Evaluating the Impact of a Vocabulary App Plus Explicit Instruction on Vocabulary Knowledge of Fifth Grade Students With and Without Disabilities

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Abstract

- Educators struggle to reliably provide effective vocabulary instruction needed for students with disabilities to learn new terms.
- Multimedia can supplement instruction by providing high-quality instruction with embedded practice and visuals.
- In this study, we investigated use of the InferCabulary app in enhancing vocabulary instruction for students with and without IEPs.

Background Information

- Intensive vocabulary instruction is crucial for students with IEPs (Jitendra et al., 2004).
- Students with IEPs are regularly taught vocabulary within the general education classroom by teachers who were not thoroughly trained to use practices shown to support learning (Reschly, Holdheide, Behrstock, & Weber, 2009).
- Multimedia can support instruction by combining evidence-based practices with visuals and cognitive anchors (Kennedy, Deshler, & Lloyd, 2014; Xin & Rieth, 2001).
- Despite this potential, studies exploring use of this modality for students with disabilities are sparse (Boyle & Kennedy, 2017; Bryant et al., 2003; Kuder, 2017).
- Teacher candidates should learn about effective uses of multimedia during their preparatory programs, and how to be informed consumers.

Introduction to InferCabulary App

This App uses a semantic reasoning process where students infer the meaning of unknown terms using visuals conveying various examples of the definition. The teacher can lead students through the process, or they can work alone.

Research Questions

(a) How well do students with IEPs learn new terms when receiving explicit teaching in conjunction with the InferCabulary app?
(b) To what extent do students report that using the app is enjoyable?

Method

75 fifth-grade students from three teachers’ classrooms participated in this study (note: Only two of the teachers participated, students from the third classroom were equally distributed).
- 11 students with IEPs (14.7% of participating students)
- 20 students without IEPs were identified as “struggling” as determined by 4th Grade standardized testing scores
- Counter-balanced Design to account for inability to randomize experimental groups.
- Researchers conducted weekly observation to document use of the App and Business-As-Usual instruction.
- Students completed pre- and post-tests and weekly probes
- CORE Vocabulary Instrument (α = 0.87)
- Researcher Created Vocabulary Assessments:
  - Multiple Choice (α = 0.83)
  - Sentence Identification (α = 0.76)
  - Picture Identification (α = 0.83)
- Satisfaction Survey (α = 0.89)

Results

All analyses utilized one-way ANOVAs. During weeks of intervention, Teacher 1’s students scored higher on MC, SI, and PI than Teacher 2’s students who did not use the App. When the conditions were reversed, similar trajectories were shown with Teacher 2’s students’ scoring significantly higher on these measures than Teacher 1’s students. Although the general education students had higher mean scores, the growth rates of the group of students with IEPs and the group of struggling students were larger than general education students across measures.

Results from the satisfaction survey indicated that, overall, the students had a positive response to using the app. Specifically, on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree)
1) The app helped me learn terms and definitions M = 4.1, SD = 1.2
2) I liked learning vocabulary using the app M = 4.2, SD = 1.1
3) If given the opportunity, I would use the app on my own M = 4.0, SD = 1.1

Discussion & Contribution to Teacher Education

- Results are promising that the InferCabulary app may be helpful for students given that it can be utilized in multiple ways (e.g., supplemental teaching tool, practice and review game).
- Our results suggest that teachers who use visuals in conjunction with explicit teaching practices, and include a process where students infer word meaning through semantic reasoning may become powerful allies in supporting students’ vocabulary learning needs.

For more information: