



# Cradle Beach School-Based Program: Impact on Academic Achievement

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Program Year 2011-2012



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## Executive Summary

Project SOAR is a school based program operated by Cradle Beach, a Western New York organization with a rich history of providing services to disabled and disadvantaged children since 1888. The program provides intensive in-class tutoring, field trips, overnight monthly retreats and a residential summer enrichment camping experience. This report examines data collected from students who participated in Project SOAR during 2011-12, the second year of school-based program operations.

## Results

During the 2011-12 school year, project SOAR students demonstrated consistently robust academic performance. In each quarter of the year, the average overall GPA of the group exceeded 84.5%.

This level of achievement was consistent across all of the academic subjects analyzed in the study. Average grades of SOAR students met or exceed 84% in English Language Arts, 83% in Math, 84% in Science and 84% Social Studies in each quarter of the year.

The strength these students' academic skills was ultimately validated by their performance on the NYS academic tests in ELA and Math. Fifty percent of the SOAR students met or exceeded standards on the ELA test, compared to only 35.6% for the control group. Additionally, 34.8% of Project SOAR students met or exceed performance standards on the NYS Math test, while only 20% of control group students achieved this standard.

Expert assessment by teachers validated meaningful improvements on important skill factors related to success in school and later on in life. Almost all students who performed below acceptable levels at the beginning of the year demonstrated moderate to significant levels of improvement by the end of the year.

Measures of attitude (feelings of favorableness or unfavorableness) toward a performing behaviors associated with a variety of academic areas were assessed to determine the number of students whose success is potentially inhibited by negative attitudes. While attitudes toward specific types of academic activities varied, only a small number of Project SOAR students (4.2%) demonstrated negative overall attitudes toward engaging in academic behaviors.

Project SOAR students demonstrated almost equal levels of intrinsic and extrinsic motivation for classroom as well as homework performance. This appears to be appropriate given the age

of the students as they transition from a developmental stage where the motivation for most things in life is defined by extrinsic factors. The observation that intrinsic factors play almost an equal role in their desire to perform well in the classroom and on homework is a positive sign.

Across multiple measures – academic grades, statewide academic tests, school attendance, as well as measures of academic attitudes, motivation and conflict resolution, a positive picture of student achievement and development has emerged with respect to students who participated in the Project SOAR program. As a group, the students appear to be doing well in school despite the many challenges commonly associated with being educated in the Buffalo School District.

Overall, Project SOAR provided a meaningful and enriching program for a group of students who otherwise would not have had exposure to a wide range of academic supports and culturally enriching experiences. The outcomes based data described in this report suggest that students have developed skills that should have a positive impact on their chances for success in future academic endeavors.

## Overview

Project SOAR is a school based program operated by Cradle Beach, a Western New York organization with a rich history of providing services to disabled and disadvantaged children since 1888. Historically, Cradle Beach was primarily associated with a popular summer camp program that served students with special needs and “well” children that came from low income families. In 1996, the camp moved to a new location with facilities that allowed the organization to provide programming year round and more recently the organization has begun to explore ways of expanding its work with children throughout the school year by tutoring and mentoring 3rd and 4th grade students directly in the classroom. With funding from the Patrick P. Lee Foundation and the Community Foundation for Greater Buffalo and a partnership with AmeriCorps, Cradle Beach has placed staff inside the classrooms at Lovejoy Discovery School - Buffalo Public School #43, providing intensive in-class tutoring, field trips, overnight monthly retreats and a residential summer enrichment camping experience. This report examines data collected from students who participated in Project SOAR during 2011-12, the second year of school-based program operations.

## Program Description

Working together with teachers and other school personnel, program staff from Cradle Beach provide a variety of services including individualized tutoring, cultural activities, active learning experiences, group work and enrichment activities. Additional programming occurs outside of traditional school hours. For instance, during weekend retreats students are exposed to experiential learning opportunities that enhance their classroom learning. The staff develop and implement individualized programming designed to promote student achievement in key areas such as science and math. The retreats are held throughout the year at Cradle Beach’s facility in Angola where students experience educational stations that include but are not limited to sports, computers, culinary arts, dance, music, beach and nature, photography, sensory, and theater. These off-site activities provide an enriched educational experience in a natural, rural environment that many students have not ever experienced. Students are given the opportunity to explore academic subjects outside the constraints of a traditional classroom. By pairing academic instruction with social activities, games and physical activity, students come to understand that learning can be fun and applicable to life outside the classroom, increasing the overall impact on their educational and personal lives. Other program activities that are held during the school year, including field trips and after-school activities, are planned and carried out with similar goals in mind.

The current study focuses on students in the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> grades at one school in the Buffalo Public School District. Academic records were obtained from a group of students who participated in Project Soar and similar number of non-participant control group students from the same school and grade levels. In the analyses reported below, the sample size of each group varies somewhat because it was not possible to obtain complete records for all individuals in the study. Incomplete data was typically caused by students joining the program after the beginning of the year, leaving the program early because they left the school (e.g. family relocated to another district), or the student was absent due to illness on the day data was collected.

