Evaluation of LINC's Caring Communities Sites

21st Century Community Learning Center Programs

Cohort 8, Year 2

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LINC's Caring Communities Sites: 21st Century Community Learning Center Programs
Cohort 8, Year 2

Introduction

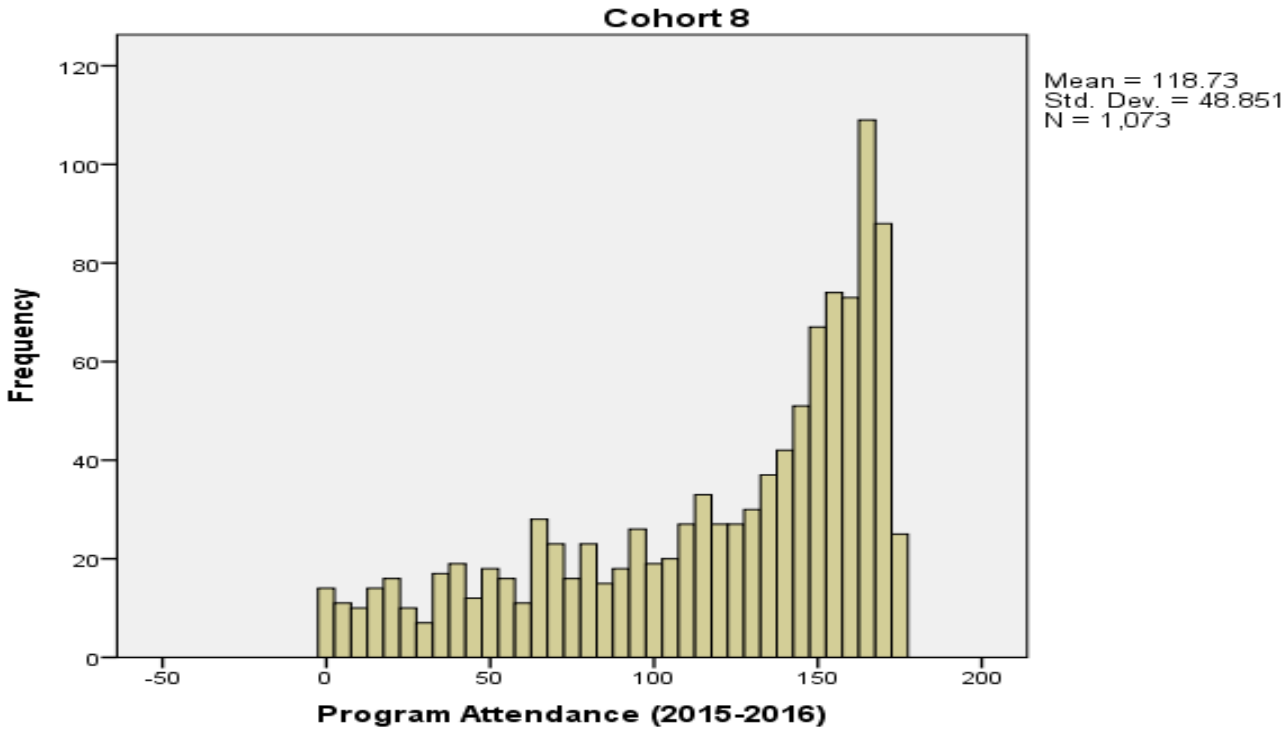
This report summarizes the findings from Georgia State University's evaluation of LINC Caring Community sites funded as 21st Century Community Learning Centers (21C). This report includes findings from eight LINC sites in Hickman Mills, Grandview and the Kansas City Public Schools which comprise Cohort 8 and were in their second year of 21C funding during the 2015-2016 school year.

The data sources for the evaluation consist of de-identified data provided by the program. LINC staff rated **student engagement in after-school program activities**. School teachers also rated, **improvements in students' school behavior.** Last, **academic grades in math, reading and science** were examined for students. Outcome analyses tested the **effects of students' participation in the LINC 21C program** on change in school behavior and academic achievement over the school year, using program attendance data and engagement ratings. We use the Harvard Family Research Project's three-part model of program participation, in which **participation consists of program enrollment, program attendance, and engagement in program activities**. In order for after-school programs to have beneficial effects on student achievement, students should not just be enrolled but attend regularly and also be engaged in program activities.

