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Descriptive Summary of Colorado's ESSER Expanded Learning Opportunities (ELO) Grant Programs

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A report prepared by the Center for Assessment, Design, Research and Evaluation (CADRE) at the CU Boulder School of Education.



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About CADRE

The Center for Assessment, Design, Research and Evaluation (CADRE) is housed in the School of Education at the University of Colorado Boulder. The mission of CADRE is to produce generalizable knowledge that improves the ability to assess student learning and to evaluate programs and methods that may have an effect on this learning. Projects undertaken by CADRE staff represent a collaboration with the ongoing activities in the School of Education, the University, and the broader national and international community of scholars and stakeholders involved in educational assessment and evaluation.

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Table of Contents

Introduction	4
Background on ELO Grant Program	6
Data	7
Methods	9
<i>Analyzing Changes in AY Attendance and Achievement</i>	<i>9</i>
<i>Constructing Analytic Samples for Summarizing Changes</i>	<i>9</i>
Results	11
<i>Question 1</i>	<i>11</i>
<i>Questions 2 and 3</i>	<i>12</i>
<i>Question 4</i>	<i>16</i>
Summary	22
Appendix A	24
Appendix B	28
References	33

Introduction

The COVID-19 pandemic caused unprecedented disruptions to the operation of US public schools beginning in early 2020. These disruptions led to learning opportunity losses that have disproportionately impacted disadvantaged individuals, schools, and communities across Colorado and the US (e.g., Dewey et al.). To address challenges caused by these disruptions and support learning recovery, the US Federal Government provided additional funding to states and school districts via the Elementary and Secondary School Emergency Relief Fund (ESSER). ESSER funds were distributed in three rounds: ESSER I (March 2020), ESSER II (December 2020), and ESSER III (March 2021).¹ ESSER III aimed to support recovery from lost learning opportunities with funding from 2021 through late 2024. As with ESSER I and II funds, the majority (approximately 90%) of the roughly \$1.17 billion in ESSER III funding provided to Colorado went directly to local education agencies (LEA). The remaining 10% (~\$111 million) was allocated to a state reserve fund for state-directed activities.

The Colorado Department of Education (CDE) allocated state reserve funds based on priorities identified with stakeholder input.² The ESSER III state reserve funds were used for a variety of purposes, including a series of competitive grants targeted towards priority areas. Approximately \$22.4 million of state reserve funds (approximately 17.5% of total CDE state reserve ESSER funds) were used to fund the ESSER Expanded Learning Opportunities Grant Program (Colorado Department of Education, n.d.). Expanded learning opportunities (ELO) refer to programs supporting learning outside the traditional school year, including afterschool programs, extended school day programs, fifth day programs, and summer programs.

The ELO grant program was designed to address lost learning opportunities by accelerating student learning and increasing student and family engagement with school. Priority was given to programs using evidence-based activities targeted towards students most impacted by the pandemic (including children from low-income families, children with disabilities, multilingual learners, or those experiencing homelessness), students who had become disengaged from school, and students in rural communities. Grants could fund either afterschool or summer programs run by organizations including LEAs, charter schools, BOCES, public libraries, community-based organizations (CBO), or institutions of higher education and other public agencies. Each program could focus on one or more of the following seven priority areas: supporting academic learning in mathematics, English language arts (ELA), English language proficiency development (ELD), or another content area; or supporting student social emotional and mental health (SEMH) to engage or re-engage youth in attending school or to engage families in the student learning process. ELO grant funds were used to support afterschool programs during the 2022-23 and 2023-24 school years and summer programs during summer 2023 and 2024.

This report presents a descriptive analysis of programs funded by the ESSER ELO Grant and the students served by these programs. The report presents analyses to answer the following questions:

¹<https://www.cde.state.co.us/caresact/esser>

²<https://www.cde.state.co.us/caresact/esser3>

1. What are the characteristics of the Expanded Learning Opportunities Grant Programs offered to students (e.g., duration of the program and focal area/s), and how long did students participate in these programs?
2. What are the attributes (e.g., demographic, prior attendance, and prior academic performance) of students participating in the Expanded Learning Opportunities Grant Programs through these funds?
3. What trends or patterns are observed in the type of students participating in these programs each year?
4. During the period following participation:
 - a. To what extent did academic achievement and growth change from the prior year for participating students?
 - b. To what extent did attendance and chronic absenteeism levels change from the prior year for participating students?
 - c. To what extent do the changes in attendance and academic outcomes vary by program type and focal area?

Background on ELO Grant Program

This section provides additional details about ELO program requirements, timeline, and activities. Eligible applicants to the ELO grant program were: public local education providers (school district, BOCES, charter school or charter school authorizer, facility school, or the Colorado School for the Deaf & Blind), public libraries, Colorado CBO, Indian tribe or tribal organization, or institutions of higher education and other public agencies. The first round of grant applications were due in summer 2022 to fund programs running between July 1, 2022 through September 30, 2024. Grantees could request up to \$2 million per application, with up to \$2,000 per student annually to support programming (Colorado Department of Education, 2022). A second round of applications were submitted in summer 2023 to fund programs through September, 2024. In the second round grantees could request up to \$125,000 per application with a maximum of \$900 per student served annually.³ As noted above, funding could support ELO either in the form of afterschool programs taking place during the academic year (e.g., tutoring programs, extended school days, Saturday programs) or summer programs taking place outside the traditional school year (e.g., summer camps, intersession programs, 9th grade academies, summer credit recovery programs). Applicants could choose one or more of the following academic or SEMH Focus areas in their application (Colorado Department of Education, 2022):

1. **Academic Needs: Mathematics** - Accelerating learning or strengthening student achievement in mathematics.
2. **Academic Needs: English language arts** - Accelerating learning or strengthening student achievement in English language arts.
3. **Academic Needs: English language proficiency** - Accelerating learning or strengthening student achievement in English language proficiency.
4. **Academic Needs: Other** - Accelerating learning or strengthening student achievement in other academic areas including, but not limited to, STEM (Science, Technology, Engineering, and Mathematics) or STEAM (Science, Technology, Engineering, Arts, and Mathematics), social studies, civics, the arts, and physical education.
5. **SEMH Needs: Engaging disengaged youth** - Programs that seek to engage and/or re-engage youth that have dropped out of school, stopped attending school, or have otherwise become disengaged from the school and their learning.
6. **SEMH Needs: Engaging families in learning** - Programs that engage families in the learning of students.
7. **SEMH Needs: Other** - Any other evidence-based program that meets the social, emotional, and/or mental health needs of the students served by the program.

CDE funded 66 ELO grants to 50 recipients (16 recipients received both afterschool and summer grant awards), totaling \$22.4 million (Colorado Department of Education, n.d.). The ELO grants funded a wide range of programming and activities across the state. ELO funding supported programs such as the Colorado AeroLab (CAL) afterschool and summer programs to improve students' attitudes towards math and engagement with school⁴, a "P-Teach" program helping high school students earn college credit and make progress towards pursuing a career in teaching⁵, and a summer arts and culture camp in Denver.⁶

³<https://www.cde.state.co.us/caresact/esser-expandedlearningopportunities>

⁴<https://www.cde.state.co.us/blogaerolab>

⁵<https://www.cde.state.co.us/esserblog-pteach>

⁶<https://www.cde.state.co.us/blogmuseo>

Data

Analyses in this report are based on anonymized student-level data provided to CADRE by CDE. These data include three sources of information. First, program level data include a masked grantee ID, the type of program (afterschool or summer), the year the program was running (2022-23 or 2023-24), and the focus areas indicated on the grant application (up to seven possible focus areas could be listed). The original file included 46 unique grantee IDs and 62 unique programs (grantee ID by program type combinations); some grantees received funding for both summer and afterschool programs. Second, grantees were required to report student attendance in the programs at the end of each year. The data file shared by CDE included one row for each student attending each program in each year. For each row the data file indicated the number of program “sessions” available for the student to attend and the number of “days” each student attended the program. Third, CDE linked student assessment and demographic data to the student program attendance data. In addition to program attendance, the file provided by CDE included the following information for each student for the academic years 2021-22, 2022-23, and 2023-24: a masked SASID (student ID), student grade level, race/ethnicity, free or reduced-price lunch (FRL) eligibility, IEP status, identification as a multilingual learner (ML), whether the student was receiving services provided by Title I funds schoolwide or via a targeted program, state test assessment performance (CMAS, P/SAT, and ACCESS scores), student growth percentile (SGP) values calculated by the state, student attendance rate during the academic year (referred to as “AY attendance” to differentiate it from ELO program session attendance), and an indicator of whether the student was considered chronically absent (CA) during the academic year (defined as an AY attendance rate below 90%).