## Program Objectives

The ultimate goals of the school-based program include:

- Enhancing academic performance of student participants,
- Increasing the acquisition of skills that promote academic and life success, and
- Improving the level of positive behavior of students in the program

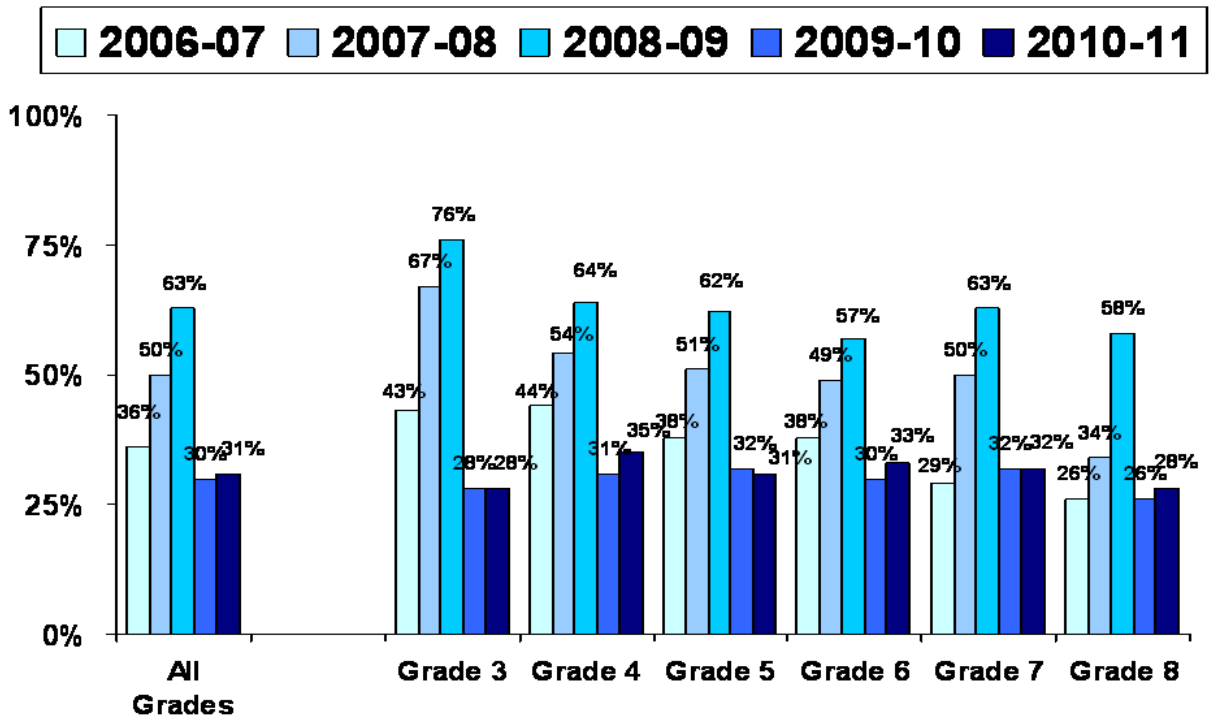
A number of program activities (e.g. tutoring) directly address the current academic needs of the children, while enrichment and cultural activities are employed to foster positive attitudes toward learning and school. Consistent with their traditional camp-based programs, Cradle Beach workers engage students in ways that are designed to expand their developmental assets. The current report describes program participants' level of school attendance as well as overall grade average including specific academic performance in math, English Language Arts, science, and social studies as well as performance on the NYS math and ELA assessments.

## Buffalo Public Schools (BPS) Overview

In 2010-11 (the most recently available data), the Buffalo Public Schools failed as a district to make Adequate Yearly Progress (AYP) in Math and English Language Arts with 7 of 10 target student groups failing to make AYP for in both subject areas at the elementary level. (The district failed to achieve AYP in 7 out of 9 target groups at the secondary level.) At the elementary and secondary levels, students with disabilities, Limited English Proficiency, and economically disadvantaged all failed to make AYP in Math or English. Overall, in Grades 3 through 8, no grade achieved above 35% of its students scoring at a level that demonstrated they met minimal standards in ELA or Mathematics. In grades 3 and 4 (the grades targeted by Project SOAR) only 26% and 28% of students respectively met the proficiency standards for English. In Math, only 26% and 35% of students in grades 3 and 4 respectively met proficiency

standards. Finally, at both the elementary and secondary level, only single digit percentages achieved mastery of subject in ELA and Mathematics (NYS Report Card, 2010 to 2011).