Participation in after-school programs, and its effects on student behavior and achievement should also be enhanced by the quality of an after-school program (e.g., Mahoney et al., 2007). The quality of LINC 21CCLC program sites was independently assessed by trained evaluators using the Weikart Center for Youth Program Quality's Program quality Assessment (PQA) tool. The PQA is a well-validated assessment, which scores programs based on safe environment, supportive environment, interaction, and engagement on a scale from 1 to 5. Scores of 5 represents widely available and frequent best practices. Overall PQA ratings ranged from 3.3 to 4.5 across sites, representing above-average quality scores.

LINC Program Attendance

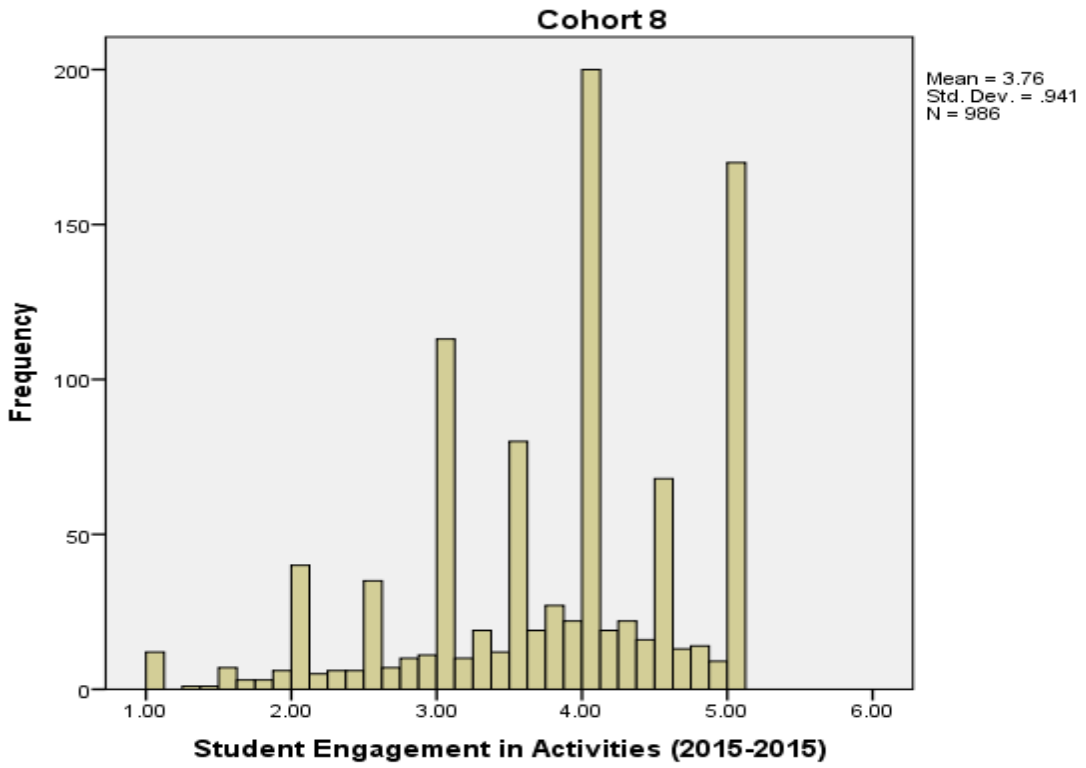
Daily program attendance data were available for 1073 students (compared to 858 last year) enrolled in the Cohort 8 sites. The average days attended for the 2015-2016 school year was 119 days (*SD* = 49), compared to 130 days last year. There was a wide range from 0 day to 176 days with 1% of students enrolling but never attending the program. As indicated in the Figure on the next page, overall program attendance was moderate to high.



Student Engagement in Program Activities

During the spring semester LINC staff rated students' engagement during a range of after-school activities. Engagement entails enjoyment of, interest in, and sustained attention and effort focused on an activity. Staff members indicated how often (*never = 1, on occasion = 2, some of the time = 3, most of the time = 4, all of the time = 5*) each student pays attention, seems interested in the subject, on task, and seems to have fun. Student engagement represents each student's average rating during academic and youth development activities. Higher scores indicate a student was more engaged in academic and youth development activities during the LINC after-school program. Engagement data were available for 986 students.

As shown in the figure below, the overall level of student engagement in academic and youth development activities, as rated by program staff, was high. The average engagement score was 4.0 (*SD* = 0.94) out of 5, which is equivalent to levels of engagement reported in last year's evaluation.