Missing or inconsistent data limited the scope of some analyses in this report. There were two primary causes of missing or inconsistent data. First, some grantees provided incomplete or inconsistent data about student program attendance. Second, grantees may not have provided student SASID values to CDE that could be used to link to the demographic and state assessment records or accurately count the number of unique students participating in the programs. Of the 26,097 records in the original file, 3,947 were missing a masked SASID (and thus all demographic, attendance, and state assessment information); 1,393 were missing information about the number of ELO program sessions attended⁷, and 5,068 were missing either a masked SASID or program attendance variables. After accounting for a small number of additional missing data or data entry errors (e.g., duplicated rows), there were 24,700 records with non-missing program attendance data, 20,939 records with non-missing demographic data, and 19,862 records with non-missing demographic and program attendance data. We use different samples to address each research question so that analyses use the maximum amount of data possible. For example, when summarizing demographic characteristics of participating students, we use the 20,939 records with complete demographic data; we use the 24,700 records with complete program attendance data to describe the total number of program days attended.

⁷In some cases, students had a non-missing number of days attended but were missing a value for the total number of program sessions offered to the student, or the number of sessions offered was lower than the number of days attended. In these cases, we imputed the number of sessions offered to be equal to the number of days attended.

These samples and number of total grants of each type represented within each sample are summarized in Table 1. Of the 62 total grants (46 grantees) represented in the data, 35 were for summer programs and 27 were for afterschool programs; 41 ran for both years and 21 ran for only one year; 25 grants were to CBO and 37 were to LEA. Because many analyses are conducted separately by year, Table 1 also reports the number of grant-by-year observations (Grant Years). The more restricted sample with non-missing demographic data and session attendance data represents 56 of the 62 grants and 94 of the 103 grant years in the original data. Student enrollment across programs (calculated as the number of student records per program) varied widely. Based on the full dataset, the average enrollment per year in afterschool programs was 217 (range 5 to 1,307) and in summer programs was 283 (range 1 to 1,903). Using the reduced sample of records with non-missing SASID and demographic values for which we can more confidently identify unique students, the average enrollment per year in afterschool programs was 214 (range 4 to 1,228) and in summer programs was 226 (range 8 to 1,238).

Table 1: Number of Grants Included in Each Sample

	Full Data	Session Attendance	Demographics	Demographics + Session
Grants	62	59	57	56
Grantees	46	44	43	42
Grant Type				
Summer	35	32	32	31
Afterschool	27	27	25	25
Grant Period				
Only 2023	9	8	10	9
Only 2024	12	11	9	9
Multiyear	41	40	38	38
Grantee Type				
CBO	25	24	24	23
LEA	37	35	33	33
Observations				
Rows	26093	24700	20939	19862
Grant Years	103	99	95	94

Note. CBO=community-based organization. LEA=local education agency.

Methods

We use descriptive statistics and regression analysis to answer the four research questions listed above. To answer the first research question, we use the full data file to summarize the number of grants and focus areas, and we use the records with non-missing student program attendance to summarize the duration of the programs and student attendance in programs. To answer the second and third research questions we use the sample of records with non-missing demographic data to describe students participating in the programs and use subsamples of these records that have non-missing prior AY attendance and test scores to describe their prior attendance and achievement. To answer the fourth research question, we first create separate samples of students with non-missing prior and current AY attendance and achievement. We then summarize changes in these variables before and after program participation and compare average changes by program type, focus area, and length of program participation.

Analyzing Changes in AY Attendance and Achievement

To analyze changes in AY attendance and achievement we first calculate changes in these outcomes for each student in each year based on the following definitions of pre and post, which differ for afterschool and summer programs. For students in afterschool programs, we use AY attendance and state assessment scores in the concurrent academic year as the current (or “post”) measure and AY attendance and state assessment scores from the prior academic year as the “prior” value. For example, for students participating in a 2022-23 afterschool program, the student’s test scores and AY attendance from 2021-22 are considered their “prior” AY attendance and achievement, while their AY attendance and test score in 2022-23 are considered their current attendance and achievement after participating in the program.⁸ For students in summer 2023 programs (considered part of the 2022-23 grant year), we use AY attendance and state assessment scores from the 2022-23 academic year as prior values, and AY attendance and achievement from the 2023-24 AY as the current (or “post”) values. For students in summer 2024 programs, we use 2023-24 AY attendance and achievement as prior values, and hence there are no current or “post” measures available for these students.

In addition to presenting summary statistics of changes, we use a regression technique known as hierarchical linear modeling (HLM) to compare changes in these outcomes across program characteristics. HLM allows us to quantify differences across programs while accounting for the nesting of students within programs. Details of these models are presented in the Appendix.

Constructing Analytic Samples for Summarizing Changes

To construct the analytic samples used to summarize changes in AY attendance and achievement we first calculate the change in AY attendance or test scores for each student with non-missing prior and current AY attendance or test scores, using the prior and current values explained above. We use students’ CMAS math and English Language Arts (ELA) test scores in grades 3-8, PSAT math and Evidence Based Reading and Writing (EBRW) scores in grades 9-10 and SAT math and EBRW scores in grade 11.⁹ We do not analyze ACCESS scores in this report.

⁸One limitation of this approach is that students may have continued to participate in their afterschool program after completing the state assessment. However, we do not have data about the dates of program attendance. Because state assessments are administered near the end of the academic year, we assume that students would have attended most of the afterschool program days before taking state assessments.

⁹Henceforth we use the acronym ELA to refer both to CMAS ELA test results and P/SAT EBRW results.

Because the CMAS and P/SAT test scores are not directly comparable across grade levels we standardize all test scores before calculating changes in achievement or summarizing prior achievement scores. We standardize each student's test score relative to the statewide mean and standard deviation of scores for students completing the same test in the same grade and year. We use the means and standard deviations of scale scores reported publicly by CDE for this purpose.¹⁰ The resulting standardized scores represent achievement relative to the statewide population. For example, for 4th graders in afterschool programs in 2023-24, their prior math test score is based on taking the 3rd grade CMAS math test in 2022-23; a standardized prior score of 0 in this case would represent a student who scored at the statewide average on the 3rd grade CMAS math test in 2022-23; a value below 0 represents a student who scored below the statewide average and values above 0 represent scores above the statewide average. Changes calculated based on these standardized scores indicate how much a student's relative achievement changed, relative to all other students in the state taking the same tests in the same grades and years. Thus, a change score of 0 indicates that the student's score was in the same point in the statewide distribution after participating as it was prior to participating while a positive change score indicates a student's score in the current year was higher relative to the statewide average than their prior test score.

To construct the analytic sample for measuring changes in AY attendance we make the following restrictions within each year:

- Students with non-missing change in attendance.
- Students in programs with at least 10 students with non-missing changes in attendance.
- Students whose prior attendance value is from full day kindergarten or a higher grade (to avoid using pre-kindergarten or half-day kindergarten attendance as a prior measure).

This results in a final sample of 14,267 total observations across 47 grants and 64 grant by year combinations for analyzing changes in attendance. To construct the analytic sample for measuring changes in achievement we make the following restrictions within each year:

- Students with non-missing change in both math and ELA test scores.
- Students in programs with at least 10 students with non-missing change in both math and ELA test scores.

Because statewide testing occurs in grades 3-11, this limits the sample to students with current scores in grades 4-11. This results in a final sample of 7,221 total observations across 44 grants and 58 grant by year combinations for analyzing changes in achievement. Detailed descriptive statistics for these analytic samples are provided in the Appendix.

¹⁰<https://www.cde.state.co.us/code/accountability-dataexplorertool>. The values used to standardize scores are reported in the Appendix.

Results

Question 1

What are the characteristics of the Expanded Learning Opportunities Grant Programs offered to students (e.g., duration of the program and focal area/s), and how long did students participate in these programs?

Table 2 summarizes the number of programs that listed each of the seven focus areas overall by program type and by grantee type (CBO or LEA). As a reminder, grantees could list up to seven possible focus areas (four academic and three related to SEMH). The table also lists the number of grants focusing on at least one academic area (“Any Academic”) or at least one SEMH area (“Any SEMH”). Each grant listed on average just over four focus areas (median=4; range 1 to 7). Grants to CBOs listed fewer focus areas on average (3.2) relative to grants to LEAs (4.8), suggesting that the grants to LEAs were targeting a wider range of topics. Nearly all grants (~95%) listed at least one academic focus area and the vast majority listed at least one SEMH topic (~85%). ELA was the most frequent focus for both afterschool (~78%) and summer (~77%) programs, with nearly as many focusing on math. Grants to LEAs were more likely to focus on math, ELA and ELD than grants to CBOs. Among SEMH topics, afterschool programs were slightly more likely to focus on engaging family while summer programs were slightly more likely to focus on engaging youth. Overall LEAs seem to have offered more varied programming and tended to have an academic focus, while CBOs were offering more targeted programs and were much less likely to offer programs focused on ELD. Grants for CBO summer programs were least likely to have SEMH focus areas and most likely to list “other” SEMH focus areas.

