BrainWare SAFARI Cognitive Skills Development in Before and After School Programs with Low-Performing Readers

Summary Findings

- The 2014-15 implementation of BrainWare SAFARI replicated the results of the successful 2012-13 implementation with students achieving an average improvement of 13 percentile points in cognitive ability.
- The significance of improving a student's cognitive ability by 13 percentile points can be appreciated by realizing that if you lined up all of the students in the country at the relevant grade level (about 3 million students at each grade level), these students in the BrainWare SAFARI pilot moved up an average of 400,000 students closer the head of the line.
- Students were selected to participate in the 2014-15 pilot based on their very low reading ability. The data show that students in the 2014-15 cohort had a markedly lower initial cognitive level than the 2012-13 group, especially in their verbal processing, which could be a significant factor in their low reading levels. Following their use of BrainWare SAFARI, these students' verbal cognitive ability moved almost to the 50th percentile – that is to a level, that they would now be expected to be able to learn to read when provided with standard reading instruction. That is a profound change for these students.

Implementation and Usage

As a follow-up to the pilot program completed in an after-school setting at Maywood Elementary School during the 2012-13 school year[1], BrainWare SAFARI cognitive skills development software was implemented in two schools in Hammond, Indiana during the 2014-15 school year. In 2014-15, Maywood Elementary created a before-school program and Wallace Elementary created an after-school program. As in the previous pilot study, the nationally normed Cognitive Abilities Test (CogAT) was used to assess students' cognitive capacity before and after their use of BrainWare SAFARI. The CogAT consists of three subtests: Verbal, Quantitative, and Non-Verbal. Scores on the three subtests are combined into an overall Composite Score. Both studies involved students in the 3rd, 4th and 5th grades.

The recommended usage of BrainWare SAFARI is 3 to 5 times per week, for 30 to 45 minutes, over 10 to 14 weeks. Of the 29 students in the before-school program at Maywood, 11 had a sufficient number of sessions[2] and both pre- and post-test scores on the CogAT that would enable them to be included in the analysis. Of the 28 students that originally enrolled in the Wallace after-school program, 10 completed a sufficient number of sessions in BrainWare SAFARI and have pre-test and post-test data available.[3]

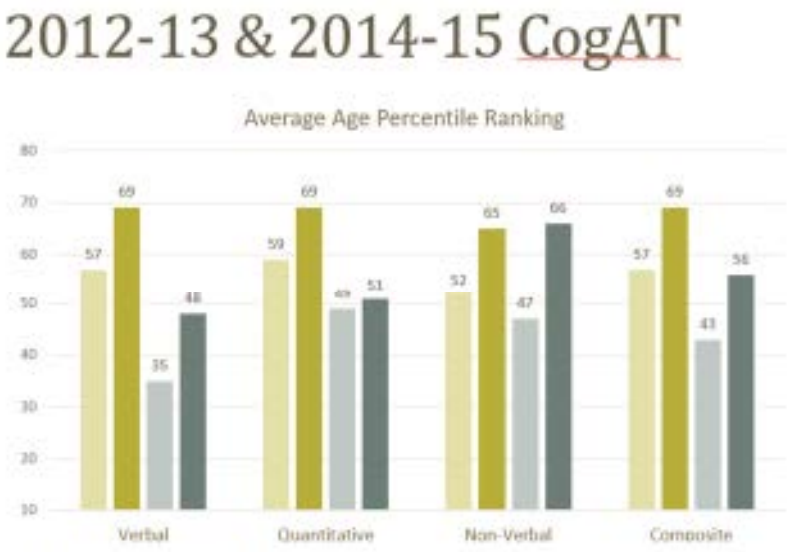
Results

The chart at the top of the next page shows the results on the CogAT for the 2012-13 and 2014-15 school years. In general, the students in 2014-15 had lower average pre-test performance on the CogAT than the students in the program in 2012-13. This is consistent with principal and teacher reports that, in 2014-15, students with greater academic struggles, particularly in reading, were selected for participation in the program. For example, the average composite APR (average percentile ranking) score for the students in 2012-13 on the pre-test was 57, while the average composite APR for the students in 2014-15 on the pre-test was 43, a difference of 14 percentile points.

The students in the most recent pilot were most dramatically lower in their Verbal scores, with a difference of 22 percentile points (57th percentile in 2012-13 and 35th percentile in 2014-15). This markedly low level on the Verbal section of the test would be consistent with reading struggles.

Despite the differences in initial scores between the 2012-13 and 2014-15 students, the gains achieved by the students following their use of BrainWare SAFARI in 2014-15 were very comparable to the gains in cognitive

[1] Executive Brief, BrainWare SAFARI Pilot 2012, Maywood Elementary School, Hammond, IN, www.MyBrainWare.com. This study included 3rd, 4th and 5th grade students, as did the 2014-15 study.
[2] Students with fewer than 24 sessions have been excluded from analysis.
[3] The Wallace students' post-test results were marked February, but it was subsequently determined that the results were actually from the May-June administration of the test.



(before, after and during the school day).

capacity achieved in the 2012-13 pilot, as well as in other studies using the CogAT and its Canadian counterpart, the Canadian Cognitive Abilities Test (CCAT). The consistency of results in studies completed at different times, with different groups of students, is shown in the table below.

The small size of the sample in this study would tend to lead one to expect some variability from results in previous studies. Instead what is seen is overall consistency in the gains achieved with different groups of students, in different types of school systems (public and parochial), in different areas of North America, and in different implementation settings

Average Age Percentile Ranking Gain on CogAT and CCAT* Scores

Study (N)	Verbal Gain	Quantitative Gain	Non-Verbal Gain	Composite Gain
South Carolina 2008-09 (64)	12	9	8	11
South Carolina 2009-10 (257)	11	8	9	11
South Carolina 2010-11 (238)	11	9	11	12
South Carolina 2011-12 (260)	9	7	8	9
South Carolina 2012-13 (171)	9	10	13	12
Pope John Paul II, FL, 2010 (13)	11	22	10	12
Hammond, IN 2012-13 (22)	12	10	13	12
Hur-Sup CDSB* 2013-14 (169)	13	14	19	17
Hammond, IN 2014-15 (21)	13	2	19	13

It seems likely that the low verbal cognitive capacity in the students who used BrainWare SAFARI during the 2014-15 school year was related to their poor academic performance in reading, the reason they were selected to participate in the program. The greater than typical gains made by these students on the Verbal subtest of the CogAT are particularly encouraging.

Overall, the results support the conclusion that BrainWare SAFARI is effective in strengthening students' cognitive capacity to enable them to be successful academically. The study supports and confirms the results achieved in 2012-13 and would support a broader implementation within the school district, as well as continued use for the students who used the program during the 2014-15 school year to determine whether additional gains in cognitive capacity are possible and to measure the specific impact on gains in academic measures, especially in reading.