Factors Predicting Participation

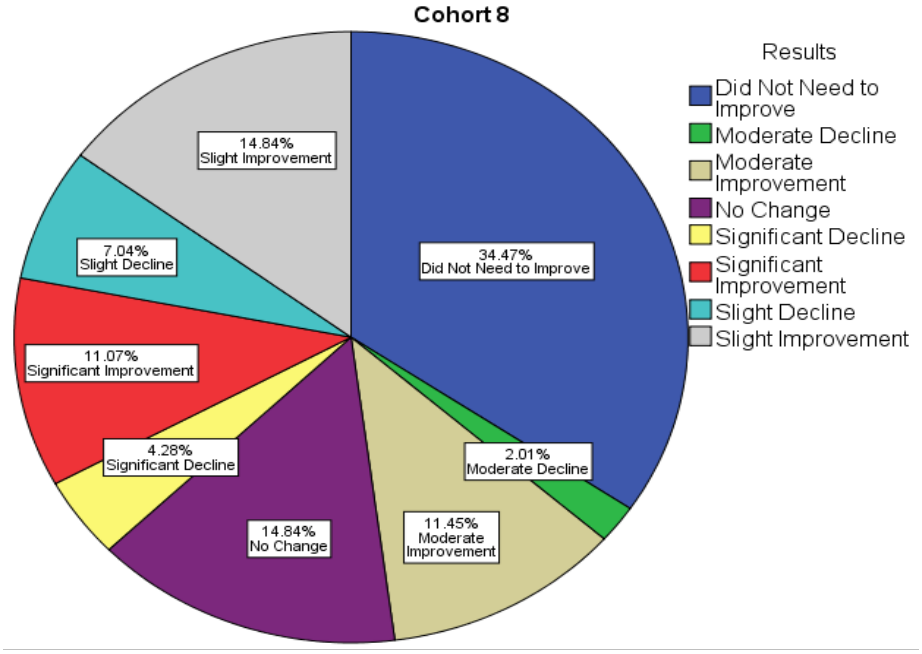
The two facets of participation – program attendance and engagement in program activities – were not correlated with one another. Analyses tested for factors that may predict students' levels of participation. Separate regression models were run in which program attendance and student engagement were regressed on the following predictor variables: Gender, grade level, first quarter academic grades, and whether or not teachers rated students as needing improvement at the start of the school year as part of their overall behavioral assessment. Analyses also statistically controlled for program site. Detailed results tables are included in Appendix A.

None of the predictor variables tested was uniquely associated with students' program attendance. Students rated by teachers as needing improvement in behavior were less engaged in program activities, as rated by staff in the spring.

Teacher Ratings of Improvement in School Behavior

Teacher ratings of changes in student behavior on the DESE Teacher Survey were provided for approximately 795 students who attended the 21CCLC program at least 30 days. For the DESE survey, teachers report on changes over the school year in 10 dimensions of student behavior – academic performance, class attendance, class attentiveness, behaving well in class, gets along with other students, arrives motivated to learn, turns in homework on time, completes homework

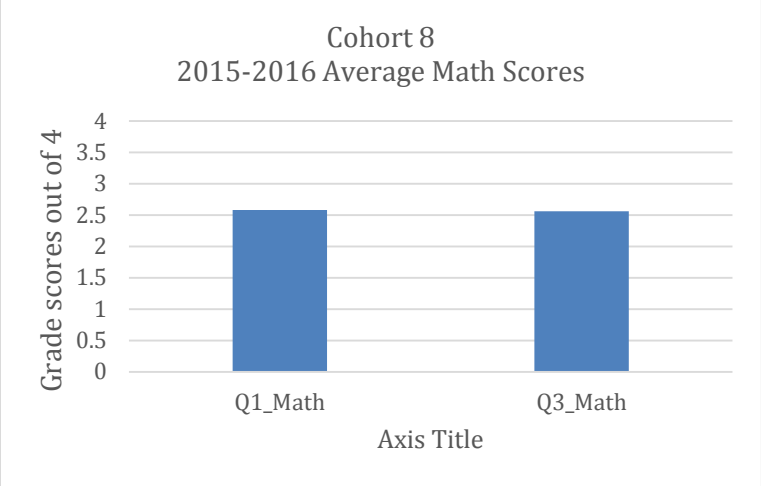
satisfactorily, participation in class, and volunteering for additional activity – as well as an overall assessment of student behavior. Teachers indicate whether functioning was acceptable at the start of the school year so that the student *did not need to* improve; if level of functioning at the start of the school year was not at an acceptable level, teachers rate change over the school across the following response categories: *significant decline, moderate decline, slight decline, no change, slight improvement, moderate improvement, significant improvement*. The figure below shows the teacher ratings for their overall assessment of student behavior. In terms of overall behavior, 35% of students (compared to 37% in last year's evaluation) were rated as *did not need to improve*, and 37% of students were rated has having either slight, moderate or significant improvement (compared to 42% in last year's evaluation). In summary, according to teacher ratings, the majority of the LINC students who needed to improve in school did improve.



