The Impact of the ACE Program on Academic Achievement

2016-17

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The Impact of the ACE Program on Academic Achievement: A Matched-Pair Study

Abstract

EduCare Foundation's ACE (Achievement and Commitment to Excellence) Program is a comprehensive Heartset™ Education program empowering students to develop social-emotional learning (SEL) skills for achieving success in personal, academic, and life pursuits. EduCare's ACE Program has reached nearly 50,000 students in the U.S. and internationally, in which participants learn and practice strategies for self-awareness (mindfulness), emotional self-management, relationship-building, and wise decision-making skills.

This study examined the impact of ACE Program participation at 13 high schools on academic achievement, as measured by performance on the California Assessment of Student Performance and Progress (CAASPP) in English-language arts (ELA) and math. Outcomes for ACE Program participants during the 2016-17 academic year were statistically compared with a carefully-matched control group of students who attended after-school programs at the same schools with similar frequency but did not participate in ACE.

When compared with the matched control group of after-school program participants at the same schools:

- The mean scale score of ACE participants on the CAASPP in ELA was significantly greater (+35.7 points) with a moderate to large effect size (.38 standard deviations).
- The mean scale score of ACE participants on the CAASPP in math was significantly greater (+30.9 points) with a moderate effect size (.30 standard deviations).
- The percentage of ACE participants who met or exceeded standards in ELA was 12.0% greater.
- The percentage of ACE participants who met or exceeded standards in math was 10.2% greater.

Context of the Study

EduCare Foundation's ACE (Achievement and Commitment to Excellence) is a comprehensive Heartset™ Education program empowering students to develop social-emotional learning (SEL) skills for achieving success in personal, academic, and life pursuits. ACE is offered as a three-day student workshop supported by parent involvement and teacher professional development, focused on the following socio-emotional learning elements:

- Character development:
  confidence-building, positive decision-making and constructive choices.
- Personal management:
  personal responsibility and accountability.
- Emotional intelligence:
  managing anger, fear, rejection, and peer pressure.
- Interpersonal skills:
  communication, conflict resolution, problem-solving, and team-building.

To determine the impact of participation in the ACE Program on school-related outcomes for students in grades 9-12, the EduCare Foundation commissioned an external evaluation company, ERC, to conduct a quasi-experimental, matched-pair study using data from 13 Los Angeles Unified School District (LAUSD) High Schools at which the ACE Program was offered during the 2016-17 academic year. Outcomes analyzed included performance on the California Assessment of Student Performance and Progress (CAASPP) in English-language arts (ELA) and math. Outcomes of ACE Program participants were compared with outcomes of students who participated in the general after-school program at the same schools but did not participate in the ACE Program. The 13 high schools included in this study were:

- Cesar Chavez Social Justice Humanitas Academy
- Diego Rivera Learning Complex: Communication and Technology School
- Diego Rivera Learning Complex: Green Design Community School
- Downtown Business Magnet
- Esteban Torres High: Academy of Art and Technology
- Jordan High
- Lincoln High
- Robert F. Kennedy High: Los Angeles School of the Arts
- Robert F. Kennedy High: New Open World Academy
- Robert F. Kennedy High: School for the Visual Arts and Humanities
- San Fernando High
- Sun Valley High
- Sylmar High

Methodology

Using a quasi-experimental, matched-pair study design, outcomes for treatment groups of ACE participants were statistically compared with outcomes for carefully-matched control groups. A separate comparison was conducted for each of two academic outcomes 2) scale score on the CAASPP in English-language arts, and 3) scale score on the CAASPP in math.

Treatment Groups

For each comparison, the treatment group was comprised of all ACE Program participants at 13 high schools during 2016-17, and for whom data were available for all matching variables and the outcome variable being compared. Therefore, separate treatment groups were used for each of the four comparisons.

Control Groups

Students in the control groups participated in the general after-school program at the same 13 high schools in 2016-17 but did not participate in the ACE Program. Control group students were individually matched to students in each treatment group. They were matched directly based on the following variables:

- School attended in 2016-17
- Grade level
- Gender
- Race/ethnicity
- English learner (EL) status
- Gifted and Talented Education (GATE) status
- Special education status
- Days of attendance in the general after-school program (within one standard deviation)

In cases where more than one direct match for a student in the treatment group existed, a control group student was selected based on the nearest propensity score. Propensity scores were calculated using gender, ethnicity, grade level, EL status, GATE status, special education status, and regular school day attendance rate. Each individual student could serve as the control group match for only one ACE participant per comparison.

Statistical Comparisons

Paired samples t-tests were used for comparing group means for each outcome, with an alpha level of .05 used to determine statistical significance. The paired samples t-test is preferable over the independent samples t-test when control group members are individually matched to treatment group members to form similar pairs. Cohen's *d* was used as the measure of effect size, calculated as the difference in the two groups' means divided by the average of their standard deviations. A *d* of 1 indicates that group means differ by one standard deviation, a *d* of .5 indicates that group means differ by half a standard deviation, and so forth.

