

St. Johns County School District Academy Analysis



Final Report

Prepared by:

Dr. Michelle Wilcox



career
A C A D E M I E S
EXPERIENCE. THE DIFFERENCE.

Executive Summary

There were 8446 data sets for students in grades 9-12 seeking general diplomas. Special diploma students were not included in the data analysis. Analysis of the data including Florida Comprehensive Assessment Test (FCAT) scores for academic year 2007-08 and grade point averages (GPA) through the third quarter of the current academic year, 2008-09, indicates there is a statistically significant relationship between the scores and academy participation. Additionally, ACT composite scores and SAT Math and Verbal scores were analyzed.

In most cases, the means of academy students were above the means of non-academy students. The means in both FCAT Reading and FCAT Math level scores were higher for academy students than non-academy students. There was no statistically significant difference in ACT and SAT scores between academy and non-academy students, indicating that the academy students are as college ready as non-academy students.

Additional statistical analysis was also completed using discriminant function analysis to determine the extent to which scores are different for academy students compared to non-academy students and if there is a statistically or practical significant difference.

Descriptive Statistics

There were a total of 8,446 valid cases of students in grades 9-12, in St. Johns County public high schools. The high schools were St. Augustine, Bartram Trail, Pedro Menendez, Nease, and St. Johns Tech. The academy programs evaluated include the: Vystar Academy of Business and Finance, Aerospace, the Arts, Design and Construction, Communications, Stellar Academy of Engineering, Architecture, Flagler Academy of Medical and Health Careers, and Future Teachers. Additional academies have been added but were not part of this study. By grade level, the percent of students participating in academies were: 9th grade – 34%, 10th grade - 28%, 11th grade – 21%, and 12th grade – 17%. The decrease in numbers as the grade level increases may be due to several factors, but the most likely is that the data were collected only one year after the academy programs began, and fewer students had the opportunity to begin at the upper levels, or were already involved in other non-academy programs of study.

There were 1,171 students in academy programs, a total of 13.9% of the overall high school student population. The male population was 4,271 (50.6%), and the female population was 4,175 (49.4%) at the time the data were collected. Interestingly, this is representative of a trend that has been noted: greater percentages of females are progressing and graduating from high school and college in overall greater numbers than males. The self-reported ethnic breakdown of the population included 18 (<1%) Indian, 123 (1.2%) mixed race, 180 (2.1%) Asian, 399 (4.7%) Hispanic, 619 (7.3%)

African-American, and 7007 (83%) Caucasian students. The academy programs were representative of the overall population.

Less than 2% of the high school population was on free or reduced lunch, and 732 (8.6%) of the students were classified as exceptional education students. Full-time special diploma students were *not* part of the population; however, gifted, speech, hearing impaired, visually impaired, learning disabled, consultive and varying exceptionalities student were included. There were 62 exceptional education students in academy programs, representing 5.3% of the academy student body.

Behavioral Data

The mean incidence of inappropriate behavior leading to in-school suspension (ISS) was slightly lower for academy students, as was the mean number of days assigned to ISS. The mean number of out-of-school suspension incidents was practically significantly different. Academy students were more than 55% less likely to participate in behavior resulting in OSS, and subsequently also spent far less days out of school for suspensions.

Group Statistics ISS Incidents/Days

Academy_Binary	ISS Incidents	Mean	Std. Deviation
0	ISS_Incidents	.07	.366
1	ISS_Incidents	.05	.271

Academy_Binary	ISS Days	Mean	Std. Deviation
0	ISS_Days	.13	.732
1	ISS_Days	.10	.554

Group Statistics OSS Incidents/Days

Academy_Binary		Mean	Std. Deviation
0	OSS_Incidents	.20	.687
1	OSS_Incidents	.09	.416

Academy_Binary		Mean	Std. Deviation
0	OSS_Days	.69	2.824
1	OSS_Days	.38	1.928

The attendance of academy students was 8% higher than that of non-academy students. This was statistically significant. Group membership could be predicted more than 63% of the time based on attendance. This is also practically significant, in that greater participation is known to correlate to an increase in academic performance. Academy students' greater rates of participation may be explained by the relevance of the curriculum and the integration and application of the skills and knowledge required in the academy.

