Subscale.**

The dimensionality of the 12 items on the scale was analyzed using principal components analysis. Based on scree plots, three components were rotated using a Varimax rotation procedure for the Personal Achievement Goal Orientations scale. The rotated solution for the scale yielded three interpretable components: mastery, performance-approach, and performance-avoid orientations toward learning. The mastery component accounted for 19.98% of the variance, the performance-approach component 22.28% of the variance, and the performance-avoid component 17.51% of the variance.

The four items comprising the mastery component produced a Cronbach’s Alpha of .74, the five performance-avoid items had a Cronbach’s Alpha of .80, and the three performance-avoid items had a Cronbach’s Alpha of .71.

In addition to examining the scales structure, we also took the student and teachers response to the scale into account. Items which consistently enlisted questions from the students concerning their meaning were altered. Due to these issues, two items, one mastery and one performance-approach, were eliminated for the Fall of 2003 survey. In addition, after this administration, the wording of some of the performance items was altered. For example, items containing the words “stupid” and “dumb” raised concerns from teachers and students, and thus were changed to read as “having trouble.”

A confirmatory principal components analysis on the Fall 2003 data yielded the same three components, using a Varimax rotation procedure. The mastery component accounted for 20.52% of the variance, the performance-approach component 24.23% of the variance, and the performance-avoid component 21.58% of the variance. The components of mastery, performance-approach, and performance-avoid orientations toward learning showed Cronbach’s Alphas of .76, .78, and .78 respectively.

No changes were made to the survey for the Spring 2004 survey (see table 4). Using the same Varimax rotation procedure with the Spring 2004 data, the mastery component accounted for 22.14% of the variance, the performance-approach component 22.82% of the variance, and the performance-avoid component 24.53% of the variance. The components of mastery, performance-approach, and performance-avoid orientations toward learning showed Cronbach’s Alphas of .80, .81, and .80 respectively.
<table>
<thead>
<tr>
<th>Components</th>
<th>Mastery</th>
<th>Performance-Approach</th>
<th>Performance-Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mastery Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to learn as much as I can in AR.</td>
<td>.86</td>
<td>.09</td>
<td>.04</td>
</tr>
<tr>
<td>It’s important to me that I get better at my AR skills.</td>
<td>.79</td>
<td>-.02</td>
<td>.21</td>
</tr>
<tr>
<td>It’s important to me that I learn a lot of new things this year in AR.</td>
<td>.84</td>
<td>.19</td>
<td>-.02</td>
</tr>
<tr>
<td><strong>Performance-approach Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to show students in my class that AR books and quizzes are easy for me.</td>
<td>.10</td>
<td>.72</td>
<td>.35</td>
</tr>
<tr>
<td>I want to show other students in my class that I’m good at AR books and quizzes.</td>
<td>.27</td>
<td>.69</td>
<td>.43</td>
</tr>
<tr>
<td>It’s important to me that other students in my class think I am good at AR books and quizzes.</td>
<td>.17</td>
<td>.65</td>
<td>.43</td>
</tr>
<tr>
<td>It’s important to me that I look smarter to other students in my class when we do AR.</td>
<td>-.04</td>
<td>.81</td>
<td>.05</td>
</tr>
<tr>
<td><strong>Performance-avoid Items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It’s important to me that I don’t look like I’m having trouble in AR.</td>
<td>.13</td>
<td>.30</td>
<td>.78</td>
</tr>
<tr>
<td>I want to keep other students in my class from thinking I’m having trouble in AR.</td>
<td>-.04</td>
<td>.21</td>
<td>.81</td>
</tr>
<tr>
<td>I want to keep from looking like I have trouble with AR books and quizzes.</td>
<td>.13</td>
<td>.20</td>
<td>.80</td>
</tr>
</tbody>
</table>

Table 4: Results of the principle components analysis of the Personal Goal Orientation subscale, Spring 2004.

Psychometrics of the Perceptions of Teacher’s Goals Subscale. In spring 2003, the adapted Perceptions of Teacher’s Goals scale was administered in the primary school of interest. The dimensionality of the 12 items on the scale was analyzed using principal components analysis. Three components were rotated using a Varimax rotation procedure for the Perception of Teacher’s Goals scale. The rotated solution yielded three interpretable components: mastery, performance-approach, and performance-avoid orientations toward learning. The mastery component accounted for 11.5% of the variance, the performance-approach component 23.19% of the variance, and the performance-avoid component 16.50% of the variance.
The two items comprising the mastery component produced a Cronbach’s Alpha of .36, the five performance-avoid items had a Cronbach’s Alpha of .78, and the five performance-avoid items had a Cronbach’s Alpha of .58. Due to the double loading of some components, four items were removed for administration in fall of 2003, and items were reworded for clarity.

A confirmatory principal components analysis on the Fall 2003 data yielded two components, mastery and performance orientations toward learning using a Varimax rotation procedure. The mastery component accounted for 22.84% of the variance, and the performance component 29.49% of the variance. The components of mastery and performance orientations toward learning showed Cronbach’s Alphas of .39 and .58 respectively.