Overview of Results

In 2016-17, the mean scale score of ACE participants on the CAASPP was significantly greater than matched controls in ELA (+35.7) and math (+30.9) with moderate to large effect sizes. Also, the percentage of ACE participants who met or exceeded standards was greater than matched controls in ELA (+12.0%) and math (+10.2%).

Finding 1: Performance on the California Assessment of Student Performance and Progress (CAASPP) in ELA

Table 1 compares characteristics of ACE participants with those of students in the matched control group for the comparison of CAASPP scale scores in ELA.

Table 1. Characteristics for ACE Participants and Matched Controls for Comparison of CAASPP ELA Scale Score

	ACE Participants (*n* = 228)	Matched Controls (*n* = 228)	Difference
Days attended after-school program	12.5	12.7	-0.2
Hispanic	91.2%	91.2%	0.0%
Black	0.4%	0.4%	0.0%
Asian	4.8%	4.8%	0.0%
White	0.4%	0.4%	0.0%
Other ethnicity	3.1%	3.1%	0.0%
Male	46.1%	46.1%	0.0%
Female	53.9%	53.9%	0.0%
Free/reduced meal	62.7%	61.4%	1.3%
Special education	7.0%	7.0%	0.0%
Gifted/talented	16.2%	16.2%	0.0%
English learner (EL)	4.8%	4.8%	0.0%

Table 2 shows that in 2016-17, the mean scale score of ACE participants was 35.7 points higher than matched controls on the CAASPP in ELA. This difference in group means was statistically significant with a moderate to large effect size (.38 standard deviations).

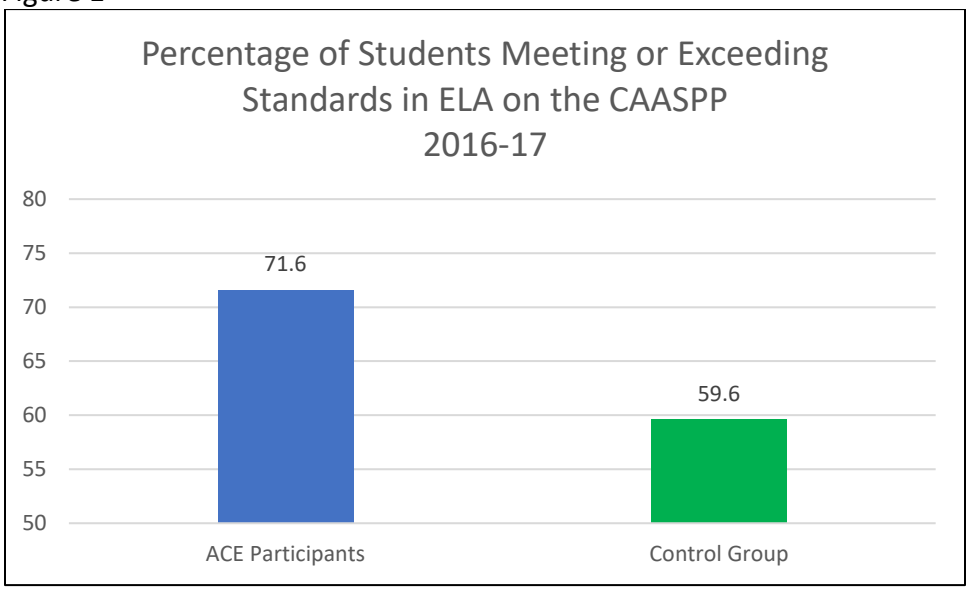
Table 4. Comparison of CAASPP ELA Score of ACE Participants and Matched Controls

	*M**	*t*	*df*	*p*	*d***
CAASPP ELA Score	35.7	4.99	227	.001***	0.38

*Mean of frequent participants minus the mean of matched controls.
**Cohen's *d* was used as the measure of effect size.
***Indicates statistical significance.

The bar graph in Figure 1 shows that, in addition to the mean scale score difference, the percentage of ACE participants meeting or exceeding standards in ELA on the CAASPP (71.6%) was 12.0% higher than that of matched control students with similar participation in the after-school program (59.6%).

Figure 1



Finding 2: Performance on the California Assessment of Student Performance and Progress (CAASPP) in Math

Table 3 compares characteristics of ACE participants with those of students in the matched control group for the comparison of CAASPP scale scores in math.

Table 3. Characteristics for ACE Participants and Matched Controls for Comparison of CAASPP Math Scale Score

	ACE Participants (*n* = 228)	Matched Controls (*n* = 228)	Difference
Days attended after-school program	12.4	13.0	1.5
Hispanic	91.2%	91.2%	0.0%
Black	0.4%	0.4%	0.0%
Asian	4.8%	4.8%	0.0%
White	0.4%	0.4%	0.0%
Other ethnicity	3.1%	3.1%	0.0%
Male	46.1%	46.1%	0.0%
Female	53.9%	53.9%	0.0%
Free/reduced meal	62.3%	61.0%	1.3%
Special education	6.1%	6.1%	0.0%
Gifted/talented	16.7%	16.7%	0.0%
Limited English proficient	5.3%	5.3%	0.0%

Table 4 and Figure 2 show that in 2016-17, the mean scale score of ACE participants was 30.9 points higher than matched controls on the CAASPP in math. This difference in group means was statistically significant with a moderate effect size (.30 standard deviations).