### Math (Elementary/Middle) District Percent at level 3 & 4



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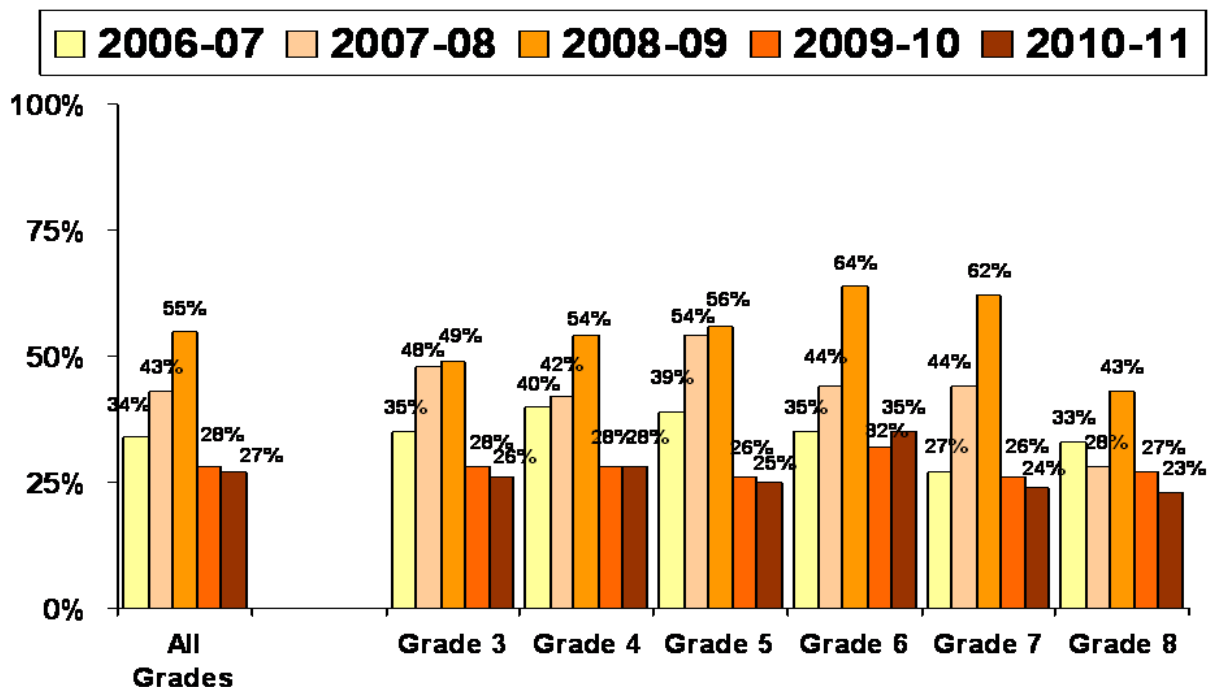
Sources: NYStart,

Source: Buffalo District School/Shared Accountability Page (2012):

<http://www.buffaloschools.org/SharedAccountability.cfm?subpage=57063>

The Buffalo Public Schools, like many urban school districts, struggles to sustain higher levels of academic achievement in its students. The downward trend is apparent in the NYS District Report Cards for the past 5 years. The 2011 district wide performance in English Language Arts is the lowest it's been in the past five years (since 2005-06). In Math, the district achieved its 2<sup>nd</sup> lowest level of performance since 2005-06, only 1% above the 5 year low in 2009-2010. This pattern of results suggests a downward spiral in academic achievement across the district. Clearly, students in this district face a daunting challenge when it comes to achieving levels of academic performance that most would consider minimal.

## ELA (Elementary/Middle) District Percent at level 3 & 4



OSA 9/1/11 wck

Sources: NYStart,

Source: *Buffalo District School/Shared Accountability Page (2012):*  
<http://www.buffaloschools.org/SharedAccountability.cfm?subpage=57063>

***Essentially, BPS students should be recognized as achieving academic success if they maintained their level of academics or improved, going against the current trend of decreasing academic achievement over time.*** Therefore, an academic intervention, measured purely on academic grades, should be considered successful if it stabilizes the falling academic achievement of students while building student characteristics and skill-sets attributed to long-term academic achievement and strong personal growth.

### Program Assessment Methodology and Rationale

Data for this report was collected from the following sources:

- student report cards,
- teacher reports on individual student performance, and
- scores on NYS Achievement tests in Math and English Language Arts

Additionally, data was collected from students using to surveys that measure

- Attitude toward Academic Activities
- Intrinsic and Extrinsic Motivations for classroom and homework activities
- Conflict resolution skills.

### Control and Program Group Comparison

Demographic information available via student report cards was limited to gender and grade level. Students in both groups attended the same school and were drawn from the same neighborhoods. Therefore it is reasonable to assume that they share a common mix of ethnic and socio-economic characteristics.

The tables below illustrate the distribution of subjects by gender and grade level.

<b>Grade Level Distribution of Subjects</b>			
<b>Grade Level</b>	<b>Project Soar Frequency (Column Percent) {Row Percent}</b>	<b>Control Group Frequency (Column Percent) {Row Percent}</b>	<b>Total Frequency (Column Percent) {Row Percent}</b>
<b>Grade 3</b>	<b>12</b> (26.1%) {50%}	<b>12</b> (26.1%) {50%}	<b>24</b> (26.1%) {100%}
<b>Grade 4</b>	<b>20</b> (43.5%) {50%}	<b>20</b> (43.5%) {50%}	<b>40</b> (43.5%) {100%}
<b>Grade 5</b>	<b>14</b> (30.4%) {50%}	<b>14</b> (30.4%) {50%}	<b>28</b> (30.4%) {100%}
<b>Total</b>	<b>46</b> (100%) {50%}	<b>46</b> (100%) {50%}	<b>92</b> (100%) {100%}

The control group consisted of a randomly selected, matched sample comprised of students that attended the same school as the Project SOAR students. The control group was matched on gender and grade level as illustrated in the tables above.



