

The Research Foundation for Accelerated Reader Goal-Setting Practices

Teachers strive to help students become lifelong learners who love to read. To achieve this, students must devote time to reading appropriate literature (Anderson et al., 1985; Lewis & Samuels, 2003; Samuels & Wu, 2004; Snow, Burns, & Griffin, 1998). However, simply setting aside time for reading is not sufficient. The time must be well spent: Students must experience a high level of success in their reading practice.

In order to ensure this occurs, educators must thoughtfully and deliberately guide and monitor reading practice. Combining proven teaching techniques with Accelerated Reader, a computerized, daily progress-monitoring system, provides a way for educators to monitor and guide reading practice and ensure success for their students—through goal setting.

There are three key components of goal setting with Accelerated Reader: quality (or level of success) of reading practice, quantity of reading practice, and book level (or level of challenge). To assist educators in establishing appropriate goals for their students in these areas, the Goal-Setting Chart was created (see page 7).

The chart helps educators set individual goals for percent correct on Accelerated Reader (AR) Reading Practice Quizzes, quantity of AR points earned, and book-level ranges. The guidelines for setting individual and classroom goals are supported by research and have been validated empirically. When combined with educators' professional judgment, they help ensure the best outcomes for students.

This paper explains the key elements of the chart and its supporting research.

Average Percent Correct Goal

Research shows that high levels of success in academic tasks lead to improved educational outcomes, including large gains in reading achievement (Allington, 1984; Betts, 1946; Rosenshine & Stevens, 1984). In addition, research has found that high rates of success are more critical for low-achieving students than for high-achieving students and high rates of success have more significant effects on achievement than engaged time on task (Marliave & Filby, 1985).

In Accelerated Reader, level of success in reading practice is measured by percent correct on AR Reading Practice Quizzes. Validated by Topping and Sanders (2000), AR best classroom practices recommend that students average 85 percent correct or higher on their AR Reading Practice Quizzes. Researchers have validated the 85 percent correct recommendation by analyzing the reading practice and achievement of more than 40,000 students (Borman & Dowling, 2004; Paul, 2003). This research showed that percent correct on AR Reading Practice Quizzes is more important to student reading achievement than the amount of reading or readability level of books. At all ability levels, students experience greater Normal Curve Equivalent (NCE) gains as percent correct increases (see Table 1).

As always, educators should use their professional judgment: Students in upper grades or those at higher achievement levels may need to have a higher goal for percent correct on AR Reading Practice Quizzes in order to experience reading achievement growth.

The Goal-Setting Chart (page 7) helps educators ensure that their students engage in successful reading practice

**Table 1. Students Experience Greater NCE Gains as Percent Correct Increases
Grades 2 through 12 (N=45,670)**

| Student Ability Level (Percentile Range) | Average Percent Correct Range | | | | |
|---|-------------------------------|------------|------------|------------|-----------|
| | Below 65% | 65% to 75% | 75% to 85% | 85% to 95% | Above 95% |
| 0 through 20 | -2.08 | -0.74 | 1.57 | 5.01 | 3.44 |
| 21 through 40 | -3.13 | -1.18 | 0.85 | 4.72 | 6.35 |
| 41 through 60 | -4.66 | -1.06 | 0.23 | 5.29 | 6.77 |
| 61 through 80 | -3.95 | -2.78 | -0.30 | 3.21 | 6.08 |
| 81 through 100 | -5.72 | -4.78 | -2.18 | 2.11 | 4.93 |

Source: Adapted from Paul (2003).

and meet their percent-correct goals by providing guidelines for the range of book levels (ZPD ranges) that students should read and the amount of reading they should do each day.

ZPD and Book-Level Goal

What Is ZPD?

ZPD—or zone of proximal development—is a theoretical concept introduced by the Russian child development psychologist Lev Vygotsky (1978). This concept has been translated into the realm of independent reading with the development of ZPD ranges for student reading. When students read within this zone, the portion of the text that they know helps them to understand the unknown portion of the text (Paul, 1996). In independent, literature-based reading, ZPD is the range of books that will challenge a student without causing frustration or loss of motivation.

Validation of ZPD Ranges

The Goal-Setting Chart includes suggested ZPD ranges which educators can use when setting goals with their students (see page 7). ZPD ranges were developed and have been updated over the years using actual student reading data. The current ranges have been validated based on data from more than 20,000 students during the 2001–2002 school year. The typical range of books read by students in Renaissance Learning-certified Model and Master Schools¹ and the Goal-Setting Chart ZPD ranges are shown in Table 2.