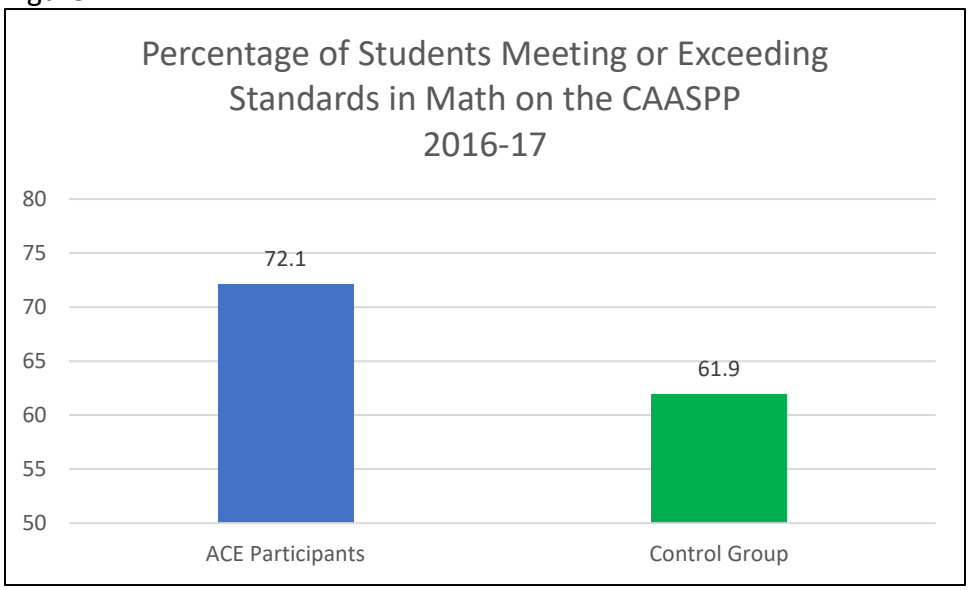
Table 4. Comparison of CAASPP Math Score of ACE Participants and Matched Controls

	*M**	*t*	*df*	*p*	*d***
CAASPP Math Score	30.9	4.15	227	.001***	0.30

*Mean of frequent participants minus the mean of matched controls.
**Cohen's *d* was used as the measure of effect size.
***Indicates statistical significance.

The bar graph in Figure 1 shows that, in addition to the mean scale score difference, the percentage of ACE participants meeting or exceeding standards in ELA on the CAASPP (72.1%) was 10.2% higher than that of matched control students with similar participation in the after-school program (61.9%).

Figure 2



Conclusion

Findings provide quasi-experimental evidence that participation in the ACE Program has a positive impact on achievement in ELA and math. The positive differences found for ACE participant outcomes when compared with students who attended after-school programs with similar frequency are especially noteworthy. Students who voluntarily participate in an after-school program are more likely to be on track for better prosocial development than those who do not,[1] which increases their likelihood of favorable academic and school-related outcomes.[2] In addition, these findings provide evidence that participating in the ACE Program results in a greater or additional impact when compared to participating in a variety of other after-school interventions.

[1] Gottfredson, D. C., Cross, A. B., & Soule, D. A. (2007). Distinguishing characteristics of effective and ineffective after-school programs to prevent delinquency and victimization. Criminology & Public Policy, 6(2), 289-318. doi:10.1111/j.1745-9133.2007.00437.x

[2] Jones, S. M., & Bouffard, S. M. (2012). Social policy report: Social and emotional learning in schools: From programs to strategies. Sharing Child and Youth Development Knowledge, 26(4). Retrieved from http://files.eric.ed.gov/fulltext/ ED540203.pdf

About ERC

Established in 1999, Educational Resource Consultants (ERC) is a consulting firm experienced in program development, evaluation and research for school districts, county offices of education, community colleges and universities. Evaluation and reporting experience includes programs funded through federal, state and private sources. ERC evaluates after-school programs at more than 400 school sites, operated by Fresno, Tulare, Kings and San Diego county offices of education; and, Los Angeles, San Diego, Santa Ana, Clovis, Cutler-Orosi, Madera, and Sanger Unified School Districts, and Merced Union High School District. ERC's lead evaluator, Stephen Price, has a doctorate in educational leadership, is experienced in experimental and quasi-experimental designs, data analysis using a variety of statistical software programs such as SPSS and HLM, survey construction, facilitation of focus groups, program observation, and interpretation of evaluation results for a broad spectrum of audiences.