

# Accelerated Reader Software and AR Best Practices

Key Scientifically Based Research Summary

Accelerated Reader™ (AR™) software makes the essential student practice component of any reading curriculum more effective. Using AR, this practice time is personalized to each student's individual level to ensure a high rate of success and is immediately followed by feedback to help educators target instruction. Personalized reading practice includes guiding students to books at appropriate levels, closely monitoring their progress, and intervening with appropriate instruction when necessary.

Accelerated Reader software and AR Best Practices™ have been shown by scientifically based research to be effective in helping educators dramatically accelerate reading growth in K–12 classrooms. Numerous studies by independent researchers demonstrate that students' reading abilities improve with the use of these tools, and that the performance gap between high-achieving and low-achieving students can be substantially reduced.

The large evidence base supporting Accelerated Reader consists of a number of experimental and quasi-experimental research studies—generally considered by the research community to provide the strongest evidence of effectiveness and to be consistent with the definition of scientifically based research—and includes articles that have been published in peer-reviewed journals. The research evidence on Accelerated Reader has been favorably reviewed by the Florida Center for Reading Research, the National Center on Student Progress Monitoring, the National Dropout Prevention Center, and the What Works Clearinghouse, among others. Key studies that support Accelerated Reader are summarized on these pages.

To access more than 170 additional research pieces on Accelerated Reader, visit Renaissance Learning's research website: <http://research.renlearn.com/> or call (800) 338-4204.

## Reading Growth Soars for Students Using Accelerated Reader in Chicago Area

### About the Author

**Magnolia Consulting** is an independent research firm specializing in educational research and evaluation, with an emphasis in reading, conducting randomized trials, and multi-level modeling, that seeks to uphold the highest standards in research and evaluation and uses What Works Clearinghouse procedures and standards to guide its design and analytical decisions.

Magnolia Consulting. (2010). *A final report for the evaluation of Renaissance Learning's Accelerated Reader program*. Charlottesville, VA: Author.

### Details

Location: Chicago, Illinois  
 Design: Independent, experimental  
 Sample: 344 students and 19 teachers in 3 elementary schools  
 Measures: STAR Reading  
 Duration: 1 school year

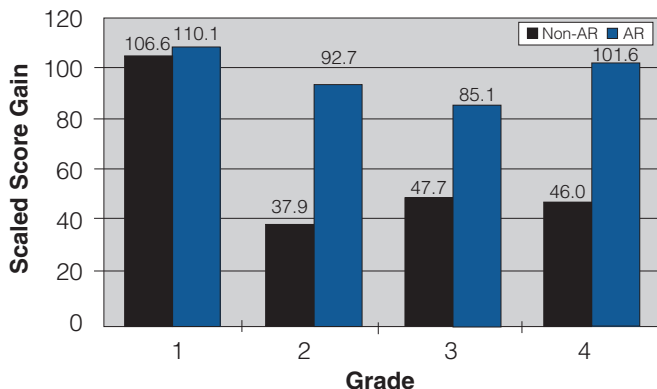
### Results

Teachers in grades 1 through 4 at three urban elementary schools were randomly assigned to use Accelerated Reader in their classes or serve in the control group. Students in classes using Accelerated Reader experienced significant gains in reading achievement from pre- to posttest, with a large effect size of  $d = 0.99$ . Overall, when compared to the control group, the AR group outperformed non-AR students at each grade level and experienced significantly higher gains ( $d = 0.38$ ), equivalent to moving from the 50th percentile rank (PR) to the 65th PR, while the comparison students remained at the 50th PR.

### For more information

Report: [http://www.magnoliaconsulting.org/AR Final Report 2010.pdf](http://www.magnoliaconsulting.org/AR%20Final%20Report%202010.pdf)

**AR Students Far Exceed Control Group Reading Gains**



## Save the Children Literacy Initiative Advances Reading Achievement With AR

### About the Authors

**Richard White** has been evaluating education, social services, workforce preparation, and criminal justice programs for more than 35 years. Mr. White is the project director of the evaluation of the Save the Children literacy program.