The student data show that the typical range of books read

is consistent with the Goal-Setting Chart. For lower grade-equivalent (GE) scores, the goal-setting chart shows a slightly narrower range to ensure that these emergent readers are not being over-challenged. Also, most lower-level books have a controlled vocabulary. Educators should use their own judgment to determine if students are capable of reading slightly harder books or if they should have them read to or with them.

For higher GE scores, the goal-setting chart ranges are wider because much good literature does not have a very high readability level, but is still appropriate for upper-level students. For example, *The Crucible* by Arthur Miller has a readability level of only 4.9, yet the ideas and themes of the play are appropriate for upper-level, advanced readers.

It should be noted that book readability is not a measure of content appropriateness. In fact, many books with lower readability (such as *The Crucible*) are more appropriate for older readers. Decisions on the appropriateness of books for particular students are left to the professional judgment of educators and parents. For all books with AR Reading Practice Quizzes, Renaissance Learning classifies them with an interest level (LG—lower grades; MG—middle grades; UG—upper grades) to help with these decisions. Interest level refers to the sophistication and maturity level of a book’s content, ideas, and themes. These levels are based on publisher recommendations about the content. The wide ZPD ranges combined with interest levels allow established readers flexibility to read interesting, high-quality literature.

¹ Renaissance Certification is a professional recognition program for educators implementing Accelerated Reader and/or Accelerated Math according to Renaissance Learning’s research-based best classroom practices. There are two levels of certification to achieve: Model Certification, which confirms recommended practices are implemented correctly and students are receiving the correct amount of quality reading practice; and Master Certification, which challenges educators to excel even further.

Table 2. Comparison of ZPD Range to Actual Student Reading

| Grade-Equivalent Score | Number of Students | Readability-Level Range of Most Books Read by Students | Goal-Setting Chart Suggested ZPD Ranges |
|-------------------------------|---------------------------|---|--|
| 1.0 | 3,637 | 1.1–2.5 | 1.0–2.0 |
| 1.5 | 2,349 | 1.6–2.9 | 1.5–2.5 |
| 2.0 | 2,673 | 2.0–3.3 | 2.0–3.0 |
| 2.5 | 3,204 | 2.4–3.7 | 2.3–3.3 |
| 3.0 | 2,060 | 2.7–4.0 | 2.6–3.6 |
| 3.5 | 1,912 | 2.9–4.3 | 2.8–4.0 |
| 4.0 | 1,226 | 3.1–4.5 | 3.0–4.5 |
| 4.5 | 1,459 | 3.3–4.7 | 3.2–5.0 |
| 5.0 | 1,363 | 3.6–5.0 | 3.4–5.4 |
| 5.5 | 1,173 | 3.8–5.2 | 3.7–5.7 |
| 6.0 | 977 | 3.9–5.5 | 4.0–6.1 |
| 6.5 | 744 | 4.2–5.8 | 4.2–6.5 |
| 7.0 | 321 | 4.4–6.0 | 4.3–7.0 |
| 7.5 | 246 | 4.5–6.1 | 4.4–7.5 |
| 8.0 | 359 | 4.6–6.3 | 4.5–8.0 |
| 9.0 | 215 | 4.6–6.4 | 4.6–9.0 |
| 10.0 | 90 | 4.7–6.6 | 4.7–10.0 |
| 11.0 | 57 | 4.6–6.8 | 4.8–11.0 |
| 12.0 | 216 | 4.8–6.9 | 4.9–12.0 |

Factors Influencing ZPD Readability Levels

The ZPD ranges are guidelines only. Determining the book readability levels that make up a student’s ZPD range is a two-step process. First, educators match students to book readability ranges based on the students’ tested reading abilities. Second, educators monitor how well students comprehend what they are reading and adjust their ZPD ranges accordingly. Factors that affect a student’s optimal ZPD range include: (1) family, peer, and teacher expectations; (2) student motivation and interest; (3) book availability; (4) error in measuring student reading ability and book readability. Educators should use their knowledge of each student’s ability and appetite for challenge, along with their professional judgment, to guide reading practice and set goals. If a student is struggling or scoring low on AR Reading Practice Quizzes, the educator may need to suggest a

shorter book, an easier book, or a book on a topic of keen interest to the student.