Table 2: Number of Grants and Focus Areas by Program and Grantee Type

	Afterschool			Summer		
	Total	CBO	LEA	Total	CBO	LEA
Grants	27	12	15	35	13	22
Any Academic	26 (96%)	11 (92%)	15 (100%)	34 (97%)	12 (92%)	22 (100%)
Any SEMH	23 (85%)	10 (83%)	13 (87%)	29 (83%)	9 (69%)	20 (91%)
Math	18 (67%)	5 (42%)	13 (87%)	25 (71%)	4 (31%)	21 (95%)
ELA	21 (78%)	8 (67%)	13 (87%)	27 (77%)	8 (62%)	19 (86%)
ELD	10 (37%)	2 (17%)	8 (53%)	14 (40%)	1 (8%)	13 (59%)
Other Academic	17 (63%)	8 (67%)	9 (60%)	21 (60%)	9 (69%)	12 (55%)
Youth	17 (63%)	5 (42%)	12 (80%)	23 (66%)	4 (31%)	19 (86%)
Family	19 (70%)	8 (67%)	11 (73%)	18 (51%)	4 (31%)	14 (64%)
Other SEMH	13 (48%)	7 (58%)	6 (40%)	14 (40%)	8 (62%)	6 (27%)

Table 3 summarizes the number of sessions offered and number of days students attended programming, both at the program level (first two rows) and student level (second two rows). If a student participated in multiple programs or in the same program for two years, each year of participation is counted in the table. Some values were exceptionally high and could not be verified, such as one afterschool program that reported offering 252 sessions. Afterschool programs offered students 98 sessions on average and students attended 46 days on average. Summer programs offered students 20 sessions on average and students attended 12 days on average. These values are similar at the student level. For afterschool programs the medians were lower than the means, indicating the distributions were skewed – many students attended very few days of afterschool programming, while a smaller share of students attended a very high number on average. One student was recorded as attending 229 days of an afterschool program; it is unclear whether this is accurate (there are typically about 160 days in a school year in Colorado, but afterschool programs during the year could include weekend sessions or programs may have counted “days of attendance” in varying ways). Figures in the Appendix show these distributions visually and indicate that programs funded by grants to CBOs tended to offer more sessions on average and students attended more days on average at these programs. Some programs reported offering a constant number of sessions to all students, while other programs reported offering variable numbers of sessions to students. The number of days each student attended varied within programs as well.

Table 3: Sessions Offered and Days Attended by Program Type

Level	Program Type	N	Sessions				Days Attended			
			Min	Mean	Median	Max	Min	Mean	Median	Max
Program Year	Afterschool	47	7	98	103	252	6	46	31	140
	Summer	52	4	20	18	52	3	12	12	31
Student	Afterschool	10205	1	103	118	252	1	39	21	229
	Summer	14495	1	21	18	82	0	14	14	80

Questions 2 and 3

What are the attributes (e.g., demographic, attendance, and prior performance) of students participating in the Expanded Learning Opportunities Grant Programs through these funds? What trends or patterns are observed in the type of students and schools participating in these programs each year?

Table 4 summarizes the demographic characteristics of students participating in ELO programs overall and then separately by program type, year, and grantee type. The final column of Table 4 reports the average statewide demographic characteristics of all PK-12 students in Colorado during the 2022-23 and 2023-24 years. Relative to the statewide population, students participating in ELO programs were less likely to identify as Asian, Native Hawaiian or Other Pacific Islander, or White, more likely to identify as Black or Hispanic, more likely to be FRL eligible, more likely to have an IEP and more likely to be identified as an ML. There were relatively fewer FRL eligible students in summer 2023 and relatively more students identified as ML and students with an IEP in summer programs. Programs funded by grants to CBOs tended to enroll a greater share of FRL eligible students, students in Title I schools, and Black students, but a smaller share of ML students, students with an IEP or Hispanic students.

Figure 1 shows the distribution of student grade levels by program type, year, and grantee type. Students from all grade levels were enrolled in ELO programs each year (and most programs enrolled students across multiple grade levels). Elementary school students were the most commonly enrolled grade level. There were smaller differences in grade level enrollments in 2023-24 relative to 2022-23. The most notable exception was a larger proportion of high school students enrolled in summer 2023 programs organized by LEAs.

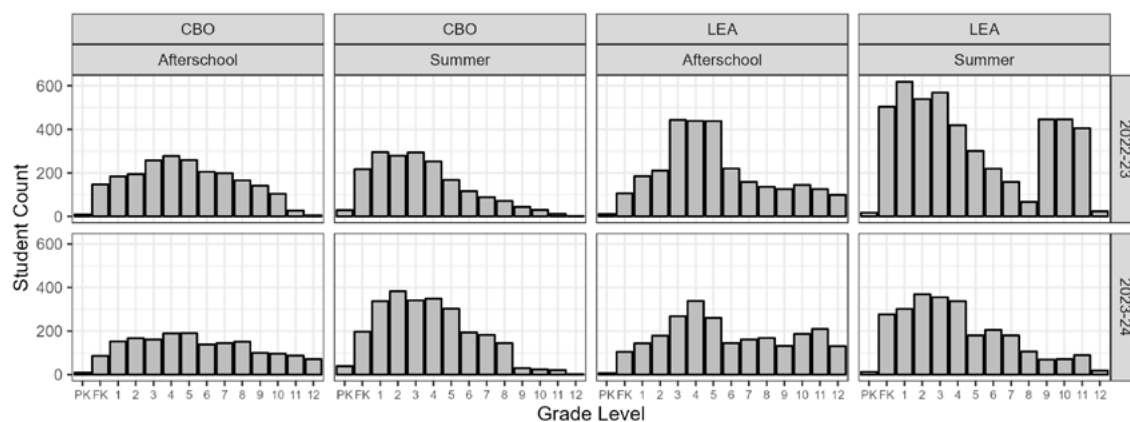
To better understand program participation across different demographic groups, Figure 2 shows the average number of days of ELO programming attended by demographic group for afterschool and summer programs. The averages represent the average number of days students attended per year of each program type, and include student grade levels, race/ethnicity (for the four largest racial/ethnic groups), FRL status, IEP status, and ML identification status. Students in lower grade levels (except pre-kindergarten) attended more days on average in afterschool programs; this pattern was similar for summer programs although high school students attended about as many days as elementary students in summer programs. Black students attended far more days of afterschool programming than students of other racial identities and this was the largest difference between demographic groups. Exploratory analyses suggest this occurred because Black students were more likely to be enrolled in programs where students attended more days on average. FRL eligible and ML identified students also attended more days of afterschool programming on average, although these differences were smaller. Asian students attended more days of summer programs on average than students from other demographic groups, although differences across groups in days attended were generally smaller for summer programs (due in part to students attending fewer days overall during summer programs).

Table 4: Student Demographics Overall and by Program Type and Period

	Afterschool			Summer		LEA	CBO	Statewide
	All	2023	2024	2023	2024			
Grants	57	22	21	26	26	33	24	
Records	20939	5016	4174	6634	5115	12578	8361	
Unique Students	17080	4997	4164	6618	5030	10570	6681	
CBO	0.399	0.434	0.417	0.286	0.498	0.000	1.000	
FRL	0.605	0.627	0.616	0.539	0.663	0.568	0.661	0.430
IEP	0.167	0.151	0.154	0.185	0.170	0.173	0.157	0.127
ML	0.198	0.181	0.161	0.204	0.239	0.254	0.115	0.127
Title I SW	0.533	0.651	0.536	0.425	0.556	0.456	0.650	
Title I TA	0.020	0.009	0.019	0.024	0.026	0.016	0.026	
American Indian or Alaska Native	0.010	0.007	0.008	0.008	0.016	0.011	0.008	0.006
Asian	0.018	0.017	0.008	0.031	0.009	0.025	0.007	0.033
Black	0.061	0.038	0.067	0.036	0.111	0.024	0.117	0.046
Hispanic	0.479	0.495	0.482	0.460	0.485	0.520	0.417	0.353
White	0.393	0.409	0.404	0.421	0.332	0.380	0.412	0.509
Native Hawaiian or Other Pacific Islander	0.001	0.001	0.001	0.001	0.003	0.001	0.002	0.003
Two or More	0.038	0.034	0.031	0.043	0.044	0.039	0.037	0.052

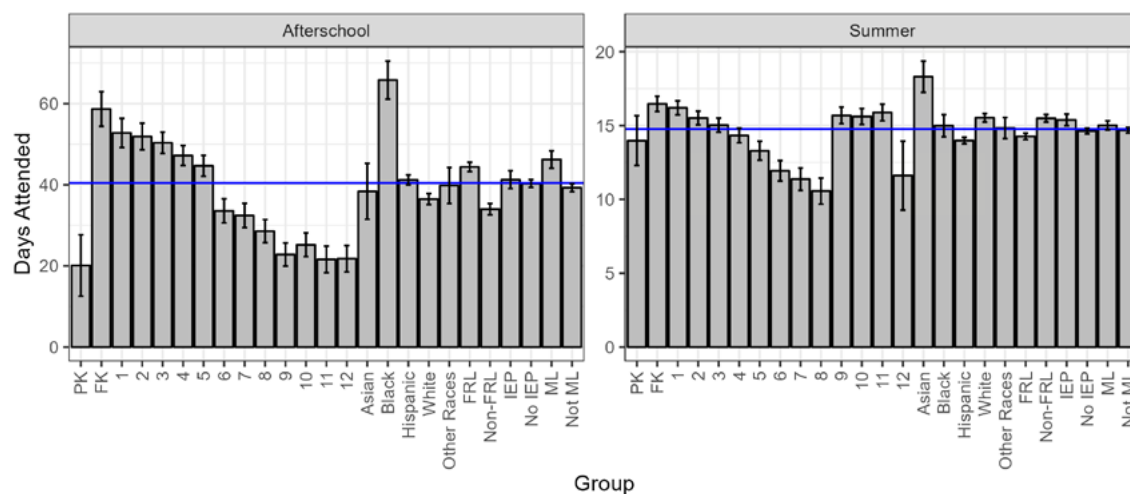
Note. Calculations based on the “Demographic” sample from Table 1 (N=20,939). Title I SW=student served by schoolwide Title I programs; TA=student served by Title I targeted programs; CBO=community-based organization; LEA=local education agency; FRL=free or reduced-price lunch eligible; IEP=individualized education program; ML=multilingual learner. The “Statewide” column reports statewide demographics for PK-12 public school students in Colorado averaged across 2022-23 and 2023-24, as reported at <https://cde.state.co.us/cdereval/pupilcurrent>.