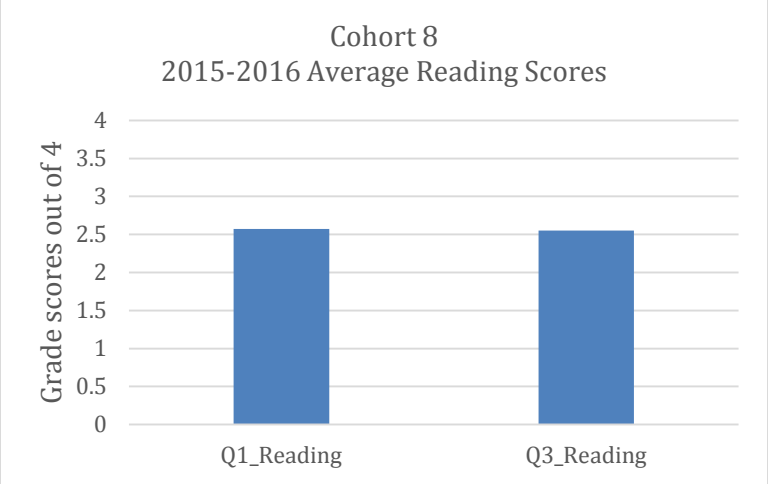
Students' Academic Performance in Math, Reading and Science

Academic grades in math, reading, and science were taken from the first and third quarter marking periods. Grades of A to F were converted using the standard 4.0 GPA scale where A = 4.00, A- = 3.70, B+ = 3.30, B = 3.00, B- = 2.70, C+ = 2.30, C = 2.00, C- = 1.70, D = 1.00 and F = 0.00. Math grades from both marking periods were available for 503 students (compared to 255 students in previous school year). Reading grades from both marking periods were available for 528 students, while science grades from both marking periods were available for 543 students. Results from paired sample t-test indicated that there were no significant mean changes in math (t = -0.45, *df* = 502, *p* =.65), science (t = -0.65, *df* = 542, *p* =.52) or in reading grades (t = 0.07, *df* = 527, *p* =.95) from fall to spring. (In last year's evaluation math grades increased from fall to spring.) The figure on the next page shows the distribution of Math, Reading, and Science grades and from the two marking periods (fall and spring).