ZPD ranges equal or exceed the GE score for lower readability levels, but are substantially less than the GE score at the upper levels. This is because measures of reading ability, such as the GE score from a STAR Reading² assessment, estimate the highest level at which a student can read short passages for a short period of time. ZPD ranges, however, are based on the range of books one can read for hours without becoming either frustrated or bored. For example, most adults have a post-high school reading ability, yet the average book they read for leisure is at a sixth- to eighth-grade readability level. If forced to read books at or near their reading level, most adults would quickly stop reading for pleasure entirely.

² STAR Reading is a reliable and valid, computer-adaptive, norm-referenced reading test and database that enables educators to quickly and accurately assess reading scores for all students, grades 1–12. Detailed reports provide educators with valuable feedback that can be used to monitor progress and adjust instructional strategies.

To gain automaticity and knowledge from reading, as well as to learn new vocabulary, students must read a large quantity of literature. When a student's ZPD range is too high, the student will not experience the successful reading practice that is vital for improving reading achievement.

Point and Time Goals

AR Points

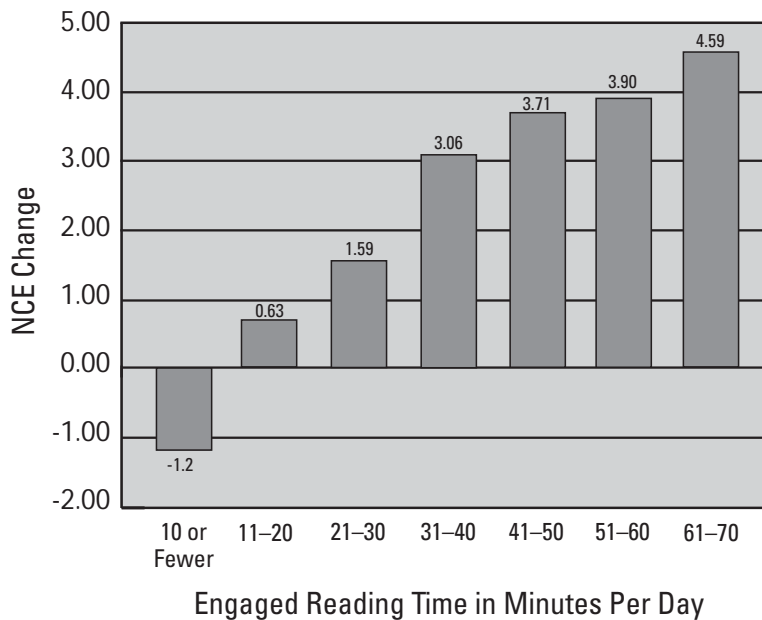
The amount of reading practice students receive is highly correlated to reading achievement gains (Anderson, 1996). Research has shown that it is not just the amount of time that is allocated to an activity that predicts student achievement. Rather, it is the amount of time in which a student is successfully engaged in activities related to valued educational outcomes (Berliner, 1990; Fisher et al., 1980). This time is called academic learning time. Reading academic learning time can be measured with AR points.

AR points are computed based on the readability level and number of words in the book³. Students earn a

portion of a book's points depending on how well they do on the Reading Practice Quiz. The Goal-Setting Chart provides guidelines for the approximate number of AR points students should be able to earn depending on how much time they read and their GE level. Monitoring AR points earned by students and comparing them to the guideline values listed on the Goal-Setting Chart enables educators to determine how well students are using the time provided for reading practice and whether they are reading materials at the correct level.

The Goal-Setting Chart (page 7) suggests AR point goals given 60, 30, and 20 minutes of daily reading practice. The amount of time that a student can invest in reading practice each day may depend on several factors, but in general, more is better, provided that the student is reading within his/her ZPD and is reading with a high degree of comprehension. Research conducted by Paul (2003) and validated by Borman & Dowling (2004) has confirmed that students achieve the greatest gains in reading with 60 minutes or more of daily reading practice but can also achieve significant growth at 30 or even 20 minutes (see Figure 1).

**Figure 1. NCE Change at Varying Levels of Engaged Reading Time
Grades 2 through 12 (n=45,670)**



Source: Adapted from Paul (2003).

³ Students earn AR points when they pass quizzes. The number of points earned equals [(10+ Reading Level) x (Words in Book/100,000)] x Percent Correct.

