The Impact of Differentiated Silent Reading Instruction Targeting Comprehension and Efficiency in Grades 4 and 5
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Introduction

A student’s comprehension level is typically used as a basis for differentiated reading instruction in U.S. classrooms. An important, yet rarely considered, mediating variable in reading efficiency. Some students, for example, read quickly with poor comprehension, while others demonstrate proficient comprehension but read in a slow and labored fashion. This study examined the impact of web-based, adaptive, scaffolded silent reading instruction targeting both reading comprehension and efficiency in students with differing levels of reading efficiency.

Method

In this randomized control trial, 426 U.S. students in grades 4 and 5 were paired based on their initial scores on the Group Reading Assessment Diagnostic Evaluation (GRADE; Williams, 2001) and demographic factors (e.g., gender, race, ethnicity, and FRPL status). Random assignment was used to divide the pairs between the treatment and control groups. Students in the control group received “business as usual” reading instruction during their 25-minute supplemental literacy block, while those in the treatment group engaged in web-based, adaptive, scaffolded silent reading instruction. At the same time, Reading comprehension was reassessed at the end of the school year. Reading efficiency was also evaluated at both the beginning and at the end of the school year using an eye movement recording system (Visagraph; Taylor, 2009). To evaluate the effects of reading instruction on students of low versus high reading-efficiency levels, treatment and control groups were further divided into two groups – those with pretest reading rates above versus at or below 150 wpm (approximately the national mean for these two grades combined; Spichtig et al., 2016).

Control Group
Students in the control group engaged in business-as-usual instruction during their 25-minute supplemental literacy block. They were exposed to a variety of instructional approaches including reading grade-level books in pairs or small groups, oral reading practice, book discussions, teacher-directed guided reading groups, and silent reading practice. Instruction was typically delivered by classroom teachers but in some cases was provided by special educators or literacy interventionists. Programs used by the control group were both computer-based and offline.

Treatment Group
Students in the treatment group read self-selected informational or literary texts at rates averaging 202 wpm. This rate implies relatively little effort was being spent on word-level decoding, which likely accounts for the larger comprehension level gains achieved by the students in the high-efficiency treatment group.

From a developmental perspective, this study highlights the importance of developing reading efficiency as students transition from “learning to read” to “reading to learn.” Better recognizing developmental patterns can help teachers prioritize not only what to teach students, but when and how to do so (Gehsmann & Templeton, 2011/2012; Templeton & Gehsmann, 2014).

Conclusions

The outcomes reported here are promising with regard to the prospect of using educational technology as a means to provide adaptive instruction that is also developmentally sensitive.

The larger reading efficiency gains seen in the low-efficiency treatment group suggest that scaffolded silent reading instruction was beneficial to students who were still in the midst of developing the ability to decode words efficiently. Students within the high-efficiency groups were already able to read and comprehend grade-level texts at rates averaging 202 wpm. This rate implies relatively little effort was being spent on word-level decoding, which likely accounts for the larger comprehension level gains achieved by the students in the high-efficiency treatment group.

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Figure 3. Reading efficiency gains (left) and reading comprehension gains (right) grouped by initial low/high reading efficiency sub-groups (2-150 wpm versus >150 wpm). *p<.05 compared to control group.

References


