



Glenwood School for Girls and Boys in Glenwood, IL, is a community supported non-profit organization dedicated to making a difference in the lives of disadvantaged children in the Chicagoland and Fox Valley Regions. Glenwood helps economically and socially disadvantaged children from low income, mostly single-parent homes undergoing extreme hardship due to serious family and community issues. Glenwood offers them a comprehensive residential, education and life-skills program in a structured and nurturing environment.

During the 2008-2009 school year, 96 students in the 2nd through 8th grades used BrainWare Safari for either first quarter or second quarter (8 weeks), 5 days a week for 30 minutes. They were tested in September and February using the Visual Motor Inventory and five Woodcock-Johnson® III tests¹ routinely used by Glenwood for student assessment.

Grade	# students	Grade	# students
2	6	6	17
3	4	7	26
4	10	8	14
5	14		

Grade	Avg. Levels Complete	Min Levels	Max Levels	Avg. Sessions	Min Sessions	Max Sessions
2	87 ± 14	64	105	38 ± 6	33	50
3	99 ± 17	86	123	43 ± 2	39	44
4	86 ± 18	47	109	13 ± 1	12	15
5	87 ± 25	49	139	15 ± 4	9	22
6	145 ± 17	108	168	30 ± 2	26	32
7	155 ± 11	119	168	29 ± 2	24	33
8	155 ± 13	128	168	27 ± 4	21	32

Student progress in BrainWare Safari is found in Table 1. Overall the students completed an average of 127 levels of BrainWare over an average of 26 sessions.

The results of the student assessments are reported in grade equivalents.² Between the pre- and post-test, average improvement on the academic tests ranged from 0.5 GE in 2nd grade to 2.9 GE in the 8th grade. Average improvement on the cognitive tests ranged from 1.5 GE in 2nd grade to a high of 3.0 GE in 7th grade. Table 2 shows how the students performed relative to their grade level on the tests. Average student performance improved substantially, especially for students in the older grades. On average, students in the study performed markedly above the norm for their grade on post-test.

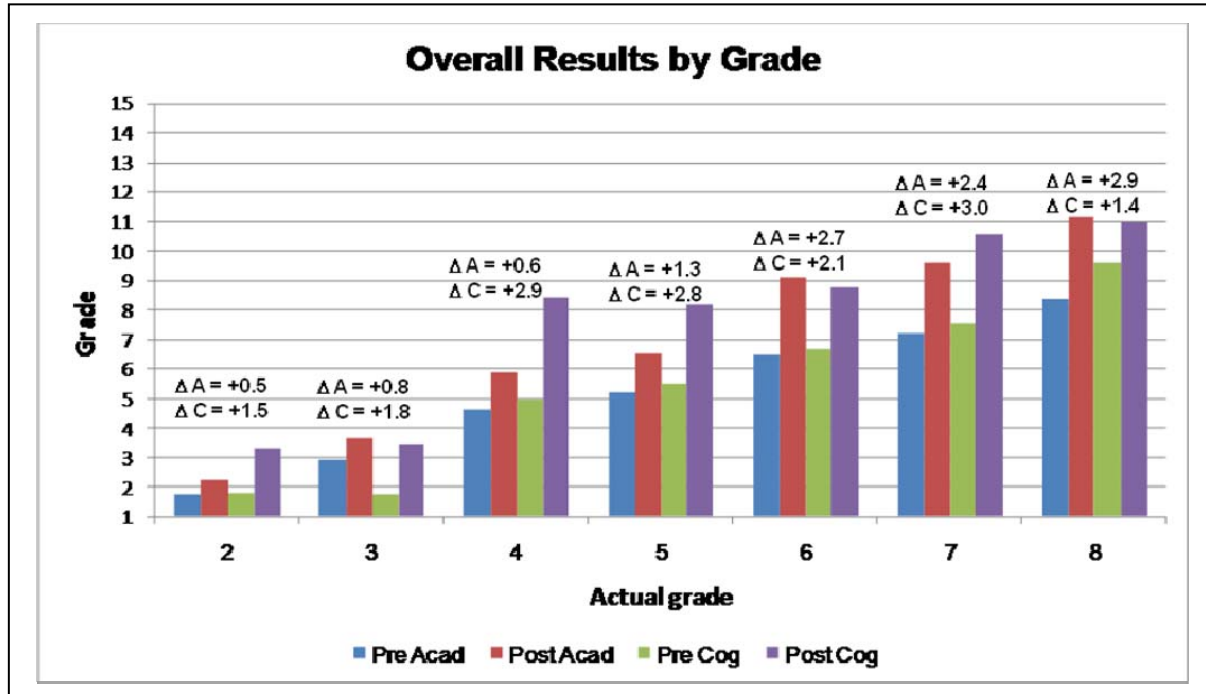
	Academic (GE)		Cognitive (GE)	
	Avg Pre	Avg Post	Avg Pre	Avg Post
2	-0.2	+0.2	-0.2	+1.3
3	-0.1	+0.7	-1.3	+0.5
4	+0.7	+1.10	+0.11	+4.5
5	+0.2	+1.6	+0.5	+3.2
6	+0.5	+3.1	+0.7	+2.8
7	+0.2	+2.7	+0.6	+3.6
8	+0.4	+3.1	+1.7	+2.11

1. Woodcock-Johnson (WJ) tests administered include three academic tests (WJ Reading Fluency, WJ Math Fluency and WJ Writing Fluency) and two cognitive tests (WJ Decision Speed and WJ Pair Cancellation).

² A grade equivalent indicates that the individual correctly answered the same percentage of questions correctly as other students at that grade level. It is not always true that the individual can perform work at that grade level.



Chart 1 shows average performance by grade on both the academic and cognitive tests at pre-test and post-test, along with the Grade Equivalent improvement between the two test dates, with ΔA denoting the improvement on the academic tests and ΔC denoting improvement on the cognitive tests.



Previous studies of BrainWare have used some of the same tests used at Glenwood³. Improvement on these tests has been generally consistent across the studies.

	Glenwood	Edgar Evans	Harbor Beach	Published I	Published II	Published Control
Decision Speed	3.8 GE	3.3 y.mo	2.2 y.mo	2.2 y.mo	3.4 y.mo	0.5 y.mo
Pair Cancellation	1.2 GE			0.11 y.mo	1.1 y.mo	0.3 y.mo
Reading Fluency	1.5 GE			1.1 y.mo	1.3 y.mo	0.1 y.mo
Math Fluency	1.8 GE			1.7 y.mo	-0.10 y.mo	-0.4 y.mo

Conclusion

The Glenwood school results show a clear relationship between improvement in the underlying attention, memory and other mental processing skills developed by BrainWare Safari and performance on academic tests. Improvement in the higher grades is more significant than in the lower grades, although gains were also seen in the younger grades and the magnitude of the gains is generally relative to grade level. It is reasonable to surmise that cognitive deficiencies had a cumulative effect over time. Thus older students, once those deficits were lessened, were able to quickly realize more substantial academic gains.

³ Using age-equivalent rather than grade-equivalent norms.