Point Goals and Grade-Equivalent Scores

The point values on the Goal-Setting Chart depend on a student's grade-equivalent score. Research on student rates of reading shows that the relationship between reading rate and comprehension varies with the age and intellectual ability of students, as well as with the type of reading materials (Harris & Sipay, 1990). Consequently, when educators use the guidelines they should also use their professional judgment and consider the attitudes, interests, and abilities of each student. The point goals on the Goal-Setting Chart should be modified, when appropriate, to consider the individual needs and abilities of each student.

Validation of the AR Point Goals

Point goals were first published in 1993, based on a comparison of student reading logs and AR points earned (Paul, 1992). The goals have been modified based on additional data showing actual student reading behavior.

AR point goals were recently validated by:

(1) comparing the goals on the Goal-Setting Chart to the number of words read by students as published in several studies on student reading rates; and (2) looking at data from more than 7,000 students in classrooms known to allocate 60 minutes for daily reading practice.

Research on students' reading rates reveals a wide range of reading speeds for students at different grade levels

and with different reading abilities. The type of material, the purpose of reading, the length of material, and topical knowledge all influence reading rates. Most research on reading rates examines silent reading, often under test conditions. However, the rates at which students read for relatively short periods of time under test conditions may not be the same as the rates they use in their daily reading at school.

To validate the point goals, the expected points shown on the Goal-Setting Chart were converted to words read using the AR points formula (see footnote 3) and compared to words read by students in various reading rate research studies (Harris & Sipay, 1990; Carver, 1990; Allington, 2001). The point goals on the Goal-Setting Chart are lower than the published study results, but reasonable given the differences between daily reading practice of self-selected books and reading in a testing situation.

Data from students in schools known to allocate 60 minutes for daily reading practice also validate the point values on the Goal-Setting Chart. The number of points per week from the Goal-Setting Chart compared to the average number of points per week earned by students in these schools is shown in Table 3.

Overall, these results validate the relationship shown in the Goal-Setting Chart between points and engaged reading time for students at all levels.

**Table 3. Goal-Setting Chart Points Align
with Average Points Earned Per Week**

| Grade-Equivalent Score | Goal-Setting Chart Points/Week | 60 Min. Schools Avg. Points Earned/Week | 60 Min Schools No. of Students |
|------------------------|--------------------------------|---|--------------------------------|
| 1.0 | 1.7 | 1.9 | 862 |
| 1.5 | 1.9 | 2.2 | 645 |
| 2.0 | 2.1 | 2.4 | 770 |
| 2.5 | 2.3 | 2.7 | 945 |
| 3.0 | 2.5 | 2.9 | 675 |
| 3.5 | 2.7 | 3.2 | 596 |
| 4.0 | 2.8 | 3.3 | 397 |
| 4.5 | 3.2 | 3.5 | 487 |
| 5.0 | 3.5 | 4.1 | 486 |
| 5.5 | 3.9 | 4.1 | 439 |
| 6.0 | 4.2 | 4.8 | 377 |
| 6.5 | 4.6 | 5.3 | 299 |
| 7.0 | 4.9 | 5.6 | 155 |
| 7.5 | 5.3 | 5.8 | 102 |
| 8.0 | 5.6 | 6.4 | 134 |
| 9.0 | 6.3 | 7.3 | 84 |
| 10.0 | 6.9 | 7.3 | 30 |
| 11.0 | 7.6 | 7.8 | 21 |
| 12.0 | 8.3 | 8.7 | 61 |
| Total | | | 7,565 |

Conclusion

Renaissance Learning provides research-based recommendations to help educators guide their students' reading practice time. Most importantly, students should experience a high level of success in their reading practice. The Goal-Setting Chart is a useful tool for educators to help students successfully read books to promote growth in reading ability and motivation. The ZPD ranges and point goals are based in research and have been empirically validated. But, because factors such as home and classroom influences, student

personality, book availability, and measurement error all affect student reading behavior, a student's individual ZPD range and point goals can only be estimated. The ZPD ranges and point goals shown in the chart must remain guidelines rather than absolute rules. Educators should continue to monitor students' comprehension through conversations and quiz scores to make the adjustments necessary to ensure students are experiencing success. Above all, educators should use their professional judgment to help their students achieve the goal of becoming lifelong learners who love to read.

Goal-Setting Chart

Use the chart and guidelines below to help plan goals for your students based on their reading level and the amount of daily reading practice that you provide.