**Andrea Palmiter** contributes to the design, analysis, and reporting of evaluations focusing largely on out-of-school time programming, literacy interventions, and teacher evaluation systems. She has evaluated the Save the Children literacy initiative.

White, R. N., Palmiter, A. S., Sinclair, B., & Reisner, E. R. (2011). *The literacy programs of Save the Children: Results from the 2010–11 school year*. Washington, DC: Policy Studies Associates.

### Details

Location: 13 states (AL, AR, AZ, CA, CO, KY, LA, MS, NM, NV, SC, TN, WV)  
 Design: Independent, correlational  
 Sample: 140 local model literacy initiative programs  
 Measures: STAR Reading, STAR Early Literacy  
 Duration: 1 school year

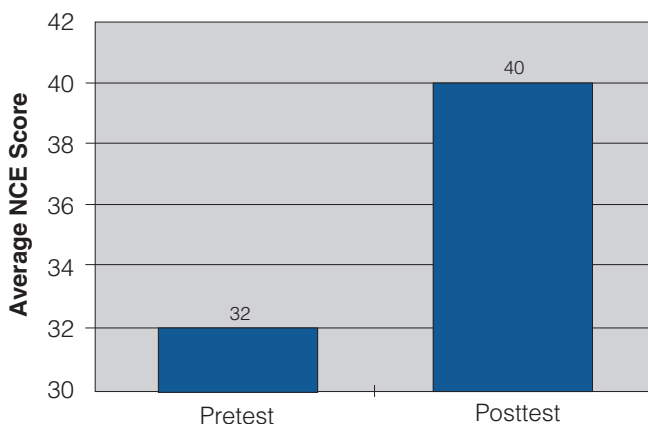
### Results

During the 2010–11 school year, Save the Children supported several local programs in its model literacy initiative. Services included the delivery of integrated in-school and after-school literacy activities for children including using AR. This report describes the program's implementation and participants, as well as the learning results achieved. During 2010–11, the proportion of participants reading at a level appropriate for their grade level or above increased. On the STAR Reading pretest, 12% of students were at grade level or higher—a normal curve equivalent (NCE) score of 50 or more. The posttest showed that 29% were reading at grade level. The average pre-post change in STAR Reading scores was 8.2 NCEs, which was statistically significant.

### For more information

Report: [http://www.policystudies.com/\\_policystudies.com/files/Save\\_the\\_Children\\_Rural\\_Literacy\\_Programs\\_Evaluation\\_2010-11.pdf](http://www.policystudies.com/_policystudies.com/files/Save_the_Children_Rural_Literacy_Programs_Evaluation_2010-11.pdf)

**Struggling Students' Reading Scores Rise With AR**



## Higher Test Scores in Texas Attributed to Accelerated Reader and Accelerated Math

Nunnery, J. A., & Ross, S. M. (2007). The effects of the School Renaissance program on student achievement in reading and mathematics. *Research in the Schools, 14*(1), 40–59.

Nunnery, J. A., Ross, S. M., & Goldfeder, E. (2003). *The effect of School Renaissance on TAAS scores in the McKinney ISD*. Memphis, TN: University of Memphis, Center for Research in Educational Policy.

### Details

Location: McKinney, Texas

Design: Independent, quasi-experimental, peer-reviewed

Sample: 9 elementary and 2 middle schools, and matched controls

Measures: Texas Learning Index (TLI), Texas Assessment of Academic Skills (TAAS)

Duration: 5 years

### Results

Comparing students' TLI scores on the TAAS, researchers found statistically significant, positive effects of Accelerated Reader/ Accelerated Math software and AR/AM Best Practices on reading and mathematics achievement for elementary students, and on mathematics achievement for middle school students. Students in high-implementation schools scored even higher than comparison schools or low-implementation schools.

