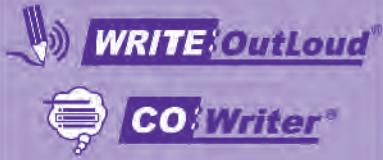


Research Study: Using Software to Enhance the Writing Skills of Students with Special Needs (Research Summary)

October 2008



Cullen, J., Richards, S. B., & Lawless-Frank, C. (2008). Using Software to Enhance the Writing Skills of Students with Special Needs. *Journal of Special Education Technology, 23(2)*, 33-43.

Writing outcomes improved across four writing measures:

- *Writing rubric scores*
- *Accuracy*
- *Spelling*
- *Number of words*

Summary

Don Johnston's Write:OutLoud and Co:Writer writing accommodations improved writing outcomes of special education students as they wrote during a journal writing period over the course of seven weeks. Writing quality and quantity was assessed based on four key writing measures. The researchers found writing outcome gains when students used Write:OutLoud versus paper and pencil. Additional gains were realized when Write:OutLoud was paired with Co:Writer.



Background

A high percentage (65%) of students referred for learning disabilities have a writing disability (Mayes, Calhoun, and Crowell, 2000). This is "twice the percentage of students who had a disability in reading, math, or spelling." Students with disabilities typically struggle with spelling, punctuation, capitalization, and word usage. The majority of these students have a large gap between their verbal intelligence and expressing their thoughts in writing (Brooks, Vaughn, and Verninger, 1999). Research studies show that technology-based writing accommodations can improve writing outcomes, but the research is limited.

Research Question

This study set out to determine if a talking word processor and word prediction program impact the writing outcomes of students with disabilities during their daily district-mandated writing activities.

Study Design

The study was divided into three phased conditions:

- 1) **Baseline** – In the baseline phase, three handwritten writing samples were collected from each participant. Teachers transcribed the handwritten samples into typed samples to eliminate scoring bias with the intervention conditions.
- 2) **Intervention with Write:OutLoud** – Students used Write:OutLoud to write during the journal writing time for three weeks, and a maximum of nine writing samples were collected over this period.
- 3) **Intervention with Write:OutLoud and Co:Writer** – Students used Write:OutLoud and Co:Writer to write during the journal writing time for three weeks, and a maximum of nine writing samples were collected over this period.

Writing scores based on the District's writing rubric dramatically increased when Co:Writer was used in conjunction with Write:OutLoud.

Participants

Location: Urban elementary school in Ohio

Students: Participants included seven 5th grade students receiving special education services in resource and inclusion classrooms. Student reading levels ranged from middle 1st grade to middle 4th grade.

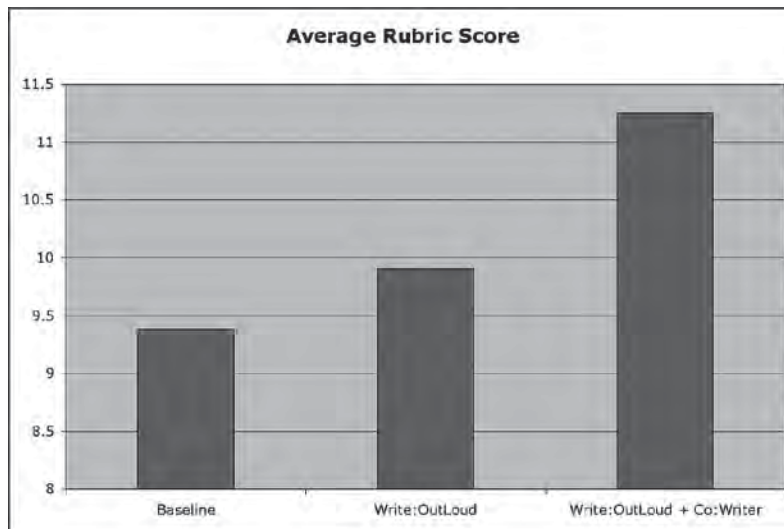
Analysis

The baseline and intervention conditions were assessed on the following measures:

- Rubric scores based on the district's writing rubric – The scores were the average of three separate teachers using the rubric to assess each writing.
- Accuracy percentage (average percentage of correctly spelled words)
- Mean number of misspellings
- Mean number of words