Identify ZPD

Identify each student's grade-equivalent (GE) score with a standardized assessment, such as STAR Reading, or estimate a GE based on the student's past performance. The corresponding ZPD is a recommended book-level range for the student. If books in that range seem too hard or easy for a student, choose a new range or create a wider one that better matches the student's abilities.

Set Goals

Average percent correct—The most important goal for all students is to average 85% or higher on Reading Practice Quizzes. Meeting this goal has significant impact on reading growth. Averages of 90% and higher are associated with even greater gains. If a student struggles to maintain the minimum average, talk to the student and find out why. Then decide on a strategy that will lead to success.

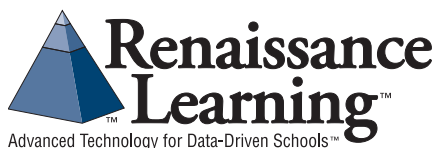
Point goals—The chart shows the number of points students are expected to earn based on GE and time spent reading. These are estimates—set goals that are realistic for individual students.

| Grade-Equivalent Score | Suggested ZPD | 60 Min. Daily Practice | | | 30 Min. Daily Practice | | | 20 Min. Daily Practice | | |
|------------------------|---------------|------------------------|--------------------|--------------------|------------------------|--------------------|--------------------|------------------------|--------------------|--------------------|
| | | Points per Week | Points per 6 Weeks | Points per 9 Weeks | Points per Week | Points per 6 Weeks | Points per 9 Weeks | Points per Week | Points per 6 Weeks | Points per 9 Weeks |
| 1.0 | 1.0 – 2.0 | 1.7 | 10 | 15 | 0.9 | 5.0 | 7.5 | 0.6 | 3.3 | 5.0 |
| 1.5 | 1.5 – 2.5 | 1.9 | 11 | 17 | 1.0 | 5.5 | 8.5 | 0.6 | 3.7 | 5.7 |
| 2.0 | 2.0 – 3.0 | 2.1 | 13 | 19 | 1.1 | 6.5 | 9.5 | 0.7 | 4.3 | 6.3 |
| 2.5 | 2.3 – 3.3 | 2.3 | 14 | 21 | 1.2 | 7.0 | 10.5 | 0.8 | 4.7 | 7.0 |
| 3.0 | 2.6 – 3.6 | 2.5 | 15 | 23 | 1.3 | 7.5 | 11.5 | 0.8 | 5.0 | 7.7 |
| 3.5 | 2.8 – 4.0 | 2.7 | 16 | 24 | 1.4 | 8.0 | 12.0 | 0.9 | 5.3 | 8.0 |
| 4.0 | 3.0 – 4.5 | 2.8 | 17 | 25 | 1.4 | 8.5 | 12.5 | 0.9 | 5.7 | 8.3 |
| 4.5 | 3.2 – 5.0 | 3.2 | 19 | 29 | 1.6 | 9.5 | 14.5 | 1.0 | 6.3 | 9.7 |
| 5.0 | 3.4 – 5.4 | 3.5 | 21 | 32 | 1.8 | 10.5 | 16.0 | 1.2 | 7.0 | 10.7 |
| 5.5 | 3.7 – 5.7 | 3.9 | 23 | 35 | 2.0 | 11.5 | 17.5 | 1.3 | 7.7 | 11.7 |
| 6.0 | 4.0 – 6.1 | 4.2 | 25 | 39 | 2.1 | 12.5 | 19.5 | 1.4 | 8.3 | 13.0 |
| 6.5 | 4.2 – 6.5 | 4.6 | 28 | 41 | 2.3 | 14.0 | 20.5 | 1.5 | 9.3 | 13.7 |
| 7.0 | 4.3 – 7.0 | 4.9 | 29 | 44 | 2.5 | 14.5 | 22.0 | 1.6 | 9.7 | 14.7 |
| 7.5 | 4.4 – 7.5 | 5.3 | 32 | 48 | 2.7 | 16.0 | 24.0 | 1.8 | 10.7 | 16.0 |
| 8.0 | 4.5 – 8.0 | 5.6 | 34 | 50 | 2.8 | 17.0 | 25.0 | 1.9 | 11.3 | 16.7 |
| 9.0 | 4.6 – 9.0 | 6.3 | 38 | 57 | 3.2 | 19.0 | 28.5 | 2.1 | 12.7 | 19.0 |
| 10.0 | 4.7 – 10.0 | 6.9 | 41 | 62 | 3.5 | 20.5 | 31.0 | 2.3 | 13.7 | 20.7 |
| 11.0 | 4.8 – 11.0 | 7.6 | 46 | 68 | 3.8 | 23.0 | 34.0 | 2.5 | 15.3 | 22.7 |
| 12.0 | 4.9 – 12.0 | 8.3 | 50 | 75 | 4.2 | 25.0 | 37.5 | 2.8 | 16.7 | 25.0 |