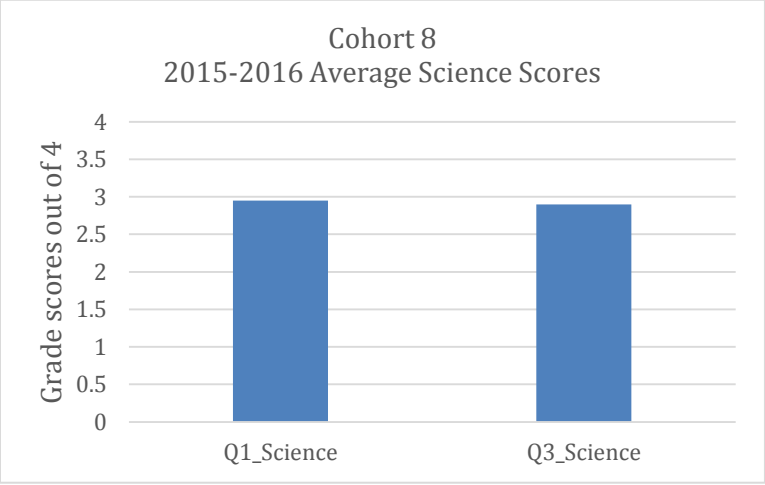
Math Grades



Reading Grades



Science Grades

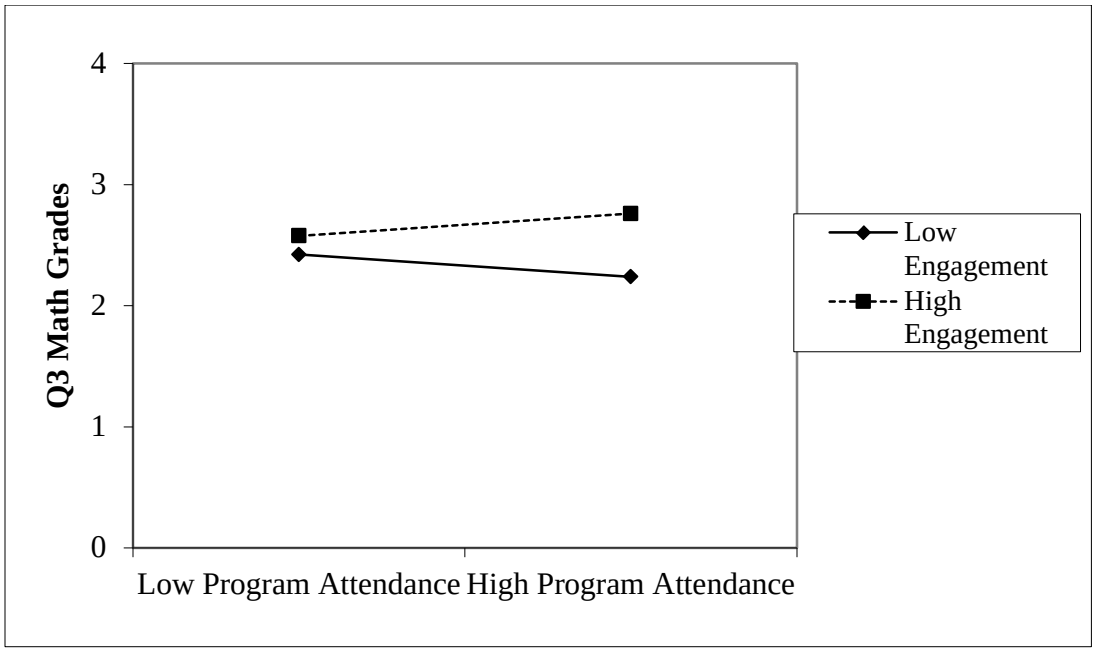


Effects of Program Participation on School Behavior and Academic Achievement

A primary goal of the evaluation is to assess the impact of participation in LINC's 21C before-and-after school program on students' academic achievement and social competence in school. We used the Harvard Family Project's three-part model of program participation to inform this part of the evaluation. In this model, participation consists of program enrollment, program attendance, and engagement in program activities. In order for after-school programs to benefit student achievement, students should not just be enrolled but attend regularly and also be engaged in program activities. In addition to being linked directly to student outcomes, engagement in after-school programs may also enhance the effects of program attendance on outcomes. Thus, engagement in after-school activities may operate interactively with attendance to promote students' school success.

Academic Grades. To examine the effects of daily program attendance and staff-ratings of students' engagement in program activities on academic achievement, a series of ordinal regression models were conducted in which math, reading and science grades from the spring marking period were regressed on the additive and interactive effects of engagement and attendance, controlling for site, gender, grade-level, and grades from the first marking period. Analyses also statistically controlled for program site. Analyses were conducted on a sample of between 458 and 492 students from all eight sites (compared to five of eight sites in the previous year) who had available data from staff engagement ratings, school records, and program records.

Detailed results tables are presented in Appendix B. Effects of program participation were found for Math grades. In addition to a main effect of engagement on improved math performance, there was an interactive effect between attendance and engagement predicting math performance. As probed in the figure below, there was a positive effect of program attendance on improved math performance, only for students who were rated as highly engaged in LINC activities.



Teachers' Overall Assessment of Student Behavior. To examine the effects of daily program attendance and staff-ratings of students' engagement in program activities on teachers' ratings of improvement over the school year, an improvement rating variable was constructed based on the 11 teacher ratings (10 domains plus overall behavioral assessment). For each item, students who were not rated as *did not need to improve* were assigned a score of 1 (*significant decline*) to 7 (*significant improvement*), and their scores were averaged across the 11 items. Thus, scores on the composite improvement rating reflect the average improvement across all domains that a given student was deemed as not functioning at an acceptable level at the start of the school year. Students who received ratings of *did not need to improve* across all 11 domains were excluded from the analyses. Analyses are based on the subsample of 281 students who were assessed by their teachers as needing to improve in at least one domain at the start of the school year.

Detailed results tables are presented in Appendix C. The composite improvement rating was regressed on the additive and interactive effects of engagement and attendance, controlling for site, gender, grade-level, and grades from the first marking period. Analyses also statistically controlled for program site. There was a positive main effect of engagement in program activities on teacher ratings of improvement. Students who were rated by staff as more engaged in LINC activities were rated by their teachers as improving more in school.

Summary and Conclusions

Overall, student enrollment improved by over 200 students, compared to last year.

Overall, students attended the LINC program fairly regularly, and were rated as highly engaged in program activities.

According to teacher ratings, the majority of the LINC students who needed to improve in school did improve. There were no overall changes in LINC students' grades in any academic subject though.