### For more information

Summary (L2431): <http://doc.renlearn.com/KMNet/R003964029GG648B.pdf>

Article: Available by request to [research@renlearn.com](mailto:research@renlearn.com)

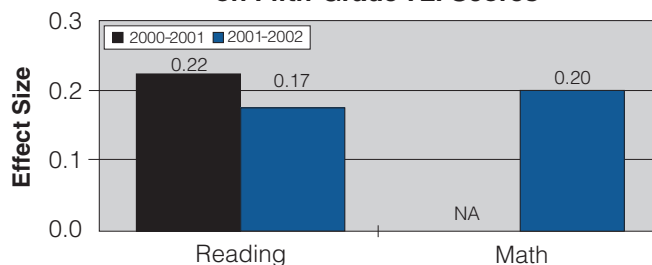
Report: <http://www.eric.ed.gov/PDFS/ED500027.pdf>

### About the Authors

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**Steven M. Ross, Ph.D.**, is a Faudree Professor and executive director of the Center for Research in Educational Policy at the University of Memphis.

### Renaissance Tools Have Significant Impact on Fifth-Grade TLI Scores



## AR Accelerates Quality, Quantity of Reading Practice for Students at All Achievement Levels

Topping, K. J., Samuels, S. J., & Paul, T. (2007). Does practice make perfect? Independent reading quantity, quality and student achievement. *Learning and Instruction, 17*, 253–264.

### Details

Location: 24 U.S. states

Design: Independent, correlational, peer-reviewed

Sample: 45,670 students in grades 1–12 at 139 schools

Measure: STAR Reading

Duration: 1 school year

### Results

Data for students who read and took Accelerated Reader quizzes for more than 3 million books were analyzed. Measures largely of quantity (engaged reading volume) and purely of quality (success in reading comprehension) showed the more time students spent engaged in independent reading practice facilitated by AR, the greater their gains in reading achievement. This held true for students at all levels of achievement. However, both high quantity and high quality in combination were necessary for high achievement gains, especially for older students.

### For more information

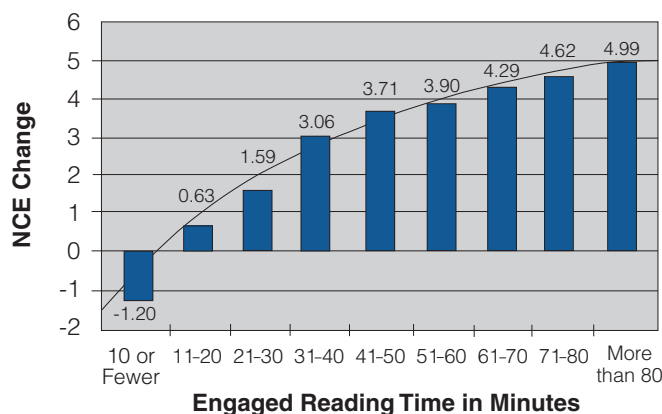
Article: Available by request to [research@renlearn.com](mailto:research@renlearn.com)

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### Reading Achievement Gains



## Greater AR Use Leads to Higher Gains in Title I Schools in Georgia

Holmes, C. T., Brown, C. L., & Algozzine, B. (2006). Promoting academic success for all students. *Academic Exchange Quarterly*, 10(3), 141–147.

Holmes, C. T., & Brown, C. L. (2003). *A controlled evaluation of a total school improvement process*, *School Renaissance* (Tech. Rep.). Athens: University of Georgia, Department of Educational Administration.

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**Carvin L. Brown, Ed.D.**, is professor emeritus at the University of Georgia and executive director of the Georgia Accrediting Commission.

**Bob Algozzine, Ph.D.**, is a professor in the Department of Educational Leadership and director of the Behavior and Reading Improvement Center at the University of North Carolina at Charlotte.