No changes were made to the Spring 2004 survey (see Table 5). Using the same Varimax rotation procedure with the Spring 2004 data, the mastery component accounted for 26.31% of the variance, and the performance component 27.06% of the variance. The components of mastery and performance orientations toward learning showed Cronbach’s Alphas of .50 and .51 respectively.

<table>
<thead>
<tr>
<th>Components</th>
<th>Mastery</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery Items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher wants us to enjoy learning new things in AR.</td>
<td>.78</td>
<td>-.20</td>
</tr>
<tr>
<td>My teacher lets us know when he/she sees us trying hard in AR.</td>
<td>.65</td>
<td>.34</td>
</tr>
<tr>
<td>My teacher thinks mistakes in AR are okay as long as we are learning.</td>
<td>.67</td>
<td>.08</td>
</tr>
<tr>
<td>My teacher wants us to enjoy learning new things in AR.</td>
<td>.78</td>
<td>-.20</td>
</tr>
<tr>
<td>Performance-approach Items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher tells us who the good students are in AR.</td>
<td>.23</td>
<td>.75</td>
</tr>
<tr>
<td>My teacher says that it’s important to show other students in our class that we are not having trouble in AR.</td>
<td>-.14</td>
<td>.54</td>
</tr>
<tr>
<td>My teacher points out students who make the most points in AR.</td>
<td>.12</td>
<td>.77</td>
</tr>
<tr>
<td>My teacher tells us who the good students are in AR.</td>
<td>.23</td>
<td>.75</td>
</tr>
</tbody>
</table>

Table 5. Results of the principle components analysis of the Teacher Goal Orientation subscale, spring 2004
Key Findings

Given the Achievement Goal theoretical framework, the findings that would indicate negative effects of Reading Renaissance on motivation would be for mastery orientation to fall while performance-avoid orientation increased. Given that a general trend toward performance orientation is expected at the fifth and sixth grade, an increase in performance orientation can be reasonably expected for the older students in our sample. The effects on performance-approach orientation are not really relevant in this case. The results that would indicate the strongest positive results for Reading Renaissance would be for mastery orientation to increase or remain high, and performance-avoid orientation to remain low or decrease. In this case, performance-approach orientation would be best at low or, possibly, moderate levels.

<table>
<thead>
<tr>
<th>Most Detrimental</th>
<th>Mastery</th>
<th>Performance-Approach Initially/Over Time</th>
<th>Performance-Avoid Initially/Over Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Optimal</td>
<td>Decreases</td>
<td>Low to Moderate Range</td>
<td>Increases</td>
</tr>
<tr>
<td></td>
<td>Increases</td>
<td>Or</td>
<td>Decreases</td>
</tr>
<tr>
<td></td>
<td>Or Remains High</td>
<td></td>
<td>Or Remains Low</td>
</tr>
</tbody>
</table>

Table 6. Summary of possible outcomes, and interpretations.

A repeated measures MANOVA was conducted to determine if students’ goal orientations changed over the course of the semester. Students grade level was used as a between subjects factor to examine possible developmental differences.

The MANOVA did indicate a significant within subject effect for time \( F (3, 233) = 7.03. p < .001 \) but did not find a significant between subjects effect for grade level \( F (9, 567) = 1.55. p = .13 \). There also was no interaction effect for grade and time \( F (9, 567) = 1.00. p=.44 \). Thus, we found no developmental differences, and focused instead on changes in students’ goal orientations over time.

Mastery Orientation Was Initially High, and Remained High Throughout Study.
Students’ ratings started high and remained high throughout the study, hovering around 4.40 on the 5 point scale \( F (1, 235) = 2.28. p = .13 \).

Performance Orientation was Initially Low, and Decreased. The univariate analysis showed students were less performance approach oriented by the end of the year, with the mean performance approach score falling from 2.85 to 2.54 on a 5 point scale \( F (1,235) = 17.33. p<.001 \). Students also became less performance avoid oriented, with scores falling from 2.96 to 2.75 on the 5 point scale \( F (1,235) = 6.04. p <.05 \).

Teachers’ Perceived Performance Goal Orientations are Related to Students’ Performance Orientations. Regarding the relationship between students’ orientation
and their perception of their teachers’ orientation, we found the more performance oriented they thought their teachers were, the more performance oriented they tended to be themselves; they were more likely to be performance approach oriented ($r=0.34, p < 0.001$) and more likely to be performance avoid oriented ($r=0.22, p < 0.001$). Teachers’ perceived performance orientation was not associated with students’ mastery orientation. These findings are in keeping with our hypothesis that students’ personal orientation will correlate with their perceptions of their teachers’ orientation.

**Teachers’ Perceived Mastery Achievement Goals are Related to Students’ Achievement Goals, Both Mastery and Performance.** Regarding teachers’ perceived mastery orientation, however, the results were a mix of expected and surprising. As expected, we found the more mastery oriented students thought their teachers were, the more mastery oriented the students themselves were ($r=0.38, p <0.001$). But we found the more mastery oriented the teacher seemed to students, the more likely the student was to be performance-oriented; perceptions of their teachers’ mastery orientation was moderately related to students’ performance approach orientation ($r = .26; p<.001$) but weakly related to students’ performance avoid orientation ($r=.20; p=.001$).

