

The Impact of Computer-Assisted Small Group Tutoring on Struggling Readers:

Second Year Report

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Tutoring to enhance the beginning reading skills of struggling readers is a widely accepted and well-researched strategy (Slavin, Lake, Davis, & Madden, 2011). However, effective models for tutoring, including both one-to-one and small group models, normally require a highly trained, certified teacher-tutor. While proven to be effective, these models can be very costly to implement and are therefore rarely used in schools with limited resources.

Tutoring has been a component of the research-proven Success for All model of school improvement since its first implementation in 1987. The initial model included one-to-one tutoring by fully certified teachers. As budget challenges have made the costs of certified teachers prohibitive, Tutoring with Alphie, a computer-assisted small group tutoring model, was created for schools implementing Success for All to allow paraprofessionals to work effectively with a larger number of students. Tutoring with Alphie provides a quick assessment that places students in a tutoring plan that addresses their needs for the development of phonics, word skills, fluency, and comprehension skills at the appropriate levels. Students are placed in a partnership with a student with similar needs. The computer structures a working relationship between the students that guides them to alternate reader and coach roles as they interact with activities, games, and text presented by the computer. The program provides models of correct oral responses to activities presented, so that student coaches can give feedback to their partners on the correctness and quality of their reading. When the partnership has practiced a skill to mastery, the computer prompts the tutor to verify mastery with a brief review of the skill. When the tutor verifies mastery, the computer updates the tutoring plan. Similarly, if a partnership makes continuing errors in responses to activities presented, the computer alerts the tutor to provide guidance. The personalized planning provided by the software, the stimulating interaction between students in the partnership, and the motivational and just-in-time instructional support provided by the tutor create great promise for practical application of tutoring in many schools.

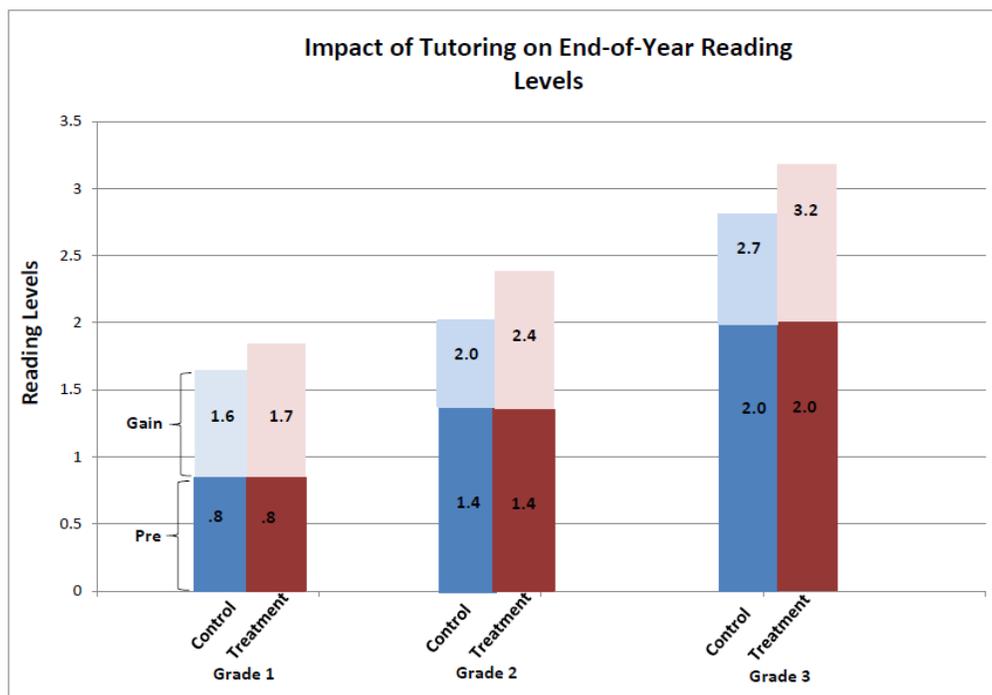
The Abell Foundation awarded the Success for All Foundation a grant in September of 2013 to evaluate the implementation of Tutoring with Alphie in a group of Baltimore City Public Schools that began implementation of Success for All in fall, 2013. The grant provided funding for one half-time paraprofessional tutor in half of the schools, chosen at random. In the first year of implementation, over 500 students in eight schools were provided with tutoring, and showed an additional 3 to 5 months of growth in reading achievement in one school year compared to students in BCPS Success for All partnership schools not able to provide tutoring (Madden & Slavin, 2015).

A continuation of the grant from the Abell Foundation funded tutors in seven schools* for the 2014-15 school year. The findings of the second year provided additional support for the efficacy of the