### Details

Location: Central and Northern Georgia

Design: Independent, quasi-experimental, peer-reviewed

Sample: 2,287 students at 4 elementary schools

Measures: Georgia Criterion-Referenced Competency Test (CRCT), STAR Reading

Duration: 3 years

### Results

Of the 4 Title I schools in the sample, 2 were located in urban areas and 2 were located in rural areas. One school in each area was either a high or low implementer of Accelerated Reader and Accelerated Math. Results from the CRCT indicated that students in the 2 high-implementing schools outperformed students in the 2 low-implementing comparison schools overall (effect size,  $ES = 0.65$ ) and in reading ( $ES = 0.50$ ), language arts ( $ES = 0.71$ ), and math ( $ES = 0.75$ ). Researcher observations confirmed that the 2 high-implementation schools engaged in AR/AM Best Practices more often than the 2 low-implementation schools. Teachers in all schools expressed positive attitudes towards Accelerated Reader and Accelerated Math.

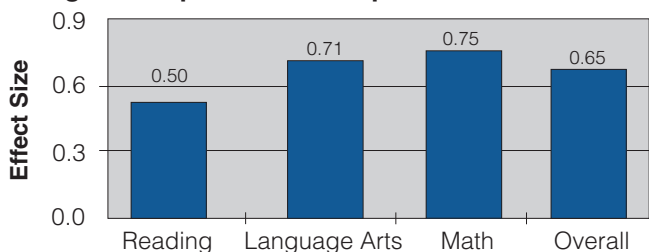
### For more information

Summary: <http://doc.renlearn.com/KMNet/R003878819GG9143.pdf>

Article: Available by request to [research@renlearn.com](mailto:research@renlearn.com)

Report: <http://www.eric.ed.gov/PDFS/ED474261.pdf>

### High AR Implementers Outperform Low on CRCT



## Significant Reading Gains in Tennessee Tied to Accelerated Reader

Nunnery, J. A., Ross, S. M., & McDonald, A. (2006). A randomized experimental evaluation of the impact of Accelerated Reader/Reading Renaissance implementation on reading achievement in grades 3 to 6. *Journal of Education for Students Placed At Risk*, 11(1), 1–18.

Ross, S. M., Nunnery, J., & Goldfeder, E. (2004). *A randomized experiment on the effects of Accelerated Reader/Reading Renaissance in an urban school district: Final evaluation report*. Memphis, TN: University of Memphis, Center for Research in Educational Policy.

### About the Authors

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**Steven M. Ross, Ph.D.** is a Faudree Professor and executive director of the Center for Research in Educational Policy at the University of Memphis.

### Details

Location: Memphis, Tennessee

Design: Independent, experimental, peer-reviewed

Sample: 1,665 students and 76 teachers in 11 elementary schools

Measures: STAR Early Literacy, STAR Reading

Duration: 1 school year

### Results

In this study, teachers at urban elementary schools were randomly assigned to use or not use Accelerated Reader. The students' STAR Early Literacy and STAR Reading results showed significant gains and moderate to large effect sizes in grades K–2 and small to moderate effect sizes in grades 3–6. Eighty-three percent of the students in grades 3–6 were eligible for free or reduced-price lunch. Students with learning disabilities benefited most in classrooms with high-implementation of AR compared to those in low- or no-implementation classrooms.

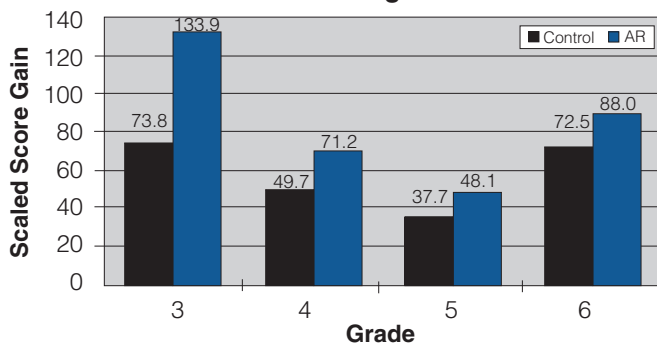
### For more information

Summary (L2296): <http://doc.renlearn.com/KMNet/R003711227GFA818.pdf>

Article: Available by request to [research@renlearn.com](mailto:research@renlearn.com)