Figure 1: Student Enrollments in ELO Programs by Grade Level, Program Type, Year, and Grantee Type



Note. PK=pre-kindergarten; FK=full-day kindergarten; CBO=community-based organization; LEA=local education agency. Calculations based on the “Demographic” sample from Table 1 (N=20,939).

Figure 2: Average Number of Days Attended by Demographic Group and Program Type



Note. PK=pre-kindergarten; FK=full-day kindergarten; FRL=free or reduced-price lunch eligible; IEP=individualized education plan; ML=multilingual learner. Error bars denote 95% confidence intervals. Blue horizontal line indicates the average across all students. Calculations based on the “Demographics + Sessions” sample from Table 1 excluding half-day kindergarten (N=19,859).

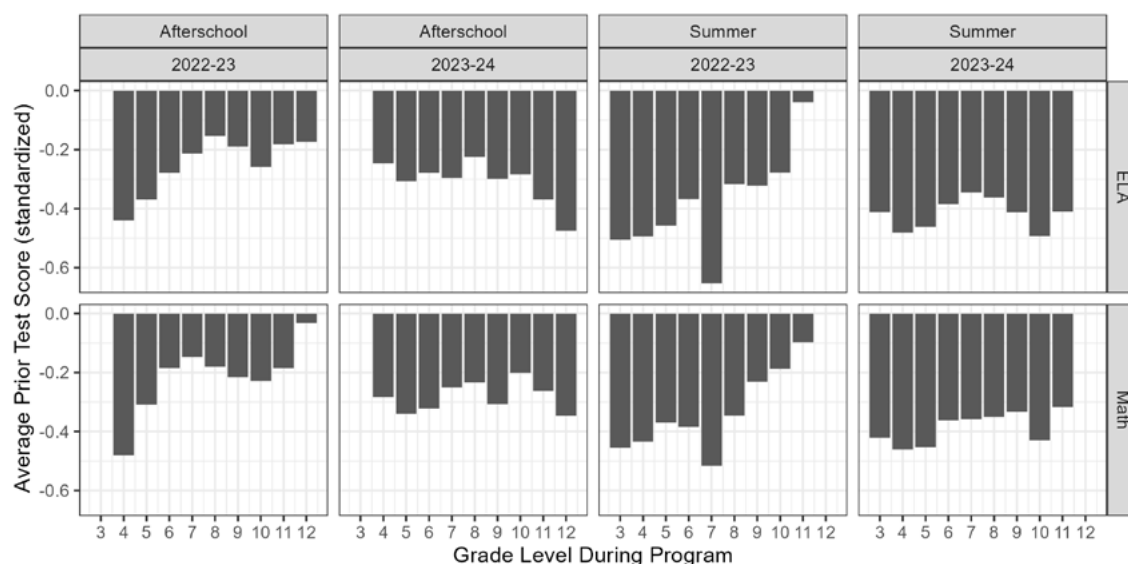
Table 5 and Figure 3 summarize prior attendance and achievement for students participating in ELO programs. On average student AY attendance prior to participating was about 92%, and chronic absenteeism was about 26.8%. Average prior attendance was slightly lower (and CA rates slightly higher) for students participating in 2022-23 relative to 2023-24, which is consistent with increasing AY attendance rates (and declining CA rates) statewide during this period. Average prior math and ELA test scores are all negative, ranging from about -0.30 to -0.40 standard deviations. As a reminder, the prior test scores are standardized relative to the statewide distribution of scores and are based on CMAS for students in grades 3-8 and P/SAT for students in grades 9-11. This suggests that students participating in the ELO programs had average test scores substantially lower than the statewide distribution of students in Colorado. There was little difference in prior achievement between students across years; students participating in summer programs had lower average prior achievement relative to students participating in afterschool programs. Figure 3 shows average prior test scores by program type, year, subject, and grade. Although average prior scores were negative at all grade levels, elementary students participating in ELO programs in 2022-23 tended to have the lowest prior scores, while students participating in 2023-24 had similar average prior scores across grade levels (relative to the statewide distribution).

Table 5: Student Prior Attendance and Achievement Overall and by Program Type and Period

	All	Afterschool		Summer		LEA	CBO
		2023	2024	2023	2024		
Grants	57	22	21	26	26	33	24
Prior Attendance	0.920	0.913	0.918	0.922	0.926	0.920	0.920
Prior CA	0.268	0.313	0.278	0.260	0.229	0.262	0.277
Prior Math	-0.342	-0.282	-0.288	-0.358	-0.426	-0.309	-0.390
Prior ELA	-0.368	-0.308	-0.300	-0.410	-0.433	-0.349	-0.396
Records	20939	5016	4174	6634	5115	12578	8361
Unique Students	17080	4997	4164	6618	5030	10570	6681
N Attendance	20302	4641	3926	6626	5109	12225	8077
N Math	11801	2822	2483	3548	2948	7022	4779
N ELA	11772	2822	2475	3541	2934	7005	4767

Note. CA=chronic absenteeism; CBO=community-based organization; LEA=local education agency. Calculations based on various samples, with N-counts listed.

Figure 3: Average Prior Achievement by Grade Level, Program Type and Year



Note. Based on timing of programs and definition of prior achievement, afterschool programs have prior achievement data in grades 4-12 while summer programs have prior achievement data in grades 3-11. Calculations based on all students in the Demographics sample with non-missing prior achievement data.

Question 4

During the period following participation:

- To what extent did academic achievement and growth change from the prior year for participating students?
- To what extent did attendance and chronic absenteeism levels change from the prior year for participating students?
- To what extent do the changes in attendance and academic outcomes vary by program type and focal area?

Tables 6 and 7 summarize average changes in AY attendance and math or ELA test scores, respectively, at both the student level and program level. Average changes in AY attendance were small and positive for students participating in afterschool programs and small and negative for students participating in summer 2023 programs. (As a reminder it was not possible to calculate changes for students participating in summer 2024 programs.) CA rates declined for students participating in both program types, by between 1.8 and 3.8 percentage points. At the program level, limiting to programs with at least 10 students with current and prior attendance, the average change in attendance was positive for afterschool programs and negative (but very small) for summer programs, while the CA rate declined on average across all program types. From 2021-22 to 2023-24 statewide AY average attendance rates increased from 90.2% to 91.5% while CA rates declined from 34.5% to 27.7%.¹¹ Thus, AY attendance and CA rates for students participating in these programs improved on average, and the changes were similar to those observed statewide during the same time period. Changes in average achievement were generally small.

¹¹Based on data reported at <https://www.cde.state.co.us/cdereval/truancystatistics>.

At the student level, average changes in math scores were all less than or equal to 0.005 in absolute value, while changes in ELA scores were small and negative for students in afterschool programs and positive for students in summer 2023 programs. At the program level, average changes in math scores were small and positive in each period while changes in ELA scores were negative for afterschool programs in 2022-23 and positive for the other two periods. Average SGP for participating students ranged from about 46.5 to 49.5 across subjects and programs.

Table 6: Average Changes in Attendance

	N	Avg. Attendance Change	SD Attendance Change	Avg. CA Change
Students				
Afterschool 2022-23	4506	0.55	7.53	-3.82
Afterschool 2023-24	3852	0.14	7.54	-2.26
Summer 2022-23	5909	-0.16	6.82	-1.83
Programs				
Afterschool 2022-23	20	0.72	0.83	-5.08
Afterschool 2023-24	20	0.67	1.75	-5.49
Summer 2022-23	24	-0.24	1.71	-0.77

Note. Program level information includes programs with at least 10 students with current and prior attendance data.