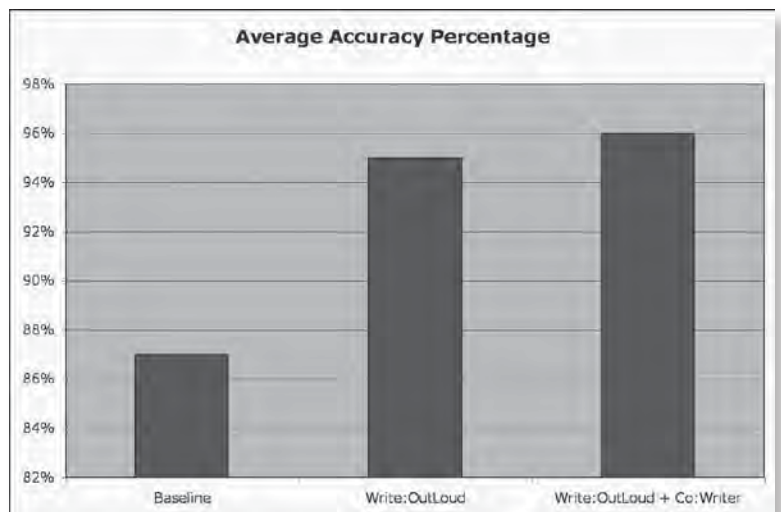
Findings

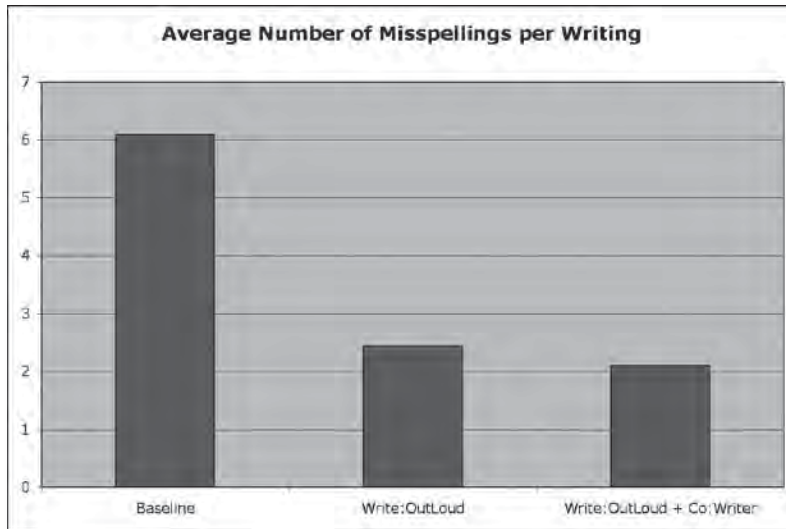
Average writing outcomes for the entire group of students improved across each of the four writing measures when students wrote using Write:OutLoud. Writing outcomes improved again when Write:OutLoud was used in conjunction with Co:Writer as demonstrated in the graphs below.



Average writing scores based on the district's writing rubric increased between the baseline and Write:OutLoud condition. It also dramatically increased when Co:Writer was used in conjunction with Write:OutLoud.

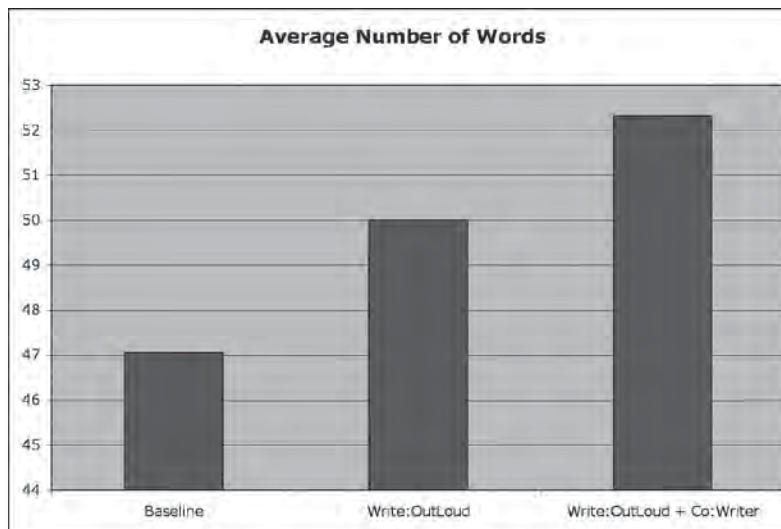
Average spelling accuracy increased when students used the writing accommodations.





The average number of misspellings in each writing decreased across each phase.

It appeared to one of the classroom teachers involved in the study that Co:Writer had the biggest impact on the students with more significant writing problems.



The average number of words the students wrote increased when each writing accommodation was added.

Results from Individual Students

Using the writing accommodations during journal writing time had a net positive impact on the writing scores of the group as a whole. Examining each student, the benefits varied. For some students, Write:OutLoud was enough of an accommodation to make significant improvement in student writing quality and helped foster an excitement for writing. For other students, Co:Writer provided a large additional boost in writing quality. It appeared to one of the classroom teachers involved in the study that Co:Writer had the biggest impact on the students with more significant writing problems.

References

Brooks, A., Vaughn, K., & Verninger, B. (1999). Tutorial Interventions for Writing Disabilities. *Learning Disabilities Quarterly*, 22(3), 183-190.

Cullen, J., Richards, S. B., & Lawless-Frank, C. (2008). Using Software to Enhance the Writing Skills of Students with Special Needs. *Journal of Special Education Technology*, 23(2), 33-43.

Mayes, S. D., Calhoun, S. L., & Crowell, E. W. (2000). Learning Disabilities and ADHD: Overlapping Spectrum Disorders. *Journal of Learning Disabilities*, 33(5), 417-424

Our Vision

Empower Students with Accessible Technologies that Address Unique Literacy Needs

It's commonplace in schools to see stacks of textbooks, paper notebooks, pencils and pens. These are the "conventional" learning tools in schools, and they are effective for many students. But for students with physical, cognitive or learning differences, these tools pose significant barriers to learning. These students require **specialized accessible technology** and media to maximize their learning. This is where Don Johnston excels. Since 1980 we have been developing and supplying innovative technologies to schools who recognize that each student has unique learning needs and can thrive in the right environment.

We strive to create the right environment. This requires the right tools, the right implementation and the right instructional approaches. We are committed to providing you with the most value from product selection to ongoing support and implementation.

Don Johnston empowers educators with specialized accessible technologies and supported reading and writing tools for students with cognitive, physical, and learning differences. Since 1980, the company has partnered with literacy experts, assistive technology specialists, speech language pathologists, psychologists, teachers, researchers, and scientists to develop over a dozen assistive technology products. The company also publishes Start-to-Finish®, a collection of paperback, audio and computer books for students who read below grade level.