<b>Gender Distribution of Subjects</b>			
<b>Gender</b>	<b>Project Soar Frequency (Column Percent) {Row Percent}</b>	<b>Control Group Frequency (Column Percent) {Row Percent}</b>	<b>Total Frequency (Column Percent)</b>
<b>Male</b>	<b>22</b> (47.8%) {50%}	<b>22</b> (47.8%) {50%}	<b>44</b> (47.8%) {100%}
<b>Female</b>	<b>24</b> (52.2%) {50%}	<b>24</b> (52.2%) {50%}	<b>48</b> (52.2%) {100%}
<b>Total</b>	<b>46</b> (100%) {30.83%}	<b>46</b> (100%) {69.16%}	<b>92</b> (100%) {100%}

## Methodology

The academic impact of Project Soar was assessed in two ways. First, changes in dependent variables (e.g. absenteeism, grades, etc.) were tracked during each quarter of the school year, allowing an observation of how these outcome variables changed over time. Second, a control group was employed so that we could assess how Project Soar students performed relative to students who were not in the program. This resulted in a 2 X 4 factorial design, where the between subjects factor was “Group” (2 levels – Soar Students and Control Group Students) and the within subjects factor was “School Quarter” (4 levels). The dependent variable list included: Days Absent, Overall Grade Average, Math Grades, English Language Arts, Science, and Social Studies grades. Results for each independent variable are described below.

## Absenteeism

One of the goals of Project Soar is to reduce rates of absenteeism for student participants. Number of days absent each quarter was obtained from student report cards and is reported in the table below.

<b>Days Absent</b>				
<b>Group</b>		<b>Mean</b>	<b>Std. Deviation</b>	<b>N</b>
Qrtr 1	SOAR	2.32	3.24	46
	Control	2.95	2.80	46
Qrtr 2	SOAR	3.21	3.14	46
	Control	3.86	3.31	46
Qrtr 3	SOAR	2.73	2.82	46
	Control	4.00	3.33	46
Qrtr 4	SOAR	3.56	3.72	46
	Control	4.80	4.12	46

**Results:** In each of the 4 quarters, the SOAR group consistently demonstrated a lower average number of days absent compared to the control group. The size of the effect, however, was not sufficient to achieve statistical significance. For the entire year, SOAR students were absent, on average, 12.6 days. Control group students were absent 14.2 days.

**Interpretation:**

The lower rates of absenteeism were consistent from quarter to quarter for Project SOAR students, but not large enough to be statistically significant. Overall, Project SOAR students spent an additional 1.6 days in school during the school year.

**Overall Academic Performance**

Among the chief concerns of Project Soar staff is the academic performance of participating students. Overall academic performance was measured by students’ numerical grade average in each academic quarter. (Subject specific performance is reported later in the report).

Overall Grade Average				
Group		Mean	Std. Deviation	N
Qtr 1	SOAR	84.78	6.94	46
	Control	82.81	6.56	46
Qtr 2	SOAR	85.16	6.38	46
	Control	83.11	6.85	46
Qtr 3	SOAR	84.97	6.21	46
	Control	82.48	7.15	46
Qtr 4	SOAR	84.70	5.59	46
	Control	82.35	6.52	46

**Results:** SOAR students achieved higher overall grade averages in all four quarters. However, the differences between SOAR students and control group students were not large enough to achieve statistical significance. Additional analyses that examined each grade separately also failed to produce consistent evidence of a statistically significant difference between SOAR and control group students.

**Interpretation:** While we would have preferred to find a larger difference between SOAR students and control group students, it should be noted that the average scores reported in the table above are consistently in the low to mid 80’s, suggesting reasonably strong academic achievement. Furthermore, while there is some variability in the grades from quarter to quarter, there was no statistically significant decline in grades during the school year.

## Academic Performance in Math

Project Soar staff work with students throughout the year on math related activities to build their skills in this important discipline. The table below reports student grade averages in math in each quarter for Soar Students and Control Group Students.

A 2 X 4 mixed factorial ANOVA was conducted to compare the effect of Group (between subjects) and Quarter (Within Subjects) on Math grades. (Grades are expressed on a -0 to 100 scale.) As in the previous analysis, the Group variable had two levels: Project Soar Students and the Control Group. The Quarter variable had four levels corresponding to the four quarters of the academic year.

Math Grades				
Group		Mean	Std. Deviation	N
Qrtr 1	SOAR	85.60	7.98	46
	Control	82.58	9.16	46
Qrtr 2	SOAR	85.13	7.73	46
	Control	82.30	7.19	46
Qrtr 3	SOAR	84.50	7.54	46
	Control	81.26	9.46	46
Qrtr 4	SOAR	84.34	5.71	46
	Control	82.26	7.64	46

**Results:** As with overall grade averages, SOAR students achieved higher Math grades than control group students in all four quarters. However, the differences between SOAR students and control group students were not large enough to achieve statistical significance. Additional analyses that examined each grade separately also failed to produce consistent evidence of a statistically significant difference between SOAR and control group students.

**Interpretation:** Math grades for all students consistently ranged from the low to mid 80's. There is no evidence of declines in performance throughout the school year as was observed last year.

## Academic Performance: English Language Arts

During the school year, Project Soar staff engaged students in activities designed to strengthen their English Language Arts skills. Academic performance in this area is assessed quarterly. Grade information was obtained from student report cards.