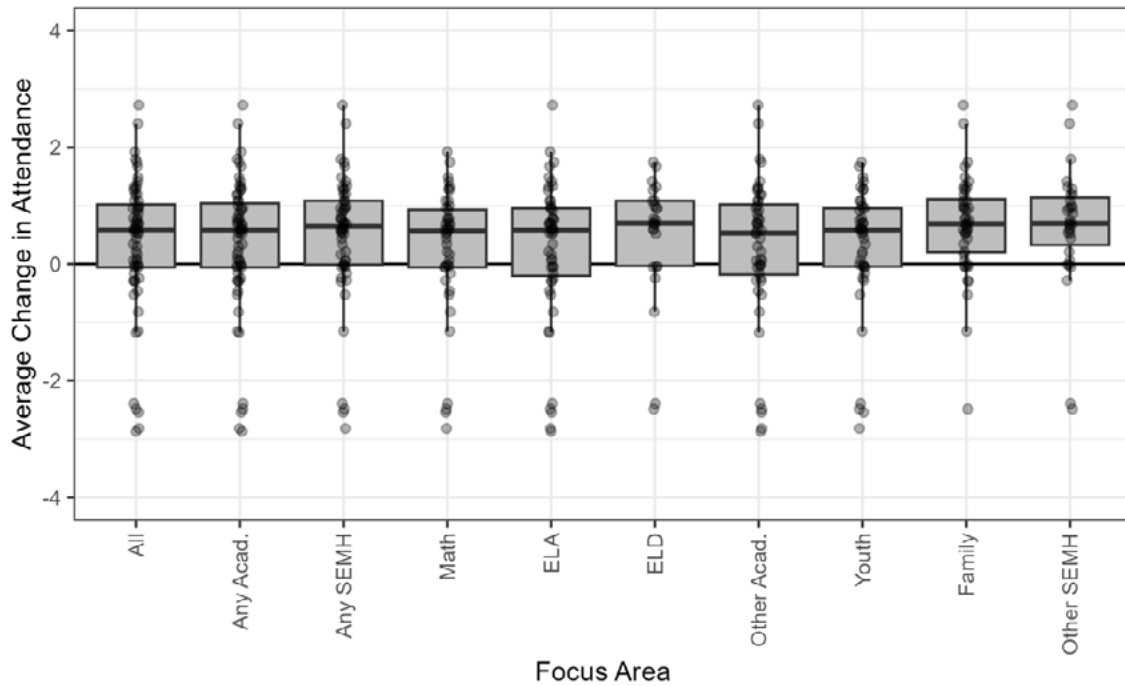
Table 7: Average Changes in Achievement

	N	Avg. Math Change	SD Math Change	Avg. ELA Change	SD ELA Change	MGP Math	MGP ELA
Students							
Afterschool 2022-23	2587	-0.003	0.587	-0.017	0.599	47.4	47.0
Afterschool 2023-24	2140	-0.005	0.587	-0.022	0.572	48.0	46.5
Summer 2022-23	2494	0.005	0.575	0.044	0.598	48.2	48.5
Programs							
Afterschool 2022-23	18	0.025	0.099	-0.038	0.103	48.4	46.4
Afterschool 2023-24	18	0.036	0.086	0.020	0.099	49.4	47.6
Summer 2022-23	22	0.014	0.094	0.036	0.095	48.1	48.0

Note. Program level information includes programs with at least 10 students with current and prior attendance data. MGP=mean student growth percentile.

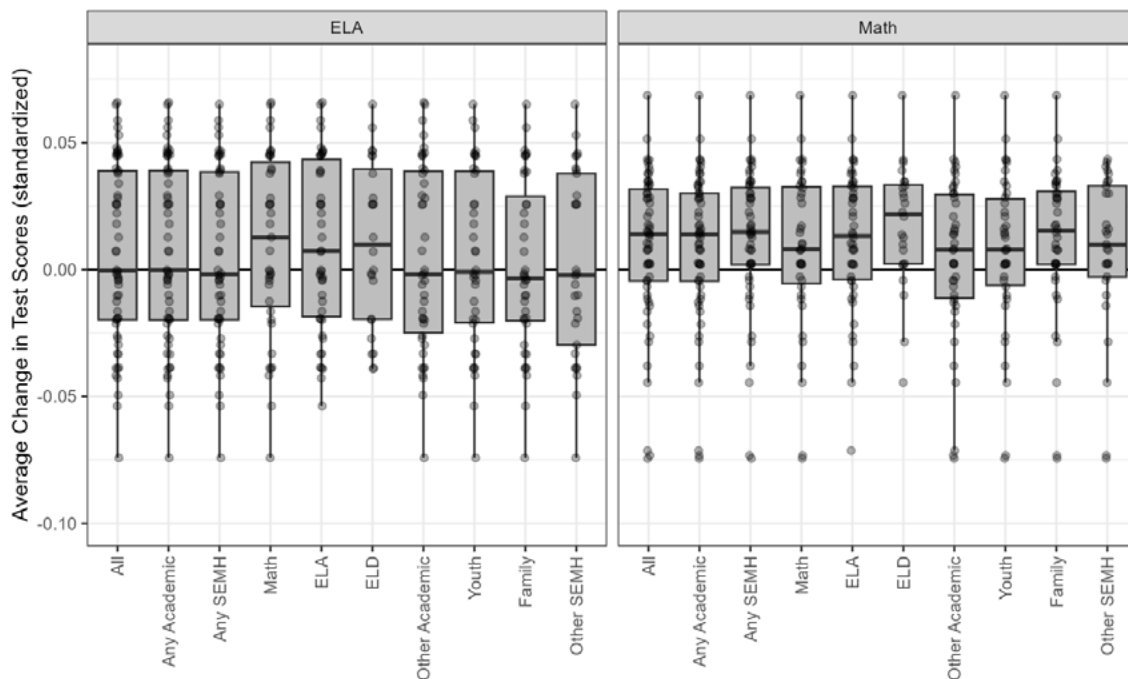
Figures 4 and 5 present average changes in AY attendance and achievement for each program by year across different possible focus areas. These figures illustrate three main findings about changes in outcomes across programs: 1) changes were small on average but tended to be positive; 2) changes varied considerably across programs; and 3) there was little systematic difference in the changes across programs focusing on different priority areas.

Figure 4: Average Change in Attendance by Program Focus



Note. Each point represents a grant by year observation. A small amount of random noise (“jitter”) is added to the x-axis values to avoid overplotting. Average change in attendance are Empirical Bayes (EB) estimates from the regression models described in the Appendix and represent estimated average changes in attendance adjusting for sampling and measurement error. Because programs could focus on multiple areas, the same programs may appear more than once in the figure above.

Figure 5: Average Change in Standardized Test Scores by Subject and Program Focus



Note. Each point represents a grant by year observation. A small amount of random noise (“jitter”) is added to the x-axis values to avoid overplotting. Average change in test scores are Empirical Bayes (EB) estimates from the regression models described in the Appendix and represent estimated average changes in average test scores adjusting for sampling and measurement error. Because programs could focus on multiple areas, the same programs may appear more than once in the figures above.

Regression models described in the Appendix more formally test whether changes in attendance or changes in achievement were associated with program type, year, focus areas, or length of student participation (days attended). Average changes in attendance and in math scores were not statistically significantly different across program types or years. Average increases in ELA test scores were statistically significantly higher in summer 2023 relative to the afterschool programs, although the difference was small (0.065 SD higher than afterschool 2022-23 programs and 0.040 SD higher than afterschool 2023-24 programs). Programs with a focus on engaging families had larger average increases in AY attendance than programs that did not report this focus. Average changes in test scores were not statistically significantly associated with program focus areas. A small positive association was observed between the number of days students attended ELO programming and changes in AY attendance and achievement. These associations were positive and statistically significant for changes in achievement but not statistically significant for changes in AY attendance.

To better understand the association between the number of days students attended ELO programs and changes in outcomes, Tables 8 and 9 summarize changes in attendance and achievement based on whether students attended more or fewer days of programming than the median for each period. For example, the first row of Table 8 indicates that during afterschool programs in 2022-23 the median number of days attended was 28. Students who attended fewer than 28 days (these students attended 8.9 days on average) had increases in AY attendance of approximately 0.40 percentage points and a decline in CA rates of 3.42 percentage points, while students who attended more than 28 days (76.9 days on average) had increases in AY attendance of approximately 0.71 percentage points and a decline in CA rates of 4.23 percentage points. For all periods except summer 2023 (when students attending more days had declines in AY attendance) students attending more than the median number of days had larger increases in AY attendance, larger declines in CA, and more positive changes in average achievement than students attending fewer than the median number of days. Students attending more than the median number of days attended far more days on average than those attending fewer than the median number of days (about 10 times more days during afterschool programs and about twice as many days of summer programs).

Figures 6 and 7 show the association between the average number of days attended and average changes in AY attendance or test scores at the program by year level. These figures illustrate the positive association between average number of days attended and changes in AY attendance or test scores (with the exception of summer 2023 ELA test score changes, although this was the period with the largest positive changes in ELA test scores overall). The HLM regression models in the Appendix more formally quantify the association between days of attendance and changes in outcomes. The association between days attended and change in AY attendance rate is positive but not statistically significant at the $p < 0.05$ level; students are predicted to have changes in attendance approximately 0.1 percentage points higher for each 10 additional days attended on average at the program level and 0.04 percentage points higher per 10 additional days attended on average at the student level.

The association between days attended and changes in test scores is positive and statistically significant for both subjects, at both the program level and student level. At the program level, average changes in scores are predicted to be about 0.01 SD more positive per 10 additional days attended on average in both subjects; at the student level, students attending 10 additional days relative to other students in their program are expected to have increases in test scores about 0.01 SD higher in ELA and about 0.006 SD higher in math.

