INSTRUCTIONAL TECHNOLOGY FOR READING REMEDIATION IN RURAL SETTINGS: AN EXAMINATION OF EFFECTIVENESS AND EFFICIENCY

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INTRODUCTION

- Despite the promotion of Multi-Tiered Systems of Support (MTSS) implementation to match student needs to resources, schools still lack manpower to run evidence-based interventions.
- The rise in Computer-Adaptive Interventions (CAIs) has brought possibilities for efficient, differentiated instruction with fewer teacher resources required; however, research on effectiveness remains thin.
- **This study sought to compare the effectiveness and efficiency of CAIs (*Lexia* and *iStation*) with "business-as-usual" (BAU) control interventions.**

DATA ANALYSIS AND RESULTS

Outcomes:

- Woodcock-Johnson IV Achievement Broad Reading, Basic Reading, and Reading Fluency clusters
- FastBridge readingCBM and COMPEfficiency
- Effects measured pre/post and by minutes of implementation

GROUP	CUMMULATIVE MIN. IMPLEMENTATED	AVERAGE CUMMULATIVE MINUTES PER STUDENT
iStation	9939	414.13
Matched Control A	28160	469.33
Lexia	4410	155.01
Matched Control B	19090	333.86

* Recommended allocated time for intervention and additional time, reported by the teacher by day, required to implement supplemental intervention

Table. Analysis of Instructional Efficiency

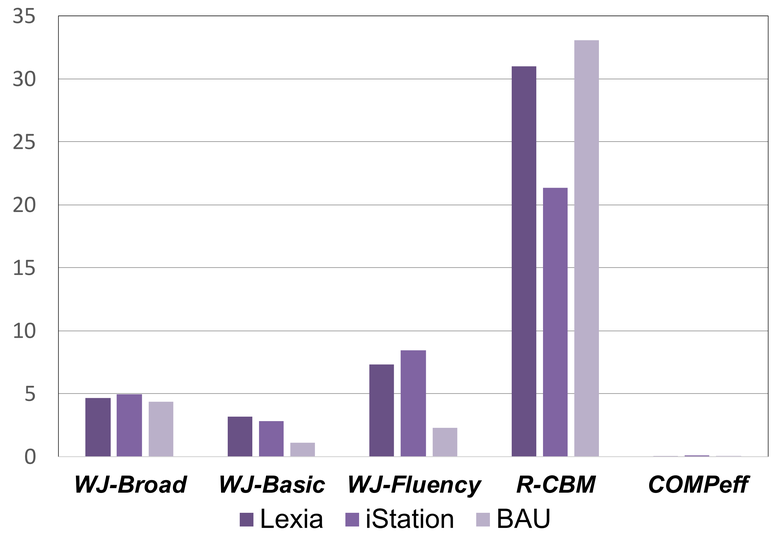

Figure. Pre- to Post-Test Differences. Significance found for time, not group.

PARTICIPANTS AND PROCEDURES

- 1st – 4th grade students (n=96) across 2 Title I schools (48 per school) located in NE Oklahoma
- Students identified as at-risk via existing MTSS data-based decision-making rules (i.e., via cutoff percentile rank scores on a state-approved universal screening tool such as DIBELS or STAR)
- Each school randomly assigned a CAI program, and each at-risk student randomly assigned to receive either the CAI or BAU
- BAUs were typical Tier II pull-out small group interventions, and the CAI replaced BAI when assigned
- Both CAI programs (*Lexia* and *iStation)* marketed for tiered instruction across levels of need
  - Based on varied instruction across the five pillars of reading
  - Adaptive formative assessment
  - 1:1 computer to student
- Each program has built-in intensification when students are non-responsive. If non-responsiveness continues, supplementary teacher-guided lessons are recommended
- Recommended usage times depending on risk level:
  - *Lexia*: 20-80 minutes
  - *iStation*: 30-90 minutes

DISCUSSION

- Findings suggest all groups grew over time; yet, no difference between groups was found. Descriptively speaking, the two programs performed about as well as the BAU.
- However, time spent per unit of improvement was an entirely different story. The BAU was labor intensive. *iStation* was as well due to the program's recommendations for supplemental lessons.
- **Overall, CAI appears promising in terms of effectiveness, with *Lexia* also being particularly efficient.**

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