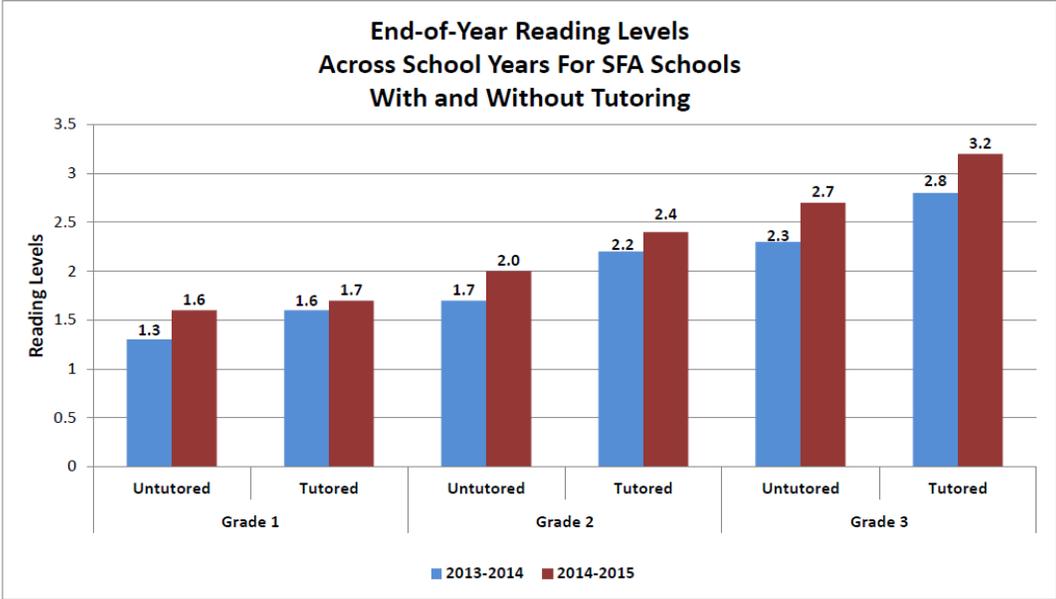
Tutoring with Alphie intervention. Seven of the Success for All schools randomly assigned to receive a tutor in 2013-14 were also provided with a half-time tutor between October 2014 and May 2015. (One school discontinued its implementation of Success for All). During the 2014-15 school year, 266 students were tutored (an average of 38 per school), receiving an average of 29 tutoring sessions. These are students who had not received tutoring in 2013-2014. Of the students tutored, 122 were first graders, 72 second graders, 67 third graders, and 5 fourth or fifth graders.

Growth in reading achievement was measured using data on mastery of reading skills generated from formal assessments combined with data from classroom assignments and observations. This mastery determination is a standard part of the Success for All process, and was completed using the same training and guidelines for all schools. The impact of the addition of a half-time tutor was determined by comparing the growth of tutored students to that of students at the control schools, also using the Success for All program. Each tutored student with baseline and end of year scores was matched with a student from a control school in the same grade who had a similar score at baseline.

The results for each grade level are shown below. Tutored students at all grades made significantly greater gains in reading than did matched students in the control schools. Differences ranged from 1 month for first graders to 5 months for third graders. Differences were statistically significant and substantial. The average effect size across the grades was .49. This is larger than the average effect size across 8 studies of Reading Recovery, a one-to-one tutoring program that uses certified teachers with a year of training (Slavin et al., 2011). Tutored students in all grades gained a full year or more in reading achievement during the year, while without tutoring, students fell further behind grade level expectations.



It is interesting to note that both tutored and matched control student groups performed at a higher level at the end of 2014-2015 than did their counterparts in 2013-2014 (Madden & Slavin, 2015), suggesting that the school as a whole improved in providing core instruction in reading in their second year of Success for All implementation. Third grade students in the schools without funded tutors finished the year at an average level of 2.3 last year. This year’s untutored group finished the year at 2.7. The pattern for the tutored group was similar, finishing last year at 2.7 and this year at 3.2. The same pattern was also seen in first and second grades, as shown in Graph 2.



The cost per student for this extra tutoring intervention was modest – about \$400. This cost is about one tenth the cost of a one-to-one tutoring intervention such as Reading Recovery, which requires a certified teacher/tutor.

These impacts indicate that Tutoring with Alphie provides an effective, replicable model for providing effective tutoring in early reading within schools implementing Success for All. Further research is underway to explore whether Tutoring with Alphie can be implemented as a supplement in schools not using Success for All.

Conclusion

The provision of a half-time paraprofessional tutor appears to have made a substantial difference in the reading achievement of struggling readers in Baltimore City schools, at a modest cost. Based on what it has learned from the study, the Success for All Foundation has made many improvements in computer-assisted instruction software and training procedures. For example, it is now able to obtain trace data from every tutor and student, automatically collecting data indicating how much the program is being used and how much progress students are making. This will allow for more informed coaching

for tutors. The study provides strong support for the idea that computer-assisted coaching can make a meaningful difference in the reading performance of struggling readers within Success for All schools.

Success for All Foundation is in a unique position in Baltimore. Because its headquarters is in Baltimore, it is able to employ tutors to provide direct service to its Baltimore City schools if funding can be found. The cost for providing a half-time paraprofessional tutor to all of the nineteen schools implementing Success for All is only \$20,000 per school, or a total of \$380,000. This figure would cover recruitment of tutors, access to Tutoring with Alphie, initial training, and coaching and supervision of tutors during the course of the year. Schools not in the group previously receiving Abell-funded tutors would need a small number of additional resources to participate - a space large enough to accommodate six students and three computers linked to the internet with a broadband connection. All nineteen of the Success for All schools in Baltimore have indicated an interest in providing Tutoring with Alphie to their students, and are able to provide the space and computers. They are lacking the resources to hire a paraprofessional to provide the tutoring. The Success for All Foundation is interested in talking with BCPS staff and local foundations to identify resources to provide Tutoring with Alphie to additional students this year.

References

- Madden, N. A., & Slavin, R. E. (2015). *An evaluation of technology-assisted small-group tutoring for struggling readers* (Tech. Rep.). Baltimore: Success for All Foundation.
- Slavin, R.E., Lake, C., Davis, S. & Madden, N.A. (2011). Effective programs for struggling readers. *Educational Research Review*, 61-26.

*The schools receiving a tutor funded by Abell include: Charles Carroll Barrister ES, Fort Worthington ES, Franklin Square ES/MS, Holabird ES/MS, Johnston Square ES, Walter P. Carter ES/MS, Windsor Hills ES/MS. Control schools included Alexander Hamilton ES, Bay Brook ES/MS, Collington Square ES/MS, Grove Park ES/MS, Harlem Park ES/MS, The Historic Samuel Coleridge-Taylor ES, Belmont ES, and Edgecombe Circle ES.