Report: <http://doc.renlearn.com/KMNet/R004076723GH55D8.pdf>

### AR Users Outgain Controls



## Arizona Students Using AR Consistently Outperform Peers on SAT-9

Brem, S. K., Husman, J., & Duggan, M. A. (2005). *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* (Tech. Rep.). Tempe: Arizona State University, Division of Psychology in Education.

Husman, J., Brem, S., & Duggan, M. A. (2005). Student goal orientation and formative assessment. *Academic Exchange Quarterly*, 9(3), 355–359.

### Details

Location: Arizona

Design: Independent, quasi-experimental, peer-reviewed

Sample: 239 students at 2 matched elementary schools

Measures: STAR Reading, Stanford 9 (SAT-9), Patterns of Adaptive Learning Scales (PALS)

Duration: 3 years

### Results

Students at an urban, Title I treatment school using Accelerated Reader with recommended AR Best Practices achieved greater SAT-9 reading scores than students in a similar school that did not use this tool. Through student surveys, researchers also found that mastery orientation (learning for the sake of learning) remained consistently high and performance orientation (working for the grade) decreased for students using AR.

### For more information

Summary: <http://doc.renlearn.com/KMNet/R003544212GE70A6.pdf>

Article: <http://www.rapidintellect.com/AEQweb/5oct304715.htm>

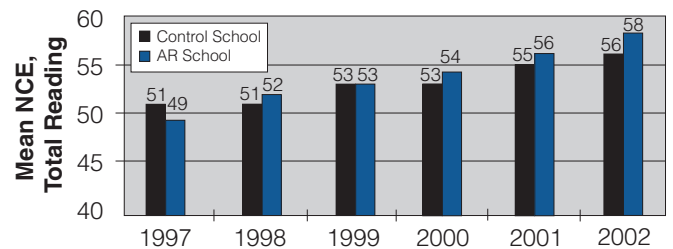
Report: <http://doc.renlearn.com/KMNet/R004077026GJ8541.pdf>

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### AR School Demonstrates Stronger Growth on SAT-9 Than Non-AR School



## Test Scores, Climate Improve With Accelerated Reader, Accelerated Math in Mississippi

Ross, S. M., & Nunnery, J. A. (2005). *The effect of School Renaissance on student achievement in two Mississippi school districts*. Memphis, TN: University of Memphis, Center for Research in Educational Policy.

### Details

Location: Pascagoula and Biloxi, Mississippi

Design: Independent, quasi-experimental

Sample: 10,000 students in grades 3–8, 23 treatment/18 control schools

Measures: Mississippi Curriculum Test (MCT), Mississippi Writing Assessment, School Climate Inventory (SCI)

Duration: 2 years

### Results

More than 60% of the 10,000 students participating in this study were eligible for free or reduced-price lunch. MCT results favoring Accelerated Reader and Accelerated Math were found in reading (median effect size 0.11), language arts (median effect size 0.12), and math (median effect size 0.08). The researchers also found that the organizational climates reported by teachers at treatment schools were significantly more favorable than those reported by teachers at control schools on all 7 dimensions of the SCI, with effect sizes ranging from 0.20 to 0.54.