English Language Arts Grades				
Group		Mean	Std. Deviation	N
Qrtr 1	SOAR	84.28	8.07	46
	Control	82.95	7.56	46
Qrtr 2	SOAR	84.58	7.58	46
	Control	82.43	7.40	46
Qrtr 3	SOAR	84.19	7.77	46
	Control	81.50	8.15	46
Qrtr 4**	SOAR	86.45	6.51	46
	Control	82.52	6.58	46

\*\*Statistically Significant: - t= 2.88, df = 90, p < 0.05

**Results:** SOAR students consistently scored higher than control group students, but the differences between the two groups for the first three quarters were not great enough to be statistically significant. In the final quarter of the academic year, ELA grades for SOAR students did achieve a level that was statistically significant. Additional analyses that examined each grade separately suggest that the fourth quarter difference was primarily due to the performance of the 4<sup>th</sup> and 5<sup>th</sup> grade students.

**Interpretation:** Unlike last year's performance, average ELA grades remained stable throughout the year instead of declining towards the end of the year. While some variability in grade averages occurred across quarters, all of the SOAR group grades are in the mid to high 80's, suggesting good performance in English Language Arts.

### Academic Performance: Science

Throughout the academic year, Project Soar staff assisted students with science homework and engaged them in a variety of activities designed to nurture an interest in science. Academic performance in science is assessed quarterly. Grades were obtained from student report cards.

Science Grades				
Group		Mean	Std. Deviation	N
Qrtr 1	SOAR	84.80	8.24	46
	Control	83.58	6.36	46
Qrtr 2	SOAR	84.65	6.73	46
	Control	83.58	7.15	46
Qrtr 3	SOAR	85.50	6.52	46
	Control	83.56	7.30	46
Qrtr 4	SOAR	84.00	6.05	46
	Control	82.76	6.51	46

**Results:** Once again, SOAR students achieved average grade levels that were higher than those of control group students in each quarter of the academic year. However, the differences were not large enough to be statistically significant. Additional analyses that examined each grade separately also failed to produce consistent evidence of a statistically significant difference between SOAR and control group students.

**Interpretation:** Average science grades remained stable throughout the year. Students were able to avoid the year end decline that was observed last year. Average scores in each quarter remained in the mid 80’s suggesting good performance in Science throughout the academic year.

### Academic Performance: Social Studies

Project Soar staff engage students in cultural activities, active learning experiences, group work and enrichment activities that should enhance student performance in the area of Social Studies. Average grades across the four quarters of the academic year are reported in the table below.

Social Studies Grades				
Group		Mean	Std. Deviation	N
Qtr 1	SOAR	84.63	7.05	46
	Control	82.40	6.60	45
Qtr 2**	SOAR	86.45	6.91	46
	Control	83.02	7.37	45
Qtr 3	SOAR	85.71	6.63	46
	Control	83.65	7.40	46
Qtr 4	SOAR	84.00	6.01	46
	Control	81.60	7.09	46

\*\*Statistically Significant:  $t=2.29$ ,  $df = 89$ ,  $p < 0.05$

**Results:** SOAR students consistently produced average Social Studies grades that were higher than those of control group students, however, only the differences in the second quarter were large enough to be considered statistically significant. Additional analyses that examined each grade separately also failed to produce consistent evidence of a statistically significant difference between SOAR and control group students.

**Interpretation:** SOAR students’ average grades in Social Studies varied only slightly across the four quarters of the academic year. Students avoided the year end decline that was observed

last year. Furthermore, all of the average grades were in the mid 80's, which indicates reasonably good performance in Social Studies.

### New York State Assessment Tests

Students in 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> grades in New York State take standardized assessment tests in Math and English Language Arts. Student scores on the tests are converted to a 4 point scale:

NYS Test Score	Definition
Level 1	Not Meeting the Performance Indicators for the Learning Standards. The student does not demonstrate accuracy and/or independence.
Level 2	Partially Meeting the Performance Indicators for the Learning Standards. The student partially demonstrates accuracy and independence.
Level 3	Meeting the Performance Indicators for the Learning Standards. The student demonstrates accuracy and independence.
Level 4	Meeting the Performance Indicators for the Learning Standards with Distinction. The student thoroughly demonstrates accuracy and independence.

Scores for the Project Soar students and the Control Group were compared. The tables below report the mean score levels for each group on the Math and ELA exams.

NYSAA Exam Score Averages			
Math	Mean	Std. Deviation	N
SOAR	2.56	0.86	46
Control	2.33	0.73	45
ELA	Mean	Std. Deviation	N
SOAR	2.19	0.68	46
Control	2.00	0.63	45

Distribution of State Math Scores				
Group		Frequency	Percent	Cumulative Percent
Soar Group	Level 1	4	8.7	8.7
	Level 2	19	41.3	50.0
	Level 3	16	34.8	84.8
	Level 4	7	15.2	100.0
	Total	46	100.0	
Control Group	Level 1	4	8.9	8.9
	Level 2	25	55.6	64.4
	Level 3	13	28.9	93.3
	Level 4	3	6.7	100.0
	Total	45	100.0	
	Missing*	1		
	Total	83		