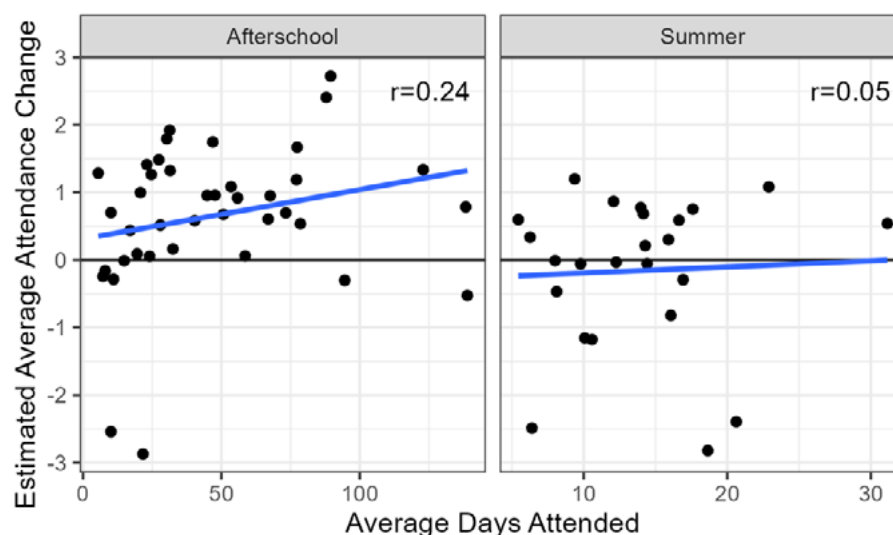
Table 8: Average Change in AY Attendance by Program Days Attended Above or Below Median

Period	Above	N	Median Split	Mean Days	Average Change	
					Attendance	CA
Afterschool 2022-23	No	2283	28	8.9	0.40	-3.42
Afterschool 2022-23	Yes	2223	28	76.9	0.71	-4.23
Afterschool 2023-24	No	1938	17	6.0	-0.34	0.00
Afterschool 2023-24	Yes	1914	17	67.9	0.63	-4.55
Summer 2022-23	No	3093	16	9.8	0.03	-2.97
Summer 2022-23	Yes	2816	16	22.9	-0.38	-0.57

Table 9: Average Change in Achievement by Program Days Attended Above or Below Median

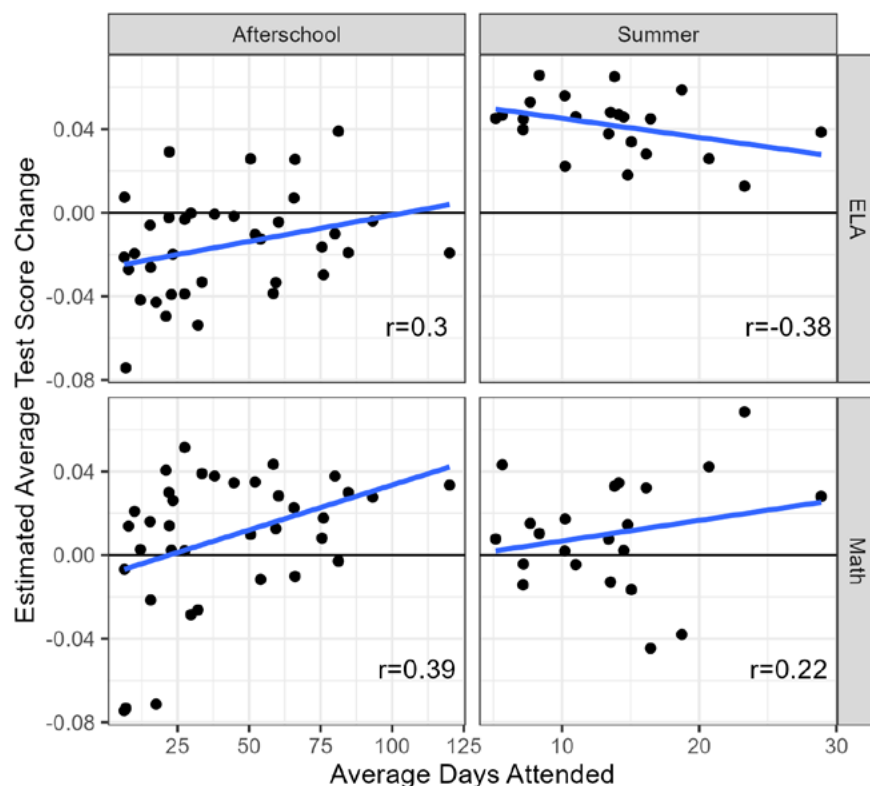
Period	Above	N	Median Split	Mean Days	Math		ELA	
					Mean	SD	Mean	SD
Afterschool 2022-23	No	1325	23	6.8	-0.027	0.592	-0.050	0.593
Afterschool 2022-23	Yes	1262	23	69.3	0.023	0.582	0.018	0.603
Afterschool 2023-24	No	1086	14	5.3	-0.032	0.588	-0.048	0.567
Afterschool 2023-24	Yes	1054	14	61.2	0.023	0.586	0.004	0.576
Summer 2022-23	No	1412	16	9.1	0.003	0.564	0.032	0.591
Summer 2022-23	Yes	1082	16	22.7	0.008	0.589	0.059	0.607

Figure 6: Average Change in Attendance Versus Average Days Attended by Program Type



Note. Each point represents a grant by year observation. Average change in attendance are Empirical Bayes (EB) estimates from the regression models described in the Appendix and represent estimated average changes in attendance adjusting for sampling and measurement error. r = Pearson correlation.

Figure 7: Average Change in Test Scores Versus Average Days Attended by Program Type and Subject



Note. Each point represents a grant by year observation. Average change in test scores are Empirical Bayes (EB) estimates from the regression models described in the Appendix and represent estimated average changes in test scores adjusting for sampling and measurement error. r = Pearson correlation.

Summary

This section provides a summary of key findings and limitations of the present analyses and suggested next steps to further understand the impact of the ELO programs. Key findings:

- Programs funded by ELO grants provided expanded learning opportunities focused on a mix of academic and SEMH areas to a diverse population of Colorado students. The average grant addressed four of the seven focus areas and enrolled students from nearly 10 grade levels, with students attending 46 days of afterschool programming and 12 days of summer programming on average per year.
- There were differences observed between characteristics of programs funded by grants to CBO relative to LEA, with CBO programs listing fewer focus areas on average and students attending more days on average, suggesting grants to different types of organizations were playing different roles in their communities.
- In terms of student demographics, the students participating in ELO programs tended to be from relatively more disadvantaged student populations, thus supporting the goal of the ELO grant program to address disparities in lost learning opportunities caused by the pandemic. Relative to the statewide population of public-school students, students in ELO programs were more likely to be students of color, FRL eligible, have an IEP, be identified as an ML, and have lower average test scores.
- Among students participating in the ELO programs (and for whom we have data), changes in AY attendance and CA rates were small on average but tended to be positive, with considerable variability in changes across programs. Students in programs listing a focus on engaging families had statistically significantly higher average increases in AY attendance relative to those that did not, and there was a small positive association between the number of days students attended programs and changes in AY attendance (although this association did not meet the threshold for statistical significance).
- Among students participating in the ELO programs (and for whom we have data), changes in average math and ELA test scores (relative to statewide peers) varied considerably across programs. The magnitude of these changes was not associated with program focus areas. Increases in ELA test scores were larger for students in summer 2023 programs and increases in scores for both subjects were larger for students who attended more days or were enrolled in programs where students attended more days. Although the association between changes in scores and days attended was small (a predicted 0.01 SD larger increase for an additional 10 days attended on average), it suggests consistent participation in the programs was associated with positive changes in achievement.

There are three important limitations of these analyses to highlight:

- First, because no data were provided about students not participating in ELO programs, there was no comparison group and hence the analyses here cannot support causal inferences about the impact of ELO programs on student outcomes.

- Second, the missing data and limited outcomes available (AY attendance and state assessment scores) limit the scope of some conclusions. For example, the state assessment scores were available for only approximately 30% of the full sample of records (due to a combination of missing data, limited number of tested grades, and no data past spring 2024), and hence the results may not generalize to all students participating in ELO programs. It was also not possible to investigate changes in other outcomes targeted by the programs such as grade point averages or student social and emotional health.
- Third, detailed information about specific programs and the communities in which the programs were offered were not available. Thus, we were unable to investigate whether additional program characteristics were associated with differences observed across programs or to characterize the broader communities served by the ELO programs.

The findings and limitations of the report suggest possible avenues for further investigation:

- First, gathering more detailed data about the program activities for each grant and the communities served by the grants could be used to provide a more detailed picture the role these programs played in the communities and in supporting student learning.
- Second, additional data about program activities and communities could be used to better understand the variability observed in changes in AY attendance and test scores in the current analyses. For example, although the program focus areas were not strongly associated with differences across programs, there may be other aspects of ELO programs or the communities and schools in which they occurred that are associated with differences in these outcomes.
- Finally, if the goal is to understand the causal effect of ELO program participation on student outcomes such as attendance, achievement, and other school engagement metrics, it would be necessary to identify control groups and gather data that could be used to compare observed outcomes for students participating in ELO programs to similar students in the same grade and year who did not participate in these programs.