### For more information

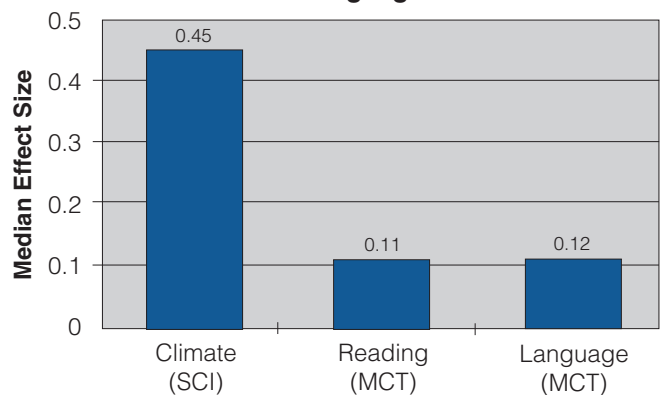
Report: <http://www.eric.ed.gov/PDFS/ED484275.pdf>

### About the Authors

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**John A. Nunnery, Ph.D.**, is an assistant professor in the Department of Educational Leadership and Counseling at Old Dominion University where he teaches program evaluation, planning, and advanced statistics.

### AR Improves School Climate, Reading and Language Scores



## Independent Analysis Confirms AR Positively Impacts Student Achievement

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.

### About the Authors

**Geoffrey D. Borman, Ph.D.**, is a professor of Educational Leadership and Policy Analysis, Educational Psychology, and Educational Policy Studies at the University of Wisconsin–Madison.

**N. Maritza Dowling, Ph.D.**, is a postdoctoral fellow at the Wisconsin Center for Educational Research at the University of Wisconsin–Madison.

Controlling for pretest scores and other factors, researchers found these predictors of student reading gains:

- Quantity: NCE advantage of +10 for reading more than average
- Quality: NCE advantage of +4 for averaging 85% or higher on AR quizzes
- Challenge: NCE advantage of +3 for reading within, as opposed to below, their ZPDs

### Details

Location: 24 U.S. states

Design: Independent

Sample: 50,823 students in grades 1–12 at 139 schools

Measure: STAR Reading

Duration: 1 school year

### Results

This study is an independent evaluation of a large database containing reading and achievement records for students who used Accelerated Reader (see Paul, 2003, p. 7). In the elementary grades, students in classrooms implementing Accelerated Reader with AR Best Practices showed statistically significant improvements in overall achievement level. In middle and high school, teachers who promoted a greater overall reading success rate were able to improve achievement results. Higher average percent correct on AR quizzes and reading at levels above the initial zone of proximal development (ZPD) were linked to greater outcomes. Additionally, even after using rigorous statistical controls for students' initial reading skill levels, reading success rate, and challenge of reading material, the amount of text read was a key predictor of later literacy development.

### For more information

Summary: <http://doc.renlearn.com/KMNet/R003453706GE42D0.pdf>

Report: <http://doc.renlearn.com/KMNet/R00405242EE3BD7A.pdf>

## Virginia Students Score Better in Comprehension With High AR Use

### About the Authors

**Roger A. Johnson, Ph.D.**, has published in leading educational journals such as *Kappan*, *The Reading Teacher*, and *Gifted Child Quarterly*.

**Carol Howard, Ph.D.**, serves as Special Education Resource Team member at Campostella Elementary School.

Johnson, R. A., & Howard, C. A. (2003). The effects of the Accelerated Reader program on the reading comprehension of pupils in grades three, four, and five. *The Reading Matrix*, 3(3), 87–96.

### Details

Location: Virginia

Design: Independent, quasi-experimental, peer-reviewed

Sample: 755 students in grades 3–5 at 7 schools

Measure: Gates-MacGinitie Reading Test (GMRT)