\*Scores Unavailable for some students

Distribution of State Math Scores				
Group		Frequency	Percent	Cumulative Percent
Soar Group	Level 1	7	15.2	15.2
	Level 2	23	50.0	65.2
	Level 3	16	34.8	100.0
	Level 4	0	0%	
	Total	46	100.0%	
Control Group	Level 1	9	20.0	20.0
	Level 2	27	60.0	80.0
	Level 3	9	20.0	100.0
	Level 4	0	100.0	
	Total	45		
	Missing*	1		
	Total	46		

\*Scores Unavailable for some students

**Results:** Students in the SOAR program had higher average scores on the NYS standardized tests on ELA and Math than students in the control group. However, as with many of the other performance variables discussed previously, the differences between the two groups were not

sufficiently large to be statistically significant. On the NYS ELA test, 50% of the students in the SOAR program were able to meet (34.8%) or exceed (15.2%) the performance standards established by state. Only 35.6% of the students in the control group were able to meet (28.9%) or exceed (6.7%) the performance standards established by the state. Likewise, 34.8% of the SOAR students were able to meet the performance standards in Math established by the state whereas only 20% of the control group students were able to meet the standards.

**Interpretation:** Average scores were higher for Project Soar students on both the NYS Math and ELA tests; however, those differences were not sufficiently large to be statistically significant. Furthermore, a higher proportion of Project Soar students scored at the proficient level (3 or 4) than did the control group in Math and ELA. The higher averages on NYSAA tests are consistent with the higher average grade data reported above.

## Teacher Survey Results

In addition to grades and student surveys, teachers were asked to complete expert assessments regarding changes in student performance on a variety of dimensions including class participation, turning homework in on time, student classroom behaviors, and so on

**Results:** (See Appendix I for a table listing the results of the teacher assessments).

- Teachers reported that approximately 30% of the students were performing at an acceptable level across the various performance factors.
- Additionally, teachers reported that an overwhelming number of those students who were performing below acceptable levels at the beginning of the year demonstrated moderate to significant levels of improvement by the end of the year. Only a very small portion of the sample (2 or 3 students) demonstrated a decline in performance.

**Interpretation:** The overall impression left by these findings is positive and reinforces the assumptions made earlier that stable performance on academic variables is actually a positive outcome. These results suggest that participation in program SOAR led to an improvement in skills that support academic performance. In the case of the current sample, the student improvements in areas like class participation, classroom behavior, turning work in on time, etc. helped students to maintain solid levels of achievement in grades and performance on NYS tests in ELA and Math.

Furthermore, the skills assessed by teachers in the current study correspond to performance dimensions that are important beyond the immediate goal of academic achievement in the K-12 environment. In a recent analysis by the University at Buffalo Regional Institute entitled:



*Connecting Higher Education and the Region's Growing Industries*, several variables were identified as critical to career success but often missing in today's college student. The following list contains skills that were perceived as often under-developed in students, but important in career success:

- ✓ Reading Comprehension
- ✓ Active Listening
- ✓ Critical Thinking
- ✓ Speaking
- ✓ Writing
- ✓ Monitoring
- ✓ Judgment & Decision Making
- ✓ Social Perceptiveness
- ✓ Service Orientation
- ✓ Learning Strategies
- ✓ Instructing
- ✓ Active Learning

Of these 12 variables, 10 are not directly linked to instructional strategies typically found in today's P-16 classrooms. Furthermore, these 12 "transferrable" skills have been identified as critical for the 7 growing industries in Western New York and the nation.

Examining the Teacher evaluations, a stronger picture of the impact of Project SOAR begins to take shape. Of the eleven variables reported on by teachers, 10 closely align with the above skills. For example, the following links may be drawn between what the teachers observed as Moderate to Significant improvement and the above skills.

**Participating in Class *links to Active Learning and Active Listening***

**Volunteering *links to Active Learning, Active Listening, and Service Orientation***

**Attending Class *links to Active Learning and Active Listening***

**Behaving Well in Class *links to Monitoring and Social Perceptiveness***

**Coming to School Motivated *links to Active Learning***

**Getting Along Well with Others *links to Social Perceptiveness and Judgment & Decision Making***

There is a clear link to what is being achieved by Project SOAR and what has been identified as critical needs of the business and educational community. This connection to the transferrable skills identified as critical by the UB Regional Institute report demonstrates the expanded importance of Project SOAR beyond what is being measured and the existing positive results identified in this report.

## Outcome Catalyst Variables

In an attempt to better understand the mechanism by which Program SOAR influences behavioral outcomes, students responded to a number of surveys designed to measure their attitudes toward various academic behaviors and their levels of intrinsic and extrinsic motivation toward classroom and homework activities. As well, the program’s impact on student behavior was explored by asking students to respond to surveys that measured their approach to identifying appropriate solutions to conflict situations.

These factors are believed to be catalyst variables in that programming that improves students’ attitudes toward school, their levels of intrinsic motivation and ability to respond constructively to interpersonal conflict, will in turn improve student’s ability to achieve higher levels of academic success in school.

### Conflict Resolution

One interpersonal skill that is important in navigating the social environment in public schools is conflict resolution – the ability to resolve interpersonal disagreements with others in a constructive and mutually beneficial manner. Students in Project SOAR receive instruction on ways to resolve conflicts appropriately in an attempt to help students avoid verbal altercations and physical violence.