Tests of whether greater participation in the LINC program – in terms of frequency of attendance and engagement in activities – was associated with school performance found an interactive effect of program attendance and engagement on improved math scores. Math performance was most improved for students who attended the program frequently and were highly engaged in program activities. There were no effects of program participation on reading or science grades.

There was also a positive effect of program engagement, but not attendance, on teachers' ratings of students' improvement in school over the year.

Several notable weaknesses limit the conclusions from the evaluation. First, although a larger proportion of students enrolled in the LINC program this year, few had complete data from all sources – program records, school records, staff ratings, and teacher ratings. Thus, it is not clear how generalizable findings are to the larger population of students enrolled in LINC 21C programs. Second, due to the scope of the evaluation and the age range of the students in the program, assessment of students' engagement in after-school activities relied exclusively on staff

report. More comprehensive evaluations of engagement would rely on student report and possibly observational ratings. Additionally, given the lack of an experimental design, the direction of effects linking student participation with school outcomes cannot be isolated, limiting causal inferences based on the results.

Although observational ratings of program quality indicated that sites were of overall high quality, there was also some variability in PQA scores across the three sites. The number of sites in Cohort 8 is not sufficiently large to systematically examine the effects of site quality and other site-level characteristics on student participation, achievement and behavior. The next steps of the evaluation are to pool 21CCLC sites across cohorts to systematically examine effects of site-level characteristics, like program quality, on youth outcomes.

Appendices

A1. Regression Model Predicting Program Attendance

Between-Subjects Factors

		N
Site	ACE Academy	56
	Belvidere Elementary	48
	Conn-West Elementary	57
	Johnson Elementary	81
	Melcher Elementary	34
	Paige Elementary	34
	Santa Fe - Hickman	49
	Smith-Hale College Prep	2

Parameter Estimates

Dependent Variable: Program Attendance

					95% Confidence Interval		
Parameter	B	Std. Error	t	Sig.	Lower Bound	Upper Bound	Partial Eta Squared
Intercept	114.037	24.236	4.705	.000	66.368	161.705	.060
[Site=African Centered Elementary Academy]	21.847	21.218	1.030	.304	-19.886	63.579	.003
[Site=Belvidere Elementary]	15.342	21.050	.729	.467	-26.060	56.745	.002
[Site=Conn-West Elementary]	4.633	21.198	.219	.827	-37.060	46.325	.000
[Site=Johnson Elementary]	17.632	21.722	.812	.418	-25.092	60.356	.002
[Site=Melcher Elementary]	-21.604	21.556	-1.002	.317	-64.000	20.793	.003
[Site=Paige Elementary]	11.857	21.486	.552	.581	-30.402	54.115	.001
[Site=Santa Fe - Hickman]	21.793	21.665	1.006	.315	-20.819	64.406	.003
[Site=Smith-Hale College Prep]	0[a]	.	.	.	.	.	.
Q1 Math	1.070	1.656	.646	.519	-2.187	4.327	.001
Q1 Reading	3.394	1.866	1.819	.070	-.277	7.065	.009
Q1 Science	-2.509	1.674	-1.499	.135	-5.801	.783	.006
Female	-4.048	3.180	-1.273	.204	-10.302	2.206	.005
Grade level	1.688	1.370	1.232	.219	-1.006	4.382	.004
Needs improvement	6.579	3.897	1.688	.092	-1.086	14.244	.008

a. This parameter is set to zero because it is redundant.

Note: Statistically significant effects of interest are **bolded**.

A2. Regression Model Predicting Staff-rated Student Engagement in After-school Activities

Between-Subjects Factors

		N
Site	ACE Academy	53
	Belvidere Elementary	47
	Conn-West Elementary	57
	Johnson Elementary	77
	Melcher Elementary	31
	Paige Elementary	32
	Santa Fe - Hickman	47
	Smith-Hale College Prep	1