Group Statistics Attendance

Academy_Binary		Mean	Std. Deviation
0	DaysPresent	157.92	38.729
1	DaysPresent	170.05	18.615

Data Analysis

Key findings indicate there were no statistically significant differences between academy and non-academy participants. This is important because the findings indicate that the academy students have grade point averages (GPA) and FCAT scores statistically the same as non-academy students, and are statistically as college ready. In several cases, academy students' gains were more significant than non-academy students from one year to the next.

This includes FCAT scores and grade point averages. Additionally, the academy students had lower mean days absent, in-school suspension, and out-of-school suspensions, and higher mean days in attendance.

GPA

The means of academy and non-academy students indicate that academy students had greater increases in their GPAs. The academy students' mean GPA increased 0.98, or 49%, while non-academy students' mean GPA only increased by 28%. This suggests a need for further review of the curricula and an understanding of the value of the depth of learning generally associated with participation in academy programs of study due to an integration of general education and application of program specific technology skills and knowledge within the academy.

Group Statistics Grade Point Average

Academy_Binary	GPA	Mean	Std. Deviation
0 non-academy	2007 GPA	2.11	1.354
1 academy	2007 GPA	2.00	1.511

Academy_Binary	GPA	Mean	Std. Deviation
0 non-academy	2008 GPA	2.71	.831
1 academy	2008 GPA	2.98	.631

The discriminant function analysis (DFA) indicates that 98.5% of the current GPA can be explained by academy participation. This is a statistically significant finding. Predicted group membership, which is an indication of the similarity of two groups, suggests that academy students GPAs were not statistically significantly

different from the non-academy students to predict group membership. This is a significant finding because the academy students are performing as well as, and in this case, ***better than***, non-academy students!

FCAT Reading

The FCAT scores of academy and non-academy students were not statistically different. The 2006 FCAT Reading scores were slightly higher for academy students. In 2007, the Reading Level and Reading Scaled Scores dropped; however, the scores dropped slightly more for non-academy students. The Reading Developmental Scaled Scores increased, and increased more for the academy students! Again, while there was not statistically significant difference between the two groups, it is significant that in all cases the academy students were performing better than the non-academy students. In 2007, there was a statewide decrease in reading scores, likely due to test changes. The 2008 scores increased, and again, the academy students' scores increased by slightly more than non-academy students. The Developmental Scaled Scores increased significantly more for academy students. Overall in reading, the academy students *out-performed* the non-academy students.

Group Statistics FCAT Reading Level

Academy_Binary	Reading Level	Mean	Std. Deviation
0 non- academy	2006_Reading_Level	2.93	1.187
1 academy	2006_Reading_Level	3.11	1.042

Academy_Binary	Reading Level	Mean	Std. Deviation
0	2007_Reading_Level	2.83	1.207
1	2007_Reading_Level	3.03	1.094

Academy_Binary	Reading Level	Mean	Std. Deviation
0	2008_Reading_Level	2.90	1.298
1	2008_Reading_Level	3.12	1.197

Group Statistics FCAT Reading Developmental Scaled Scores

Academy_Binary	Reading, Developmental SS	Mean	Std. Deviation
0 non- academy	2006_Reading_DSS	1991.46	258.711
1 academy	2006_Reading_DSS	2001.75	221.951

Academy_Binary	Reading, Developmental SS	Mean	Std. Deviation
0	2007_Reading_DSS	2015.46	253.730
1	2007_Reading_DSS	2045.50	218.754

Academy_Binary	Reading Developmental SS	Mean	Std. Deviation
0	2008_Reading_DSS	2062.98	274.829
1	2008_Reading_DSS	2105.81	240.419

Group Statistics FCAT Reading Scaled Scores

Academy_Binary	Reading Scaled Score	Mean	Std. Deviation
0 non- academy	2006_Reading_SS	329.16	47.764
1 academy	2006_Reading_SS	335.07	39.647

Academy_Binary	Reading Scaled Score	Mean	Std. Deviation
0	2007_Reading_SS	326.90	47.643
1	2007_Reading_SS	334.50	40.835

Academy_Binary	Reading Scaled Score	Mean	Std. Deviation
0	2008_Reading_SS	331.59	50.612
1	2008_Reading_SS	340.06	43.700

FCAT Math

The FCAT math scores indicate much the same as the reading scores. In Math Level, scores were higher and increased slightly more for academy students. There was no statistically significant difference between the groups, but there are

practical implications. As with reading, the integration and application of math skills in a rigorous and relevant curriculum in an academy program may explain the difference in scores.