Appendix A

Table A1: Student Grade Levels Overall and by Program Type and Period

		Afterschool		Summer			
	All	2023	2024	2023	2024	LEA	CBO
Records	20939	5016	4174	6634	5115	12578	8361
PK	0.006	0.004	0.004	0.007	0.010	0.004	0.010
FK	0.078	0.050	0.046	0.109	0.092	0.079	0.077
G1	0.106	0.074	0.071	0.138	0.125	0.099	0.116
G2	0.111	0.081	0.083	0.123	0.147	0.103	0.122
G3	0.128	0.140	0.103	0.130	0.136	0.130	0.126
G4	0.124	0.143	0.126	0.101	0.134	0.122	0.128
G5	0.100	0.139	0.108	0.071	0.094	0.094	0.110
G6	0.069	0.085	0.068	0.050	0.078	0.063	0.078
G7	0.061	0.071	0.073	0.037	0.071	0.052	0.073
G8	0.048	0.060	0.076	0.021	0.049	0.038	0.064
G9	0.052	0.053	0.056	0.074	0.019	0.061	0.038
G10	0.053	0.050	0.068	0.072	0.019	0.067	0.030
G11	0.047	0.030	0.071	0.063	0.022	0.066	0.018
G12	0.017	0.021	0.048	0.004	0.004	0.022	0.009

Note. PK=pre-kindergarten; FK=full-day kindergarten.

Table A2: Average Program Days Attended by Demographic Group

Group	Sample Size		Average Days	
	Afterschool	Summer	Afterschool	Summer
PK	35	97	20.1	14
FK	443	1141	58.7	16.5
1	664	1406	52.8	16.2
2	750	1426	51.9	15.5
3	1129	1395	50.4	15
4	1244	1223	47.2	14.3
5	1146	769	44.7	13.3
6	706	654	33.6	11.9
7	663	533	32.4	11.4
8	620	341	28.6	10.6
9	497	575	22.8	15.7
10	530	554	25.2	15.6
11	447	522	21.6	15.9
12	306	43	21.8	11.6
Asian	118	228	38.4	18.3
Black	470	743	65.8	15
Hispanic	4483	5182	41.2	14
White	3735	3919	36.5	15.5
Other Races	374	607	39.8	14.8
FRL	5708	6329	44.4	14.3
Non-FRL	3472	4350	34	15.5
IEP	1394	1900	41.3	15.4
No IEP	7786	8779	40.3	14.6
ML	1577	2464	46.2	15
Not ML	7603	8215	39.3	14.7

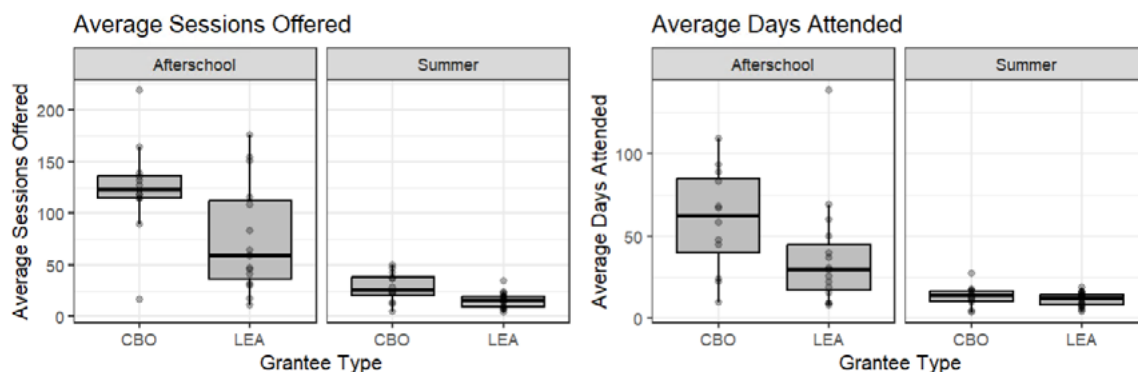
Note. PK=pre-kindergarten; FK=full-day kindergarten; FRL=free or reduced-price lunch eligible; IEP=individualized education program; ML=multilingual learner.

Table A3: Statewide Test Score Distributions

Year	Grade	Mean ELA	Mean MTH	SD ELA	SD MTH	N ELA	N MTH
2021-22	3	737.1	736.9	43.6	39.3	56,214	56,474
2021-22	4	740.3	731.8	36.2	32.9	56,629	56,875
2021-22	5	745.4	735.6	32.7	35.1	57,145	57,411
2021-22	6	742.1	728.1	34.0	32.5	55,680	55,917
2021-22	7	740.9	730.4	37.1	27.7	55,022	55,253
2021-22	8	742.6	731.3	40.7	40.1	52,435	52,768
2021-22	9	451.5	434.4	93.8	97.2	58,354	58,603
2021-22	10	480.6	455.0	99.4	88.3	56,109	56,321
2021-22	11	503.8	482.9	101.3	105.2	54,951	55,124
2022-23	3	737.3	738.2	43.2	39.5	56,563	57,367
2022-23	4	741.5	733.3	36.6	33.5	56,139	56,769
2022-23	5	747.8	737.0	33.6	35.2	55,976	56,881
2022-23	6	743.2	729.6	32.9	33.3	54,964	55,893
2022-23	7	744.6	731.0	37.8	28.0	53,238	54,112
2022-23	8	742.0	731.8	40.5	40.9	51,163	51,993
2022-23	9	451.8	440.6	94.8	97.6	57,506	58,296
2022-23	10	477.7	455.0	100.7	80.6	55,241	56,057
2022-23	11	507.6	484.0	104.0	107.3	55,292	55,961
2023-24	3	737.4	740.4	43.7	37.5	55,916	56,719
2023-24	4	741.1	734.7	37.2	34.7	56,493	57,382
2023-24	5	747.3	738.7	33.7	33.7	55,579	56,584
2023-24	6	743.4	731.7	33.0	31.6	54,127	55,105
2023-24	7	746.3	733.4	38.7	29.5	52,890	53,866
2023-24	8	740.6	731.5	41.0	41.3	49,908	50,761
2023-24	9	452.6	431.0	105.5	95.9	56,696	57,266
2023-24	10	475.3	445.3	109.7	103.6	56,231	56,869
2023-24	11	501.6	477.9	108.6	106.2	56,074	56,550

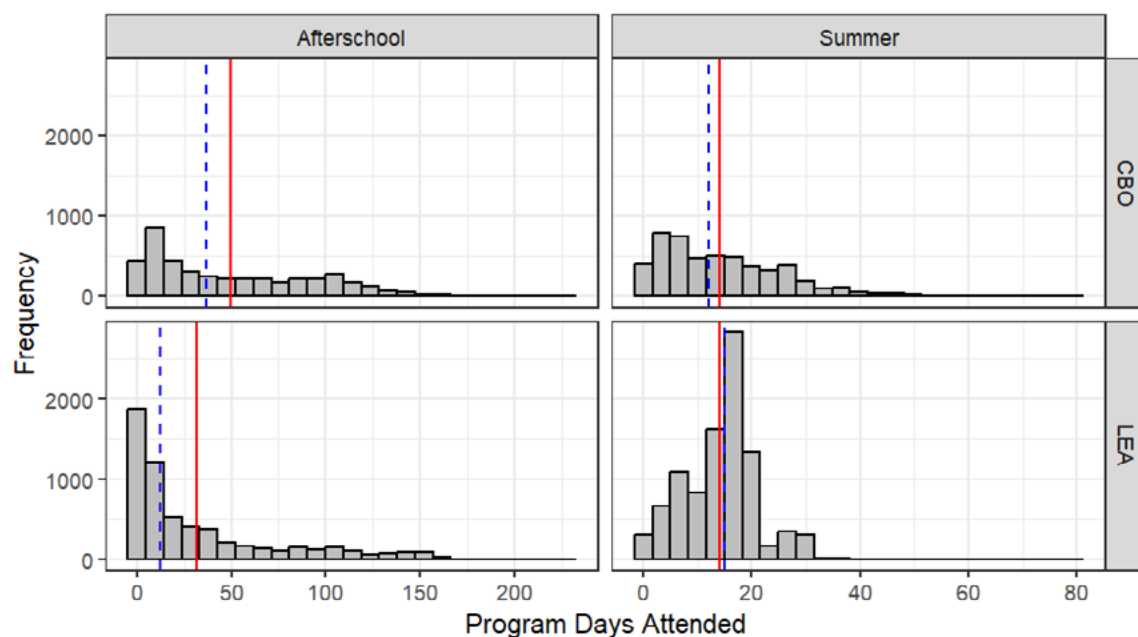
Note. Source: <https://www.cde.state.co.us/code/accountability-dataexplorertool>

Figure A1: Boxplots of Average Program Level Sessions Offered and Days Attended by Grantee Type and Program Type



Note. Each point represents one grant.

Figure A2: Histograms of Student Program Days Attended by Grantee Type and Program Type



Note. Red solid line shows the mean in each panel; dashed blue line shows the median in each panel.