Duration: 1 school year

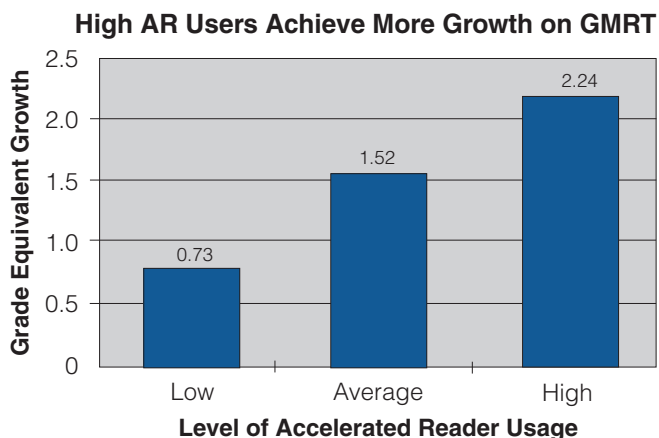
### Results

This study investigated the effect of Accelerated Reader on the reading achievement and vocabulary development of students from a Title I, urban environment. Students categorized as high-AR users gained significantly more on reading comprehension than those students categorized as average and/or low users. Results indicated that the AR program can be quite effective if the participating students are willing to do supplemental reading.

### For more information

Summary: <http://doc.renlearn.com/KMNet/R001182507GDA8F1.pdf>

Article: [http://www.readingmatrix.com/articles/johnson\\_howard/article.pdf](http://www.readingmatrix.com/articles/johnson_howard/article.pdf)



## Guided Independent Reading Significantly Improves Reading Skills

Renaissance Learning. (2012). *Guided independent reading*. Wisconsin Rapids, WI: Author.

### Details

Location: Accelerated Reader Real Time hosted database  
 Design: Database analysis  
 Sample: 2,284,464 students in grades 1–12  
 Measure: STAR Reading  
 Duration: 1 school year

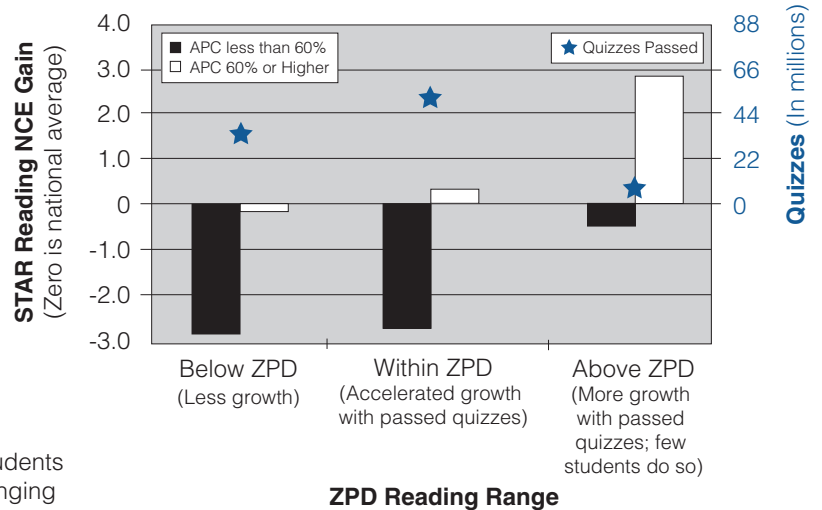
### Results

This study of Accelerated Reader was conducted to update the first *Guided Independent Reading* publication with a larger, more current sample and analyses targeted to recent trends in educational standards and recommendations. Results generally supported the AR Best Practices that were shaped by the original 2003 analyses. Quality (comprehension), quantity (engaged reading time), and difficulty (average percent correct) emerged as key factors to consider in creating successful student reading practice, with quality being most important. Trends indicated that students should strive for high levels of comprehension while challenging themselves to read increasingly more complex text, and that they need to spend about 25 minutes per day reading, which requires roughly 35 minutes of daily scheduled reading time.

### For more information

Report (L2862): <http://doc.renlearn.com/KMNet/R005577721AC3667.pdf>

### Optimal Reading Practice Begins Within ZPD; Successful Comprehension Leads to Higher Growth



## Instant AR Feedback Helps Comprehension Gains Double at Minnesota School

Samuels, S. J., & Wu, Y. (2003). *The effects of immediate feedback on reading achievement*. Unpublished manuscript, University of Minnesota, Minneapolis.

