

Increases in Academic Ability for Students with Learning Differences

Susan Autry at Oakwood School in Annandale, Virginia won a classroom license for BrainWare Safari (BWS) at the Virginia Learning and the Brain Conference in May 2012. Oakwood School is an ungraded K-8 co-ed day school for bright students with learning differences. The school provides a multi-sensory educational program in which students with learning differences are guided to achieve their unique academic and social potential in a nurturing community environment. Students are grouped into classrooms by considering chronological age, academic skills and social factors.

The BrainWare SAFARI (BWS) implementation started in February 2013 following demonstrations and training for staff. The two classrooms chosen to use BWS were a mix of 6th and 7th graders.

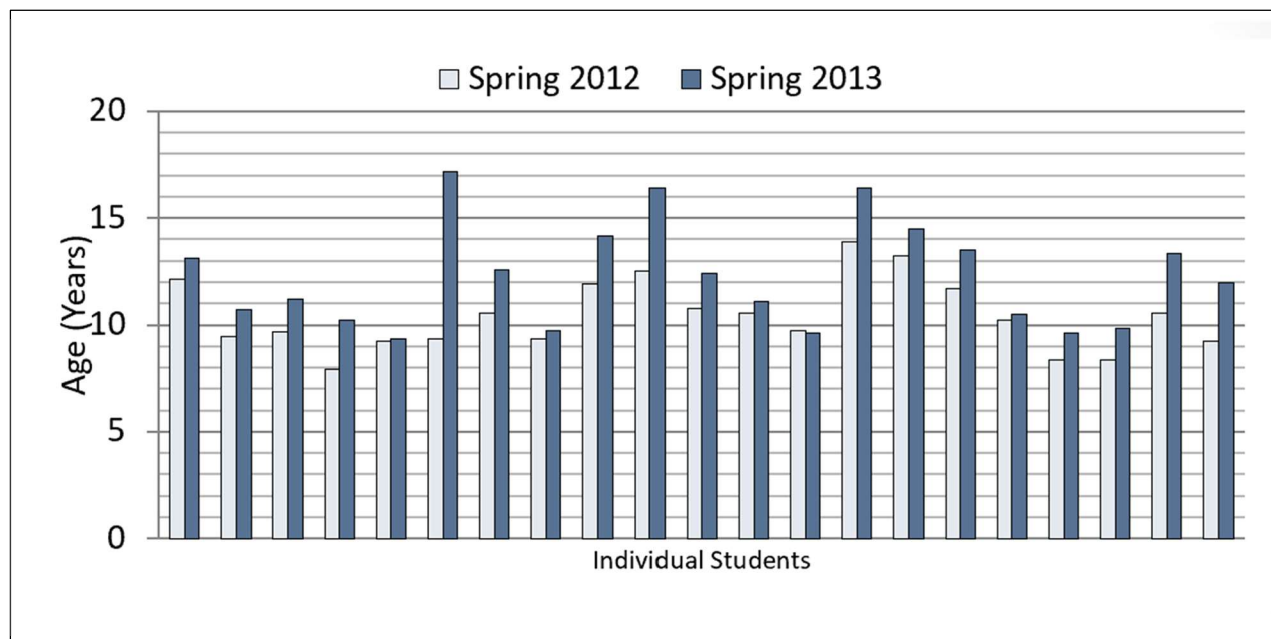
Subtests of the Woodcock Johnson III (WJIII) Tests of Academic Achievement were used as pre- and post-assessments for the students who used BWS. The WJIII subtests are routinely administered to all students annually in the Spring to gauge student progress over time. Four of the subtests – Letter Word Identification, Reading Fluency, Math Fluency, and Passage Comprehension – have been used in a previously published study with BWS¹. Two – Calculation and Applied Problems -- have not been used previously in any other study of BWS.

Of the 31 accounts in BWS that were set up, 21 students had WJIII testing scores and an adequate number of sessions in BrainWare SAFARI. These students had good fidelity which is determined by the number of sessions they complete in a 10-14 week period. The expectation is 30 to 50 sessions, and these students had a median usage of 37 ± 2 sessions with a minimum of 32 and a maximum of 39, yielding 2 ± 0.1 sessions per week for 15 weeks. The students completed 122 ± 17 levels in BWS with a minimum of 92 and maximum of 151.

Figure 1 shows the average scores for individual students on the four WJIII subtests that were used at Oakwood School and also in the published study. On these four subtests, the Oakwood students started with an average of 123 ± 10 months (10 years 3 months) of academic ability. After using BWS, the students' average score increased 21 ± 1 months (1 year 9 months) to a median score of 144 ± 11 months (12 years). The increase of 1 year 9 months is in the same range as the increase of 1 year 6 months reported in the published research using these same tests. Of the 21 students tested, all but one increased their average score.

1. Helms, D. and Sawtelle, S.M. A Study of the Effectiveness of Cognitive Skill Development Delivered in a Video-Game Format." Optometry & Vision Development, Volume 38, Number 1, 2007

Figure 1: Individual Average Score on 4 Tests of Academic Achievement



Oakwood also administered two WJIII Academic Achievement Math tests (Calculation and Applied Problems) that have not been previously used in measuring student growth following the use of BWS. The WJIII Calculation test measures basic math skills including computational skills and automaticity with basic math facts. The Applied Problems test requires the analysis and solution of math problems. The scores on these tests were essentially unchanged.

Conclusion:

The 6th and 7th graders at Oakwood School who used BWS to increase their underlying cognitive capacity demonstrated significant increases in performance on tests of academic achievement. The average improvement of 1 year 9 months was similar to the 1 year 6 month improvement experienced by students in a previous study, in which there was no improvement for students in a control group.