In short, we believe that the school has little to worry about in terms of the effects of Reading Renaissance on student motivation. Students are clearly enthusiastic about reading for the sake of reading; mastery orientation is extremely high. Moreover, the overall reduction of performance goals, and performance-avoid goals especially, is a positive outcome. We also believe that teachers can influence their students’ goals, and therefore have the power to prevent negative motivational outcomes.
The picture created from the diverse data sources and methodologies used in this study is overall very positive for Reading Renaissance. Reading performance increased significantly, students, teachers and parents were all enthusiastic about the amount of reading going on in the school and the enjoyment of that reading. STAR scores proved to be good indicators of SAT-9 performance, providing a sort of “early warning” system for identifying students who were likely to struggle on the year-end standardized tests. And, new to this report, we find little or no evidence for fears that Reading Renaissance has a negative effect on student motivation.

Previous research concerning standardized assessments has raised the concern that they may negatively impact student motivation, supporting maladaptive achievement goals in students. Contrary to this, we found that exposure to formative standardized assessment was associated with a decline in students’ performance orientation, whereas mastery orientation remained strong. Thus, the school has little to worry about in terms of the effects of Reading Renaissance on student motivation; if anything, the overall reduction of performance goals, and performance-avoid goals especially, is a positive outcome.

However, when we examine the effects of students’ perceptions of teachers, the story is more complicated, though it supports our position that it is not evaluation, in and of itself, that affects goal orientation but how evaluation is carried out. Performance-orientation in teachers, as predicted, was associated with performance orientation in students. Mastery orientation in teachers, however, was associated with stronger student goal orientation overall; the largest correlation was, as expected, with students’ own mastery orientation, but their performance orientation was higher as well. We speculate that mastery orientation in teachers may encourage students to “try harder,” and that students do not clearly differentiate trying to learn from trying to get a high score.

Additional research is needed. Now that there is a motivation measure specifically for Reading Renaissance that has been shown to be reliable, it would be useful to use it to track changes in performance as schools first implement Reading Renaissance. This could be done as part of the data collection undertaken to create the Reading Practice Database, or integrated with Renaissance Place. Multi-level modeling would help to further distinguish the effects at the classroom and individual levels. The amount of data available from these sources, too, would easily allow Renaissance Learning to carry out multi-level analyses. As part of this report, we are including the adapted PALS; there is no fee associated with use of the original PALS or this adaptation, and so it can be used as often as desired.

Finally, based on the findings of this study, and the robust findings of other examinations of student motivation, we can suggest some “dos and don’ts” for teachers, to promote mastery orientation, and lessen the likelihood of students developing a performance orientation:
• **Focus on goals, not points.** Goals can be set such that everyone can reach their goal with effort. There will always be students who have more and less points than one another, however. An emphasis on points, especially publicly, encourages social comparison, and thus a performance orientation. Goals, in contrast, encourage a focus on personal progress, and thus are consistent with a mastery orientation.

• **Give students choice.** If students feel that they “have” to read a certain book, or finish a book they don’t like, they are more likely to see reading as something that is done to please others, or to fulfill an assignments. The more students feel they have control over their own book choice the more likely it is that they will see reading as something they do for its own sake.

• **Treat success as an opportunity, not an end.** There is certainly nothing wrong with celebrating success on quizzes or in reaching goals, but if students come to believe that the success and celebration are the reason for reading, they are more likely to develop a performance orientation. Instead, focusing on students’ accomplishments as a sign that they are ready for new challenges will encourage them to develop a mastery orientation toward reading.

• **Treat failure as an opportunity, too.** A poor quiz score, or being foiled by a book that is too difficult, is a reason for disappointment. If, however, mistakes are feared, and seen as failures from which students cannot recover, each quiz can become a test of their absolute reading ability. If this is the case, over time the student will engage in behaviors to avoid taking the quizzes, or resist reading more challenging books. Encouraging students to see poor performances as a way to learn how to become a better reader may help to take the sting out of disappointing performances and create a mastery orientation.

• **Students’ perceptions of teachers may differ greatly from reality.** If students believe their teachers are performance oriented, it is not surprising that they would become more performance oriented. Frustratingly, their perception may be completely erroneous; it is easy for people to misread one another’s intentions, easier still when one is a child. As we noted, a teachers’ mastery orientation, as perceived by a child, may make students want to work hard to please their teacher, inadvertently resulting in a performance orientation. It is important that teachers emphasize mastery goals explicitly, frequently and consistently. This can be done by doing things such as reminding students that mistakes are a sign of accepting challenge and opportunities for learning, setting goals that are reachable and seen as stepping stones instead of endpoints, and allowing students to have a sense of control over their own learning process.

• **Track students’ motivation carefully.** In addition to being a research instrument, the adapted PALS could be used by teachers to check in on their
students motivation from time to time. Students who were seen as moving toward a performance-avoid orientation could be targeted for special attention to boost their confidence and reduce their anxiety about failure. Students who are strongly mastery oriented could become models and peer tutors. Again, since there are no fees associated with the use of the original or adapted PALS, teachers can do this as often as they like.