



Using BEA to Select Skill and/or Performance Interventions for Oral Reading Fluency



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Abstract

Brief experimental analysis (BEA) utilizes single case design methodology to “test drive” interventions in order to select an effective intervention for an individual student (Burns & Wagner, 2008). Used in this way, BEA can guide intervention selection for learners who have failed to respond to standard instruction (Coolong-Chaffin & Wagner, 2015). This project examined how BEA procedures could be used to identify potentially effective skill and/or performance-based interventions targeting reading fluency for 10 students (grades 1-5) who demonstrated inadequate reading performance during the school year. In addition, an extended analysis was conducted to determine the effectiveness of the indicated intervention over time when used within the context of a comprehensive reading instructional package delivered during a summer reading program. Results indicated that a promising intervention was identified for each participant. In addition, the intervention led to large gains in words read correctly per minute during the reading program on intervention passages. Variable results were seen on generalization passages. These results extend the literature on BEA by demonstrating its use with interventions utilizing skill and/or performance-based interventions. The results also demonstrate how BEA-indicated interventions can be used within the context of a comprehensive instructional package for struggling readers during the summer.

Introduction

Summer months can be a time of skill loss for students who are already struggling academically, especially when compared to their peers (Schacter, 2003). Researchers studying this phenomenon have called for an expansion of high quality summer programming (Alexander et al., 2001).

Despite many potentially effective programs, school professionals need more information about how to modify or augment these programs for students who still fail to make progress using a standard treatment approach.

Brief experimental analysis (BEA) applies single case design logic to evaluate the effectiveness of interventions over a short time period for individual participants. These interventions can then be applied over a longer time period and results can be measured. For some students, simply providing an incentive for increased performance results in an improvement of reading fluency within a BEA. For others, the added skill-based components of practice and modeling can be effective complements to performance-based interventions to improve reading fluency. (Burns & Wagner, 2008). In some cases, combining skill-based interventions with performance-based interventions has been shown to result in greater increases in reading fluency than when a skill-based intervention is offered alone. (Eckert et al., 2000)

This project examines how BEA procedures that combine skill-based and performance-based interventions can be used to modify commercially available reading interventions for elementary students participating in a summer reading program.

Results

Student	Baseline	Tx Mean	Range	Final
Curt	103	117	103-133	127
Carley	116	136	116-170	142
Jenny	53	57	48-68	53
Eric	49	61	43-88	45
Canton	37	41	34-52	41

Method

Participants. 10 school-aged children (7 boys, 3 girls) in grades 1-5 who attended a summer reading clinic participated in the study. Participants were enrolled in Midwestern public schools and showed varying degrees of reading difficulty.

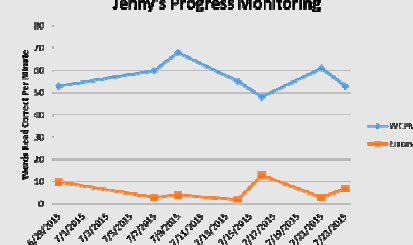
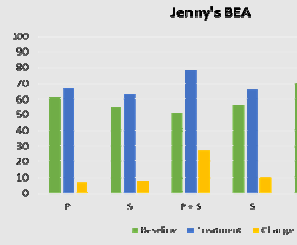
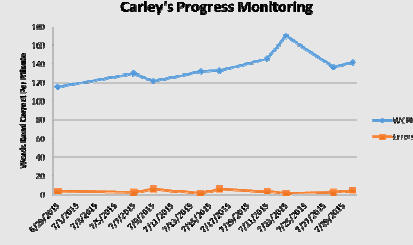
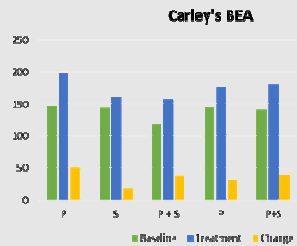
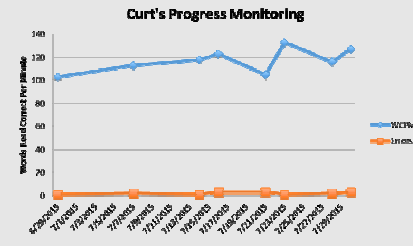
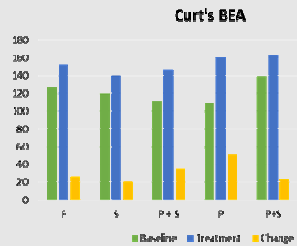
Procedure. Brief Experimental Analyses examining the effects of three different interventions were conducted during students' initial sessions to identify promising interventions. Once interventions were selected, they were implemented during extended analysis sessions in the context of a commercially available reading intervention program (Read Naturally) conducted at UWEC's Academic Intervention Clinic (AIC). Undergraduate students provided 45-minute intervention sessions to students 4 days each week for 5 weeks over the summer.