References

- Allington, R. L. (1984). Content coverage and contextual reading in reading groups. *Journal of Reading Behavior, 16*, 85–96.
- Allington, R. L. (2001). *What really matters for struggling readers: Designing research-based programs*. New York, Longman.
- Anderson, R. C. (1996). *Research foundations to support wide reading* (Tech. Rep. No. 631). Champaign: University of Illinois at Urbana-Champaign, Center for the Study of Reading.
- Anderson, R. C., Hiebert, E. H., Scott, J. A., & Wilkinson, I. A. G. (1985). *Becoming a nation of readers: The report on the Commission of Reading*. Washington, DC: The National Institute of Education.
- Berliner, D. C. (1990). What's all the fuss about instructional time? In M. Ben-Peretz & R. Bromme (Eds.), *The nature of time in schools* (pp. 3–35). New York: Teachers College Press.
- Betts, E. A. (1946). *Foundations of reading instruction, with emphasis on differentiated guidance*. New York: American Book Co.
- Borman, G. D., & Dowling, N. M. (2004). *Testing the Reading Renaissance program theory: A multilevel analysis of student and classroom effects on reading achievement*. Unpublished manuscript, University of Wisconsin—Madison.
- Carver, R. P. (1990). *Reading rate: A review of research and theory*. New York: Academic Press.
- Fisher, C. W., Berliner, D. C., Fully, N. N., Marliave, R. S., Cahen, L. S., & Dishaw, M. M. (1980). Teaching behaviors, academic learning time and student achievement: An overview. In C. Denham & A. Lieberman (Eds.), *Time to learn* (pp. 7–32). Washington, DC: National Institute of Education.
- Harris, A. J., & Sipay, E. R. (1990). *How to increase reading ability* (9th ed.). New York: Longman.
- Lewis, M., & Samuels, S. J. (2003). *Read more—read better? A meta-analysis of the literature on the relationship between exposure to reading and reading achievement*. Manuscript submitted for publication, University of Minnesota, Department of Educational Psychology. Retrieved April 24, 2006, from <http://www.tc.umn.edu/~samue001/papers.htm>
- Marliave, R., & Filby, N. N. (1985). Success rate: A measure of task appropriateness. In C. W. Fisher & D. Berliner (Eds.), *Perspectives on instructional time*. White Plains, NY: Longman.
- Paul, T. D. (1992). *1992 National reading study and theory of reading practice*. Madison, WI: The Institute for Academic Excellence.
- Paul, T. D. (1996). *Improving reading growth through the application of Vygotskian principles and advanced computer technology to literature-based reading programs*. Paper presented at the International School Psychology Colloquium, University of Dundee, Scotland.
- Paul, T. D. (2003). *Guided independent reading: An examination of the Reading Practice Database and the scientific research supporting guided independent reading as implemented in Reading Renaissance*. Madison, WI: Renaissance Learning, Inc. Retrieved April 24, 2006, from <http://research.renlearn.com/research/pdfs/165.pdf>
- Rosenshine, B., & Stevens, R. (1984). Classroom instruction in reading. In P. D. Pearson (Ed.), *Handbook of reading research* (pp. 745–798). New York: Longman.
- Samuels, S. J., & Wu, Y. (2004, May). *How the amount of time spent on independent reading affects reading achievement: A response to the National Reading Panel*. Paper presented at the Annual Convention of the International Reading Association, Reno, NV. Retrieved April 24, 2006, from <http://www.tc.umn.edu/~samue001/papers.htm>
- Snow, C. E., Bums, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Topping, K. J., & Sanders, W. L. (2000). Teacher effectiveness and computer assessment of reading: Relating value-added and learning information systems data. *School Effectiveness and School Improvement, 11*(3), 305–337.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

For more information, or for additional copies of this report, contact:



Renaissance Learning
PO Box 8036
Wisconsin Rapids, WI 54495-8036
(800) 338-4204
www.renlearn.com