Conflict Resolution					
	N	Minimum	Maximum	Mean	Std. Deviation
<b>Pre Conflict</b>	37	1.25	4.38	<b>3.2095</b>	.96017
<b>Post Conflict</b>	36	1.25	4.63	<b>3.3368</b>	1.06185

Scale ranges from 1 = low conflict resolution to 5= high conflict resolution.

Students responded to a number of items designed to elicit their reaction to situations where they could choose conflict oriented solutions or non-conflicted oriented solutions. High scores are indicative of the students’ ability to identify strategies for conflict resolution.

**Results:** At the beginning of the year, average student scores were 3.2095 (on a 1 – 5 scale). At the end of the year, scores increased to 3.3368. While the average conflict resolution scores show a slight improvement, the difference between pre and post measurements is not statistically significant.

**Interpretation:** Both pre and post conflict resolution scores for Project SOAR students fell in the mid-range, suggesting a moderate level of conflict resolution skills. It appears that the student’s skills in this area did not improve or decline during the program year.

### Attitudes toward School and Academic Activities

Student attitudes toward engaging in behaviors related to academic success in a variety of areas was assessed to see if the program improved how favorable or unfavorable students felt about things such as studying certain topics, writing, reading and attending school. There is a rich body of literature in psychology that suggests favorable attitudes toward a behavior are highly predictive of the actual behavior.

Attitudes are a reflection of how positive or negative an individual feels toward an objective, activity or behavior. Students responded to individual items on the survey by indicating that they felt negative, neutral or favorable toward the target concept (e.g. going to school, doing math homework, etc.) Scale scores ranged from a low of -3 (unfavorable attitude) to +3 (favorable attitude). Average attitude scores are reported in the following table.

Attitude Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
PRE Sum all attitude items	50	-4.00	18.00	4.9200	4.62840
POST Sum all Attitude items	48	-2.00	13.00	4.6250	3.72242
Pre Attitude Toward Attending School	50	-1.00	3.00	1.2000	1.03016
Post Attitude Toward Attending School	48	-1.00	2.00	.9583	.87418
Pre Attitude Toward Math	50	-1.00	3.00	.8400	1.11319
Post Attitude Toward Math	48	-1.00	3.00	1.0417	1.07106
Pre Attitude Toward Reading	50	-2.00	3.00	.8200	1.30447
Post Attitude Toward Reading	48	-1.00	3.00	.6458	1.02084
Pre Attitude Toward Writing	50	-2.00	3.00	.6800	1.36187
Post Attitude Toward Writing	48	-1.00	3.00	.7083	1.00970
Pre Attitude Toward Science	50	-1.00	3.00	.8800	1.17178
Post Attitude Toward Science	48	-1.00	3.00	.8750	1.31481
Pre Attitude Toward Homework	50	-1.00	3.00	.5000	1.41782
Post Attitude Toward Homework	48	-1.00	3.00	.3958	1.28394

Overall attitudes (aggregated across subject areas) declined slightly (0.295). This difference was not statistically significant. Across the individual attitude sub-scales, some improved slightly and some declined slightly, but none of the differences were statistically significant. The overall

conclusion resulting from this data is that there were no changes, increases or decreases, in attitude toward academic behaviors during the course of the program year.

Negative attitudes toward academic behavior (e.g. studying, doing homework, etc.) inhibit academic achievement. Much of the programming in the Project SOAR is designed to change negative attitudes and encourage a more positive outlook on engaging in academic activities.

Individual attitude scores were examined to determine how many SOAR students continued to have negative attitudes about engaging in academic behaviors at the conclusion of the program year. The following table lists the percentage of SOAR students with negative attitudes scores at the conclusion of the school year.

<b>Attitude Statistics</b>			
	Total Sample	Student's with Negative Attitudes	% With Negative Attitudes
Overall Attitude	48	2.0	4.2
Attitude Toward School	48	2.0	4.2
Attitude Toward Math	48	4.0	8.3
Attitude Toward Reading	48	6.0	12.3
Attitude Toward Writing	48	8.0	16.7
Attitude Toward Science	48	10.0	20.8
Attitude Toward Homework	48	13.0	27.1

Only a relatively small number of students continued to experience negative attitudes toward attending school, math related activities and reading activities by the end of the school year. Even in areas such as writing, science and homework, a majority of the students did not indicate unfavorable feelings toward behaviors associated with these activities.

While the number of students who possessed negative attitudes varied according to the type of behavior, when the various dimensions were combined, only 4.2% of the SOAR group presented overall negative attitudes toward academic behaviors. This suggests that strong positive attitudes about some aspects of academic life cancel out negative attitudes toward other aspects, resulting in relatively few students with overall feelings of unfavorableness (4.2% of the sample).

## Intrinsic and Extrinsic Motivations

Students responded to questions designed to evaluate if they were primarily motivated by intrinsic rewards (e.g. feelings of achievement, pride in ability to accomplish something, etc.) or extrinsic rewards (e.g. to avoid getting in trouble, because teacher made them do something, to earn a prize, etc.) Intrinsic motivations are more likely to produce consistent and enduring behaviors associated with academic achievement. Motivation questions were asked in reference to two different areas of performance: Class room activities and homework activities.