Appendix B

Hierarchical Linear Modeling Details

We use three series of hierarchical linear models (HLM; Raudenbush & Bryk, 2002) to compare changes in outcomes across programs. Statistical significance tests from the HLM models account for the nesting of students within programs. This provides a more accurate estimate of uncertainty than would be obtained from standard ordinary least squares linear regression models while still utilizing the full student-level data. In addition, we can construct Empirical Bayes (EB) estimates of changes in outcomes for each program that account for uncertainty in the average outcome in each program and are less influenced by extreme values due to very small programs.

In each model the variable D_{ip} is the change (either AY attendance or test scores) for student i nested within program p . We define a “program” as a grant-by-year combination. Thus, if an afterschool grant ran in both years, it would be considered a separate “program” in each year. If a student participates in a program for multiple years or participates in multiple programs, we analyze their data for each year or program as independent observations.

In the first set of models, we summarize changes in outcomes across programs accounting only for program type and year. We fit the following model separately for each outcome (changes in AY attendance, math scores, and ELA scores), where “Level 1” represents the student-level model and “Level 2” represents the program level model:

Level 1:

$$D_{ip} = \beta_{0p} + e_{ip}$$

Level 2:

$$\beta_{0p} = \gamma_{00} + \gamma_{01}(\text{Afterschool24})_p + \gamma_{02}(\text{Summer23})_p + u_{0p}$$

Where *Afterschool24* is an indicator for afterschool programs in 2023-24 and *Summer23* is an indicator for summer programs in 2023. The e_{ip} is a normally distributed level 1 residual and the u_{0p} are normally distributed level 2 random intercepts. We constructed EB estimates of the average change in outcome for each program, β_{0p} , based on this model. These EB estimates are used for plotting figures in the main text. The coefficients γ_{01} and γ_{02} represent the differences in average change for afterschool programs in 2023-24 and summer programs in 2023 relative to average changes in afterschool programs in 2022-23.

In the second set of models, we expand the baseline model to include indicators for each of the seven possible focus areas at level 2 of the model. We fit the following model separately for each outcome (changes in AY attendance, math scores, and ELA scores):

Level 1:

$$D_{ip} = \beta_{0p} + e_{ip}$$

Level 2:

$$\beta_{0p} = \gamma_{00} + \gamma_{01}(\text{Afterschool24})_p + \gamma_{02}(\text{Summer23})_p + \sum_{k=1}^7 \alpha_k F_k + u_{0p}$$

The e_{ip} is a normally distributed level 1 residual and the u_{op} are normally distributed level 2 random intercepts. The F_k are $K=7$ indicators representing each of the seven possible focus areas. Each indicator is centered at the overall mean across programs. The coefficients α_k indicate the expected difference in the average outcome change for programs that include that focus area versus those that do not. Because programs could include more than one focus area, the coefficients for these indicators represent the predicted change in the outcome variable if a program were to add that focus area without changing any other focus areas, and do not represent an estimate of the average outcome value for all programs with that focus area.

In the third set of models, we expand the baseline model by including variables representing number of days of program attendance. At level 1 we include a variable representing the number of days each student attended the program, centered relative to the mean number of days attended by other students in the same program. At level 2 we include a variable representing the average number of days students in the program attended. These two variables allow us to quantify whether students who attend more ELO program days relative to other students in their program have more positive outcomes on average, and also whether programs in which students attended more days on average had more positive outcomes on average. We fit the following model separately for each outcome (changes in AY attendance, math scores, and ELA scores):

Level 1:

$$D_{ip} = \beta_{0p} + \beta_{1p}(\text{DaysCWC})_{ip} + e_{ip}$$

Level 2:

$$\beta_{0p} = \gamma_{00} + \gamma_{01}(\text{Afterschool24})_p + \gamma_{02}(\text{Summer23})_p + \gamma_{03}(\text{DaysMeanGMC})_p + u_{0p}$$

$$\beta_{1p} = \gamma_{10}$$

The e_{ip} is a normally distributed level 1 residual and the u_{op} are normally distributed level 2 random intercepts. The variable DaysCWC_{ip} represents the number of days student i attended program p (centered relative to the mean in that program) and the variable DaysMeanGMC_p represents the average number of days students in program p attended, centered relative to the average across all programs. The coefficient β_{1p} indicates the expected difference in the change in outcome for a student who attends 1 additional day of programming relative to their program average. The coefficient γ_{03} represents the expected difference in the average change in outcome for a program where students attended 1 additional day on average, relative to other programs in the same period (afterschool 2022-23, afterschool 2023-24, or summer 2023).

Visual inspection suggested that residuals for all models were approximately normally distributed. There was no evidence of non-linearity in the association between days attended and average changes, either at the student or program level. All models were estimated via restricted maximum likelihood using the lme4 package (Bates et al., 2015) in the R statistical software (R Core Team, 2024). Tables B1 and B2 summarize the samples included in the models. Tables B3, B4, and B5 present the regression model estimates.

Table B1: Descriptive Statistics of Attendance Change Sample

	N	Mean	SD	Min	Max
Student Level					
Attendance Change	14267	0.14	7.30	-94.00	96.00
CA Change	14267	-2.60			
Student Days	14267	30	35	0.5	228
Program Level					
Afterschool 2022-23	20				
Afterschool 2023-24	20				
Summer 2022-23	24				
Attendance Change	64	0.35	1.6	-5.3	3.3
Avg. Days	64	35	33	5.4	139
Math Focus	64	0.69	0.47	0	1
ELA Focus	64	0.8			
ELD Focus	64	0.39			
Youth Focus	64	0.75			
Family Focus	64	0.67			
Other Academic Focus	64	0.69			
Other SEMH Focus	64	0.48			

Table B2: Descriptive Statistics of Achievement Change Sample

	N	Mean	SD	Min	Max
Student Level					
Attendance Change	7221	0.00	0.58	-3.10	4.00
CA Change	7221	0.00	0.59	-3.00	3.30
Student Days	7221	28	34	1	228
Program Level					
Afterschool 2022-23	18				
Afterschool 2023-24	18				
Summer 2022-23	22				
Attendance Change	58	0.024	0.092	-0.19	0.26
Avg. Days	58	0.0079	0.1	-0.32	0.22
Math Focus	58	31	27	5.2	120
ELA Focus	58	0.67			
ELD Focus	58	0.79			
Youth Focus	58	0.41			
Family Focus	58	0.72			
Other Academic Focus	58	0.66			
Other SEMH Focus	58	0.69			

Table B3: HLM Baseline Model Estimates

	Attendance		ELA		Math	
	Est.	SE	Est.	SE	Est.	SE
Fixed Effects						
(Intercept)	0.698 *	0.322	-0.023	0.017	0.005	0.019
Afterschool 2023-24	-0.077	0.453	0.015	0.024	0.007	0.027
Summer 2022-23	-0.857	0.441	0.065 **	0.023	0.005	0.026
Random Effects						
SD Within	7.124		0.590		0.581	
SD Between	1.266		0.039		0.050	
N Program Years	64		58		58	
N	14267		7221		7221	

Note. *p<0.05 ** p<0.01 *** p<0.001. SE=standard error. SD=standard deviation.

Table B4: HLM Model Estimates Comparing Focus Areas

	Attendance		ELA		Math	
	Est.	SE	Est.	SE	Est.	SE
Fixed Effects						
(Intercept)	0.580 *	0.291	-0.020	0.017	0.009	0.019
Afterschool 2023-24	-0.121	0.404	0.018	0.024	0.008	0.027
Summer2022-23	-0.555	0.42	0.059 *	0.025	0.007	0.028
Math	-0.460	0.515	0.031	0.035	-0.028	0.038
ELA	-0.815	0.543	0.047	0.031	0.006	0.035
ELD	0.628	0.401	-0.002	0.025	0.042	0.028
Youth	-0.548	0.506	-0.033	0.03	-0.010	0.033
Family	1.322 **	0.475	-0.030	0.03	0.015	0.033
Other Academic	-0.374	0.467	-0.008	0.029	-0.046	0.032
Other SEMH	0.111	0.466	0.037	0.028	0.002	0.031
Random Effects						
SD Within	7.124		0.590		0.581	
SD Between	1.085		0.037		0.049	
N Program Years	64		58		58	
N	14267		7221		7221	

Note. *p<0.05 ** p<0.01 *** p<0.001. SE=standard error. SD=standard deviation.

Table B5: HLM Model Estimates With Days of Attendance

	Attendance		ELA		Math	
	Est.	SE	Est.	SE	Est.	SE
Fixed Effects						
(Intercept)	0.610	0.321	-0.026	0.015	-0.001	0.018
Afterschool 2023-24	-0.119	0.444	0.010	0.022	0.003	0.025
Summer 2022-23	-0.542	0.475	0.085 ***	0.023	0.035	0.027
Avg. Program Days/10	0.106	0.066	0.010 *	0.004	0.014 **	0.005
Student Days/10	0.042	0.023	0.011 ***	0.003	0.006 *	0.003
Random Effects						
SD Within	7.123		0.589		0.581	
SD Between	1.234		0.031		0.045	
N Program Years	64		58		58	
N	14267		7221		7221	

Note. *p<0.05 ** p<0.01 *** p<0.001. SE=standard error. SD=standard deviation.

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