RMC Research Evaluation Brief
Technology for Learning Disabilities

Evaluation Summary

This brief describes the results of RMC Research Corporation's 2005–2007 evaluation of the 2-year Technology and Learning Disabilities project. For the complete report please visit this website www.cwu.edu/~setc/tld.

PROJECT DESCRIPTION: The Technology for Learning Disabilities project was part of the federal Enhancing Education Through Technology program. The project provided technology to 6 teachers to use with their students with learning disabilities in Grades 6 through 12. Project implementation and grant funding were administered through the Washington State Special Education Technology Center at Central Washington University.

PRIMARY GOAL: Improve the writing and math skills and attitudes about school of students with learning disabilities through the use of technology.

PROJECT RESOURCES:

- Notebook computer for teacher use; classroom desktop or notebook computers for student use
- Classroom document camera and projector for teacher and student use
- Classroom ACTIVboard for teacher and student use
- Flatbed document scanner for converting hardcopy text into digital format (for text-to-speech)
- Texthelp Read&Write GOLD literacy support software for student use
- UltraKey keyboarding software to increase capacity for students to write on a computer
- Digital camera for development of Math Trails (real-world math exploration; see www.nationalmathtrail.org)
- FASTT Math software for student memorization of math facts

CLASSROOM IMPLEMENTATION: During both years at least 92% of the teachers reported using the laptop or desktop computer, multimedia projector with document camera, and the ACTIVboard at least 3 times a week. During both years at least 60% of the students used Texthelp Read&Write GOLD a minimum of 2 times a week. During Year 2 of the project at least 90% of the students used FASTT Math a minimum of 3 times a week and all of the students participated in at least 2 Math Trail projects during the school year.

EVALUATION METHODS: Data were collected using teacher surveys, interviews, and reports; student surveys; community surveys; WASL-type student writing and math assessments; and FASTT Math reports. An experimental research design determined the effectiveness of the interventions in improving student math and writing skills. The WASL-type assessments, administration instructions, and scoring were handled by an independent contractor who was familiar with the WASL.

TEACHER RESULTS:

- By spring 2007 all of the teachers reported being very prepared to fully integrate the technology into the classroom and at least 83% of the teachers reported being very prepared to implement all of the project requirements. The fact that the teachers required nearly 2 years to feel very prepared to implement the project requirements has important implications for future projects. That is, future projects may need to support the participating teachers for a minimum of 2 years.
- All of the teachers stated their teaching had changed due to using the project-provided technology.
- Several teachers explained that the technology had enabled them to easily present material in ways that met the different needs of their students. The technology also caused the students to be more attentive because they perceived the technology as fun.
- Another positive effect was that incorporating the technology into their teaching required teachers to dedicate more time to lesson planning and made them more organized.
- One teacher believed that she had taught her students more than in prior years because the read aloud function in Texthelp Read&Write GOLD helped students better grasp content.
- Additionally, all of the teachers explained that the use of the technology had caused instruction to shift from being teacher centered to involving more student interaction. The teachers primarily attributed this shift to the document camera or ACTIVboard interactive whiteboard which encouraged the class to work together as a group and Texthelp Read&Write GOLD which encouraged students to work independently.

STUDENT RESULTS:

- In the writing comparison study, scores for the mean treatment group showed a statistically significant (paired; $p < .05$) increase from pretest to posttest, and the treatment group scored significantly (independent t test; $p < .05$) higher on the posttest compared to the comparison group.
- In spring 2006 half of the interviewed teachers reported that the project's greatest impact had been improving students' attitude toward writing. Nearly all of the teachers credited the assistive technology with helping the students complete their schoolwork, which in turn increased students' confidence, motivation, and achievement.

Year 2 Student Writing Results

	Treatment Group			Comparison Group	
	Fall 2006 Pretest (Using pencil and paper)	**Spring 2007 Posttest** (Using Texthelp RWG)		**Fall 2006 Pretest** (Using pencil and paper)	**Spring 2007 Posttest** (Using pencil and paper)
Convention Overall (verb agreement; spelling; capitalization; punctuation; complete sentences; paragraphs)	3.44	12.92		4.87	6.15
Organization Overall (sentences on topic; supporting details; beginning, middle and end; transitions; sentence fluency; voice; purpose)	5.00	11.79		6.47	6.22
Length (word count)	78	163		96	103
Percent of correctly spelled words	91	99		91	92

Note. Treatment and Comparison group students were statistically similar with regard to grade level and Individual Education Plan status. Treatment group $n = 52$. Comparison group $n = 53$. Total writing convention score = 18 possible points. Total writing organization score = 21 possible points.

- In the math comparison study, the mean treatment group scores increased significantly (paired t test; $p < .05$) from pretest to posttest, whereas the comparison group scores did not (paired t test; $p < .05$), but the treatment group's posttest scores were not significantly (independent t test; $p < .05$) higher than the comparison group's posttest scores.
- The increase in the treatment groups' posttest scores may be due to students using FASTT Math, participating in Math Trail projects, or using both interventions.

Year 2 Student Math Results

	Treatment Group			Comparison Group	
	Fall 2006 Pretest (Prior to use of FASTT Math or Math Trail)	**Spring 2007 Posttest** (After use of FASTT Math and Math Trail)		**Fall 2006 Pretest** (No use of FASTT Math or Math Trail)	**Spring 2007 Posttest** (No use of FASTT Math or Math Trail)
Math skills overall (using geometric sense, using probability and statistics, using algebraic sense, communicating math understanding, solving problems and reasoning logically, making math connections, using measurement, and using number sense)	6.39	8.04		7.72	7.98

Note. Treatment and Comparison group students were statistically similar with regard to grade level and Individual Education Plan status. Treatment group $n = 71$. Comparison group $n = 65$. Maximum possible score = 18 points.

PARENT AND COMMUNITY RESULTS:

- The teachers (83%) reported that almost all parents had expressed enthusiasm for the project and the technology it provided, and most teachers believed that the project had increased the parents' support for their child's learning.
- Community surveys completed by school administrators, superintendents, or teachers following the year-end presentation in April or May 2007 indicated they were very supportive of providing assistive technology to students and believed that the technology had impacted the students' skills and attitudes.
- Following the presentations 100% of the parents agreed that to a great extent it is important to provide assistive technology to students and 96% agreed that projects such as Technology for Learning Disabilities should be funded in the community.