### Details

Location: St. Paul, Minnesota  
 Design: Independent, quasi-experimental  
 Sample: 67 students in grades 3 and 5  
 Measures: STAR Reading, Group Reading Assessment and Diagnostic Evaluation (GRADE), Curriculum Based Measurement (CBM)  
 Duration: 6 months

### Results

This study took place at a school where 64% of the students were eligible for free or reduced-price lunch. It compared students who completed book reports, which resulted in delayed feedback, and students who completed Accelerated Reader quizzes, which provided immediate feedback. The results revealed that students who used Accelerated Reader showed significantly higher gains on 3 measures of reading achievement compared to students who completed book reports and received only delayed feedback. In particular, students receiving immediate feedback through Accelerated Reader demonstrated twice the gain in reading comprehension of students not using Accelerated Reader.

### For more information

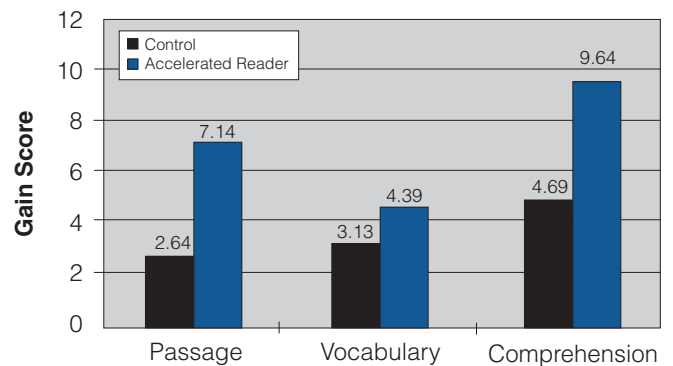
Report: [http://www.tc.umn.edu/~samue001/web/pdf/immediate\\_feedback.pdf](http://www.tc.umn.edu/~samue001/web/pdf/immediate_feedback.pdf)

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**Yi-Chen Wu, Ph.D.**, is a professor at National Sun Yat-Sen University in Taiwan.

### AR Students Achieve Higher Gain Scores on the American Guidance Service GRADE Test



# Tennessee Teachers' Effectiveness Rises With High Quantity, Quality AR Use

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.

## Details

Location: Tennessee  
 Design: Independent, quasi-experimental, peer-reviewed  
 Sample: 62,739 students in grades 2-8  
 Measure: Tennessee Value-Added Assessment System (TVAAS)  
 Duration: 1 school year

## Results

This study found that when teachers monitor reading to ensure that students average at least 85% on their Accelerated Reader quizzes, a higher volume of reading practice yields higher student reading achievement. This study supports the National Reading Panel's recommendation that teachers need to be actively involved in the process of reading development, and it shows that Accelerated Reader is useful in this process.

## For more information

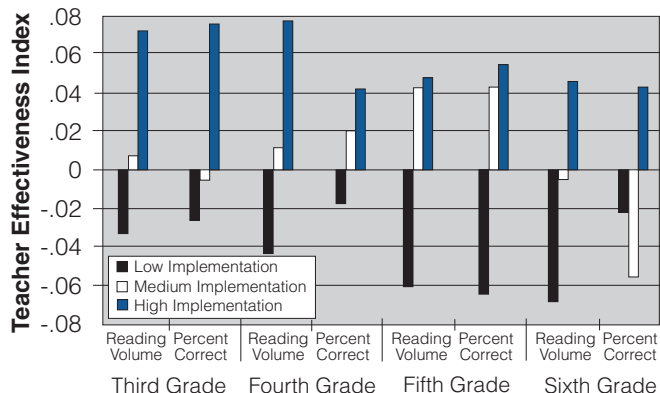
Summary: <http://doc.renlearn.com/KMNet/R001538126GD2DEB.pdf>  
 Article: Available by request to [research@renlearn.com](mailto:research@renlearn.com)

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**Teacher Effectiveness Increases on TVAAS as AR Implementation Improves**



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