Parameter Estimates

Dependent Variable: Staff-rated Student Engagement

					95% Confidence Interval		
Parameter	B	Std. Error	t	Sig.	Lower Bound	Upper Bound	Partial Eta Squared
Intercept	3.302	.879	3.756	.000	1.572	5.031	.041
[Site=African Centered Elementary Academy]	.127	.812	.156	.876	-1.471	1.725	.000
[Site=Belvidere Elementary]	.003	.809	.003	.997	-1.589	1.594	.000
[Site=Conn-West Elementary]	-.152	.810	-.187	.852	-1.746	1.442	.000
[Site=Johnson Elementary]	.283	.823	.343	.732	-1.337	1.902	.000
[Site=Melcher Elementary]	.342	.819	.418	.676	-1.269	1.953	.001
[Site=Paige Elementary]	.017	.817	.021	.983	-1.591	1.625	.000
[Site=Santa Fe - Hickman]	.355	.821	.433	.666	-1.260	1.971	.001
[Site=Smith-Hale College Prep]	0[a]	.	.	.	.	.	.
Q1 Math	-.013	.047	-.271	.786	-.106	.080	.000
Q1 Reading	.102	.054	1.904	.058	-.003	.208	.011
Q1 Science	.087	.048	1.825	.069	-.007	.182	.010
Female	-.007	.092	-.078	.938	-.187	.173	.000
Grade level	.070	.040	1.763	.079	-.008	.148	.009
Needs improvement	**-.348**	**.110**	**-3.166**	**.002**	**-.564**	**-.132**	**.029**

a. This parameter is set to zero because it is redundant.

Note: Statistically significant effects of interest are **bolded**.

B1. Regression Model Predicting Q3 Math Grades

Between-Subjects Factors

		N
Site	ACE Academy	62
	Belvidere Elementary	50
	Conn-West Elementary	62
	Johnson Elementary	100
	Melcher Elementary	52
	Paige Elementary	33
	Santa Fe - Hickman	74
	Smith-Hale College Prep	25

Parameter Estimates

Dependent Variable: Q3 Math

					95% Confidence Interval		
Parameter	B	Std. Error	t	Sig.	Lower Bound	Upper Bound	Partial Eta Squared
Intercept	1.565	.334	4.684	.000	.908	2.222	.047
[Site=African Centered Elementary Academy]	-.511	.236	-2.164	.031	-.975	-.047	.010
[Site=Belvidere Elementary]	.057	.230	.249	.804	-.395	.509	.000
[Site=Conn-West Elementary]	.381	.221	1.724	.085	-.053	.815	.007
[Site=Johnson Elementary]	-.365	.242	-1.506	.133	-.842	.111	.005
[Site=Melcher Elementary]	-.634	.236	-2.689	.007	-1.098	-.171	.016
[Site=Paige Elementary]	-.447	.252	-1.773	.077	-.943	.049	.007
[Site=Santa Fe - Hickman]	-.065	.249	-.261	.794	-.554	.424	.000
[Site=Smith-Hale College Prep]	0[a]	.	.	.	.	.	.
Female	**.180**	**.079**	**2.273**	**.024**	**.024**	**.336**	**.011**
Grade level	-.059	.032	-1.870	.062	-.121	.003	.008
Q1 math	.516	.036	14.419	.000	.445	.586	.319
Staff-rated student engagement	**.180**	**.047**	**3.833**	**.000**	**.088**	**.272**	**.032**
Program attendance	.000	.001	.212	.832	-.002	.002	.000
Attendance x engagement	**.002**	**.001**	**1.937**	**.053**	**-.000**	**.005**	**.008**

a. This parameter is set to zero because it is redundant.

Note: Statistically significant effects of interest are **bolded**.

B2. Regression Model Predicting Q3 Reading Grades

Between-Subjects Factors

		N
Site	ACE Academy	62
	Belvidere Elementary	61
	Conn-West Elementary	74
	Johnson Elementary	97
	Melcher Elementary	35
	Paige Elementary	33
	Santa Fe - Hickman	74
	Smith-Hale College Prep	40

Parameter Estimates

Dependent Variable: Q3 Reading

					95% Confidence Interval		
Parameter	B	Std. Error	t	Sig.	Lower Bound	Upper Bound	Partial Eta Squared
Intercept	.160	.329	.484	.628	-.488	.807	.001
[Site=African Centered Elementary Academy]	.102	.223	.459	.646	-.336	.540	.000
[Site=Belvidere Elementary]	.238	.212	1.126	.261	-.178	.654	.003
[Site=Conn-West Elementary]	.546	.208	2.620	.009	.136	.955	.015
[Site=Johnson Elementary]	.439	.234	1.877	.061	-.021	.899	.008
[Site=Melcher Elementary]	.470	.248	1.892	.059	-.018	.957	.008
[Site=Paige Elementary]	.035	.247	.140	.889	-.450	.519	.000
[Site=Santa Fe - Hickman]	.533	.234	2.278	.023	.073	.993	.011
[Site=Smith-Hale College Prep]	0[a]	.	.	.	.	.	.
Female	.066	.089	.741	.459	-.108	.240	.001
Grade level	**.118**	**.034**	**3.459**	**.001**	**.051**	**.184**	**.025**
Q1 reading	.612	.040	15.356	.000	.534	.691	.338
Staff-rated student engagement	.086	.051	1.692	.091	-.014	.186	.006
Program attendance	.001	.001	1.016	.310	-.001	.003	.002
Attendance x engagement	.002	.001	1.258	.209	-.001	.004	.003

a. This parameter is set to zero because it is redundant.