Intrinsic & Extrinsic Motivation for Class Performance					
	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Intrinsic	50	1.00	6.00	4.5200	1.41767
Post-Intrinsic	47	1.00	6.00	4.1489	1.54609
Pre-Extrinsic	49	2.00	6.00	4.7143	1.41421
Post- Extrinsic	48	1.00	6.00	4.7917	1.28756

**Results:** An examination of mean scores in the table above will show a slight decline in intrinsic motivation scores for classroom activities, and a slight increase in extrinsic motivation scores for classroom activities. However, neither of these pre/post comparisons is statistically significant which should lead the reader to conclude that no change in intrinsic or extrinsic motivation for classroom activity occurred during the program year.

Intrinsic & Extrinsic Motivation for Homework Performance					
	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Intrinsic	49	1.00	6.00	4.8163	1.34897
Post-Intrinsic	48	2.00	6.00	4.3542	1.24609
Pre-Extrinsic	48	1.00	6.00	5.0833	1.39655
Post- Extrinsic	48	2.00	6.00	5.0000	1.14854

**Results:** An examination of mean scores in the table above will show a slight decline in intrinsic motivation scores for homework activities, and a slight decline in extrinsic motivation scores for homework activities. However, neither of these pre/post comparisons is statistically significant which should lead the reader to conclude that no change in intrinsic or extrinsic motivation with regard to homework activity occurred during the program year.

**Interpretation:** The data on motivation in Project SOAR students is inconclusive. The results suggest that there are high levels of both intrinsic and extrinsic motivation for classroom and homework performance. This may be a sign of the students' developmental stage. Students at this age are just beginning to transition from a stage where motivations for most things in life are extrinsic, to a stage where intrinsic motivations begin to take on a greater role. As a result, the fact that intrinsic motivation scores are quite similar to the extrinsic scores suggests that these students are on the path toward developing a healthy and constructive foundation for future academic development.

## Conclusions

During the 2011-12 school year, project SOAR students demonstrated consistently robust academic performance. In each quarter of the year, the average overall GPA of the group exceeded 84.5%.

This level of achievement was consistent across all of the academic subjects analyzed in the study. Average grades of SOAR students met or exceed 84% in English Language Arts, 83% in Math, 84% in Science and 84% Social Studies in each quarter of the year.

While Project SOAR students' GPAs were not significantly different from the randomly selected control group used in the study, the strength of their academic skills was ultimately validated by their performance on the NYS academic tests in ELA and Math. Fifty percent of the SOAR students met or exceeded standards on the ELA test, compared to only 35.6% for the control group. (The control group's performance is similar to that of 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> graders district wide). Additionally, 34.8% of Project SOAR students met or exceed performance standards on the NYS Math test, while only 20% of control group students achieved this standard. District wide, performance was slightly better (26% of 3<sup>rd</sup> graders, 28% of 4<sup>th</sup> graders and 25% of 5<sup>th</sup> graders met or exceeded standards), but still below that of the SOAR group.

Expert assessment by teachers validated meaningful improvements on important skill factors related to success in school and in later life, including completing assignments, getting along with others, motivation and so on. Almost all students who performed below acceptable levels at the beginning of the year demonstrated moderate to significant levels of improvement by the end of the year.

Measures of attitude (feelings of favorableness or unfavorableness) toward a performing behaviors associated with a variety of academic areas were assessed to determine the number of students whose success is potentially inhibited by negative attitudes. While attitudes toward

specific types of academic activities varied, only a small number of Project SOAR students (4.2%) demonstrated negative overall attitudes toward engaging in academic behaviors.

Project SOAR students demonstrated almost equal levels of intrinsic and extrinsic motivation for classroom as well as homework performance. This appears to be appropriate given the age of the students as they transition from a developmental stage where the motivation for most things in life is defined by extrinsic factors. The observation that intrinsic factors play almost an equal role in their desire to perform well in the classroom and on homework is a positive sign.

Across multiple measures – academic grades, statewide academic tests, school attendance, as well as measures of academic attitudes, motivation and conflict resolution, a positive picture of student achievement and development has emerged with respect to students who participated in the Project SOAR program. As a group, the students appear to be doing well in school despite the many challenges commonly associated with being educated in the Buffalo School District.

Cradle Beach management, and specifically, the staff of Project SOAR should continue to identify ways of strengthening this important school enrichment program. Efforts should be made to demonstrate greater differences in academic achievement between students who participate in the program and those who do not. Improvements in this area will more clearly provide evidence of program effectiveness. It is also recommended that individual student goals be created using first quarter grades as a baseline. Using these baseline measures, Project SOAR staff can prioritize areas where each student needs special attention to increase their academic performance.

Particular attention should be paid in the future to helping students develop effective approaches to conflict resolution in an effort to raise student scores on this important catalyst variable. Conflict resolution scores in the current study suggest that there is room for improvement in this area.

Overall, Project SOAR provided a meaningful and enriching program for a group of students who otherwise would not have had exposure to a wide range of academic support and culturally enriching experiences. The outcomes based data described in this report suggest that students have developed skills that should have a positive impact on the chances for success in future academic endeavors.