Interventions.

- Performance**—The interventionist tells the student his or her WRCM and errors. The Student records this on a graph. The interventionist tells him or her that if they beat their score they can pick a prize from the prize box.
- Skill**—The interventionist reads a passage out loud and the student follows along silently. Then, the student reads the passage out loud three times for two minutes and receives corrective feedback as-needed.
- Performance + Skill**—The interventionist tells the student his or her WRCM and errors. The Student records this on the graph. The interventionist tells him or her that if they beat their score they can pick a prize from the prize box. The interventionist then reads the passage out loud and the student follows along silently. Then, the student reads the passage out loud three times for two minutes and receives corrective feedback as-needed.

Measures. Curriculum-Based Measures of Reading from the Formative Assessment System for Teachers (Christ et al., 2013) were used to measure oral reading fluency. Scores reflect the number of words read correctly in 1 minute (WRCM). “Cold” and “Hot” time WRCM scores were assessed before and after each invention. The “Cold” time refers to the WRCM the student scores before the intervention, and the “Hot” time refers to the WRCM the student receives after the intervention.

Results



Discussion

- Our results extend the literature on BEA by comparing interventions targeting skill, performance, and skill + performance variables.
- Additionally, we used a published curriculum, Read Naturally, in a novel setting—a 1:1 instructional format instead of independent work. This offers information on how schools can adapt existing materials for student needs.
- BEAs for each participant resulted in all participants receiving a skill + performance intervention, rather than performance or skill alone.
- Progress monitoring data show that five participants made gains in their reading fluency on generalization passages. All participants made gains on intervention materials.
- Potential limitations to our study include a small sample size—generalizability is considered a limitation of single-case designs.
- Also, our use of an AB design comparing baseline performance (A) to the intervention phase (B) means we cannot be certain that our intervention, and not a third variable, contributed to the student gains. However, we know that none of the participants were receiving other reading instruction during the summer.
- These findings demonstrate how BEA-indicated interventions can be used to provide supplemental instruction to struggling readers over the summer.
- Future research could extend these results to other types of interventions and intervention packages other than Read Naturally.

Acknowledgments

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References

Alexander, K.L., Entwistle, D.R. & Olson, D.R. (2001). Schools, achievement, and inequality: A Seasonal perspective. *Educational Evaluation and Policy Analysis, 23*, 171-191.

Burns, M.K., & Wagner, D. (2008). Determining an effective intervention within a brief experimental analysis for reading: A meta-analytic review. *School Psychology Review, 37*, 126-136.

Christ, T. J., Ardoin, S., Monaghan, B., Van Norman, E. & White, M. J. (2013) CBMReading: Technical Manual. Minneapolis, MN: University of Minnesota, Department of Educational Psychology.

Eckert, T. L., Ardoin, S. P., Daisey, D. M., & Scarola, M. D. (2000). Empirically evaluating the effectiveness of reading interventions: The use of brief experimental analysis and single case designs. *Psychology In The Schools, 37*(5), 463.

Eckert, T. L., Ardoin, S. P., Daisey, D. M., & Scarola, M. D. (2000). Empirically evaluating the effectiveness of reading interventions: The use of brief experimental analysis and single case designs. *Psychology In The Schools, 37*(5), 463.

National Center for Education Statistics (2010). *Reading Performance of Students in Grades 4 and 8*. Retrieved November 15, 2010: http://nationsreportcard.gov/reading_2009/

National Reading Panel (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction [on-line]. Available: <http://www.nichd.nih.gov/publications/nrp/report.cfm>.

Read Naturally Encore (2012). St. Paul, MN: Read Naturally Inc.

Schacter, J. (2003). Preventing summer reading declines in children who are disadvantaged. *Journal of Early Intervention 26*, 47-58.