Note: Statistically significant effects of interest are **bolded**.

B3. Regression Model Predicting Q3 Science Grades

Between-Subjects Factors

		N
Site	ACE Academy	50
	Belvidere Elementary	61
	Conn-West Elementary	74
	Johnson Elementary	96
	Melcher Elementary	52
	Paige Elementary	32
	Santa Fe - Hickman	73
	Smith-Hale College Prep	54

Parameter Estimates

Dependent Variable: Q3 science

					95% Confidence Interval		
Parameter	B	Std. Error	t	Sig.	Lower Bound	Upper Bound	Partial Eta Squared
Intercept	1.932	.344	5.613	.000	1.256	2.609	.062
[Site=African Centered Elementary Academy]	-.590	.222	-2.65	.008	-1.027	-.153	.015
[Site=Belvidere Elementary]	-.039	.212	-.184	.854	-.455	.377	.000
[Site=Conn-West Elementary]	.124	.204	.607	.544	-.277	.525	.001
[Site=Johnson Elementary]	-.193	.240	-.805	.421	-.666	.279	.001
[Site=Melcher Elementary]	-.443	.223	-1.99	.047	-.880	-.005	.008
[Site=Paige Elementary]	-.411	.249	-1.65	.099	-.899	.078	.006
[Site=Santa Fe - Hickman]	-.286	.236	-1.21	.226	-.750	.178	.003
[Site=Smith-Hale College Prep]	0[a]	.	.	.	.	.	.
Female	**.004**	**.087**	**.049**	**.961**	**-.167**	**.176**	**.000**
Grade level	-.012	.035	-.359	.720	-.081	.056	.000
Q1 science	.414	.043	9.599	.000	.330	.499	.162
Staff-rated student engagement	.091	.051	1.774	.077	-.010	.192	.007
Program attendance	.001	.001	1.059	.290	-.001	.003	.002
Attendance x engagement	-.001	.001	-1.08	.280	-.004	.001	.002

a. This parameter is set to zero because it is redundant.

Note: Statistically significant effects of interest are **bolded**.

C. Regression Model Predicting Composite Teacher Ratings of School Behavior Performance

Between-Subjects Factors

		N
Site	ACE Academy	45
	Belvidere Elementary	38
	Conn-West Elementary	19
	Johnson Elementary	70
	Melcher Elementary	31
	Paige Elementary	32
	Santa Fe - Hickman	45
	Smith-Hale College Prep	1

Parameter Estimates

Dependent Variable: Composite Teacher Improvement Rating

					95% Confidence Interval		
Parameter	B	Std. Error	t	Sig.	Lower Bound	Upper Bound	Partial Eta Squared
Intercept	3.424	1.389	2.465	.014	.689	6.160	.022
[Site=African Centered Elementary Academy]	.771	1.285	.600	.549	-1.759	3.300	.001
[Site=Belvidere Elementary]	.326	1.278	.255	.799	-2.189	2.841	.000
[Site=Conn-West Elementary]	1.012	1.294	.782	.435	-1.536	3.560	.002
[Site=Johnson Elementary]	-.013	1.305	-.010	.992	-2.583	2.557	.000
[Site=Melcher Elementary]	-.589	1.303	-.452	.652	-3.155	1.977	.001
[Site=Paige Elementary]	2.136	1.292	1.654	.099	-.407	4.680	.010
[Site=Santa Fe - Hickman]	.535	1.298	.412	.681	-2.020	3.090	.001
[Site=Smith-Hale College Prep]	0[a]	.	.	.	.	.	.
Female	.155	.160	.970	.333	-.160	.469	.004
Grade level	.113	.067	1.690	.092	-.019	.244	.011
Q1 math	-.089	.079	-1.129	.260	-.245	.067	.005
Q1 reading	.206	.091	2.259	.025	.027	.386	.019
Q1 science	-.004	.079	-.046	.963	-.158	.151	.000
Staff-rated student engagement	**.336**	**.104**	**3.245**	**.001**	**.132**	**.540**	**.038**
Program attendance	.003	.003	.903	.367	-.003	.008	.003
Attendance x engagement	-.003	.003	-.992	.322	-.009	.003	.004

a. This parameter is set to zero because it is redundant.

Note: Statistically significant effects of interest are **bolded**.