The 2006 Math Developmental Scaled Scores were slightly lower, but not statistically significantly lower, for academy students. However, in 2007, the scores of academy students increased 50% more than those of non-academy students over the previous year, and were higher than the non-academy students. The scores of academy students also increased more in 2008, and were higher than non-academy students. Again, the practical significance of these results may be explained by academy participation and the curriculum.

The Math Scaled Scores were not statistically significantly nor practically different. In all cases, the academy students' scores were higher than those of non-academy students.

Group Statistics Math Level

Academy_Binary	Math Level	Mean	Std. Deviation
0	2006_Math_Level	3.32	1.140
1	2006_Math_Level	3.44	1.009

Academy_Binary	Math Level	Mean	Std. Deviation
0	2007_Math_Level	3.35	1.112
1	2007_Math_Level	3.51	.986

Academy_Binary	Math Level	Mean	Std. Deviation
0	2008_Math_Level	3.38	1.052
1	2008_Math_Level	3.56	.884

Group Statistics Math Developmental Scaled Score

Academy_Binary	Math Developmental SS	Mean	Std. Deviation
0	2006_Math_DSS	1982.84	180.635
1	2006_Math_DSS	1980.70	160.962

Academy_Binary	Math Developmental SS	Mean	Std. Deviation
0	2007_Math_DSS	2005.39	158.641
1	2007_Math_DSS	2020.91	130.743

Academy_Binary	Math Developmental SS	Mean	Std. Deviation
0	2008_Math_DSS	2030.24	144.225
1	2008_Math_DSS	2052.43	116.476

Group Statistics Math Scaled Score

Academy_Binary	Math Scaled Score	Mean	Std. Deviation
0	2006_Math_SS	334.30	43.737
1	2006_Math_SS	337.49	38.110

Academy_Binary	Math Scaled Score	Mean	Std. Deviation
0	2007_Math_SS	333.53	42.007
1	2007_Math_SS	339.61	34.195

Academy_Binary	Math Scaled Score	Mean	Std. Deviation
0	2008_Math_SS	333.40	39.805
1	2008_Math_SS	339.34	31.995

College Readiness

The ACT and SAT college readiness measures indicate scores meeting entry level requirements for college in Florida for college level coursework in math (College Algebra) and composition (Comp. I) courses. The means of academy students were slightly lower than non-academy students, however these findings are not statistically significant. What is significant is that the academy students are

statistically and practically as college ready as non-academy students. While not measured or analyzed in this particular study, a follow up of students who have participated is likely to show the academy students entering and completing post-secondary education at higher rates than non-academy students. As the academies continue to grow, it is likely that these scores will be more reflective of the FCAT scores. These scores were from a much smaller group (N) of students who had participated less time in the academies.

Group Statistics

	Academy_Binary	N	Mean	Std. Deviation	Std. Error Mean
ACT Composite	0	1792	22.10	5.024	.119
	1	353	22.00	4.675	.249
SAT Reading	0	2369	537.76	97.362	2.000
	1	391	531.59	90.565	4.580
SAT Math	0	2369	541.82	101.187	2.079
	1	391	537.11	90.242	4.564

Summary

The data indicate both statistically and practically significant results to support participation in academies. Behavioral data suggest that academy students will participate more appropriately and attend school more often. The academic data suggest that academy students are as prepared as non-academy students for college and gain more skills and knowledge as participants in the academies. Additional research and continued study of academy students is warranted before results can be generalized, but the data here is reflective of other studies that have been done on career academies.

NOTES