IMPACT STUDY

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A-GAME Impact Study: Executive Summary

In 2018, the National Charter Schools Institute and Momentum Strategy & Research embarked on an exciting partnership to improve how authorizers and their alternative charter schools collaborated with one another to develop charter school goals that were aligned to the schools' missions, visions, specialized student populations, and key design elements. The initiative, called the A-GAME, which stood for Advancing Great Authorizing and Modeling Excellence was a federally funded national Charter School Program Dissemination Grant. Calling on a nationally representative group of authorizers, the team worked to develop tools and materials and hosted regional convenings to highlight promising practices and pave the way to a new era of authorizing—one where authorizers collaborated with their schools to provide support and reshape how the schools were evaluated.

Along the way, the A-GAME team facilitated the creation of alternative charter school contract goals and/or authorizer alternative frameworks, developing what has come to be known as the Responsive Goal process. The premise behind the goal development work was manifold, but started with the belief that better aligning accountability goals to charter schools programming and the needs of their students would foster innovation and create the space for schools to focus on students' strengths and challenges in a way that accountability to once-a-year state tests and "on-time" graduation rates could not. Thus, allowing schools to measure their success in more meaningful and targeted ways would impact students' ability to engage in school, improve their social-emotional wellbeing, and ultimately improve their academic achievement and growth.

This report summarizes the evaluation of whether student outcomes are impacted by schools' adoption of goals that are more responsive to the school, their staff, their students, and their communities. The hypothesis of the analyses is that schools that adopted Responsive Goals earlier will have better student engagement—as measured by student attendance, enrollment duration, and credit earning rates—and that those results would likely be seen as early as one year after the adoption of Responsive Goals. Further, it was hypothesized that students enrolled in schools that adopted Responsive Goals for a longer period would also see increases in students' academic progress.

The following pages summarize descriptive analyses as well as statistical evaluations of whether the time since adopting Responsive Goals has impacted students' engagement rates, credit earning rates, enrollment duration, and progress in math and ELA.

Schools that participated in the A-GAME's Responsive Goal process provided data for up to three years and received stipends for their participation each year. In total, 11 schools provided at least two years of data, and nine provided three years of data. The resulting dataset included 6,609 student records for grades K-12. The records included students' grade levels, demographic characteristics, annual engagement data, credit earning data (for high school students), and formative assessment data in ELA and math.

The regression analyses tested whether students who were enrolled in schools that adopted Responsive Goals earlier had more positive school engagement and academic outcomes. Students were grouped by the number of years since their school adopted Responsive Goals, which ranged from 0-4. As only one school provided data from the year prior to adopting Responsive Goals (0 Years), those students' data were combined with data from students enrolled in schools that were in their first year of adoption, resulting in four *Goal Groups*: Group 1 (0-1 years since adoption), Group 2 (2 years since adoption),

Group 3 (3 years since adoption), and Group 4 (4 years since adoption). Student factors—including free and reduced lunch eligibility (*FRL Status*), student with disabilities (*SPED Status*), and English language learners (*EL Status*)—are known to be correlated with the outcomes being tested, so were entered into all regressions as control variables, prior to the addition of the *Goal Group* variable.

Analyses were done separately for students in grade K-8 and those in grades 9-12. Below is a summary of the major findings for both groups.

K-8 Student Results

Table ES1 summarizes the average outcomes for students in K-8 based on the number of years since their school had adopted Responsive Goals (Goal Group), as defined above. For the K-8 students, student engagement was measured as either students' attendance rate or their level of engagement as defined by the school. Engagement levels reported by participating schools included observations of students being on-task in each subject area, measured multiple times throughout the year as well as attendance more broadly defined than in-seat attendance. Regardless of the method the schools used for recording a student's engagement in school, each was able to be converted into a standardized percentage, or engagement rate. Details about each of the engagement measures can be found in the reports' methodology section.

A review of Table ES1 shows that for four out of the five measures, Group 3 had better results than Group 1. Group 3 had the highest engagement rates, the largest Math GLE Change, and the highest percentage of students to either perform at grade level or show at least one year of growth in both ELA and Math. Group 2 had the highest ELA GLE Change out of the three groups but had the lowest engagement rate and Math GLE Change of the three groups. Thus, upon observing simple averages and percentages of each group to achieve these specific outcomes, it is not always clear whether Goal Groups had an impact.

Table ES1. Summary of the Average K-8 Students' Student Engagement and Academic Results, by Goal Group,

Goal Group	Avg Student Engagement Rate	Avg ELA GLE Change	Avg. Math GLE Change	Pct. At Grade Level or Grew in ELA	Pct. At Grade Level or Grew in Math
Group 1	74.5%	0.7	1.1	56.6%	70.3%
Group 2	71.2%	0.8	1.0	58.7%	79.5%
Group 3	79.5%	0.7	1.6	84.5%	81.0%
Are Goal Groups a significant predictor?[a]	**Yes (+)**	**Yes (+)**	**No**	**Yes (+)**	**Yes (+)**

a. The plus and minus signs in the parenthesis following whether Goal Groups was or was not found to be a significant predictor of each outcome show the direction of the relationship between the two factors.

To test whether Goal Groups did have an impact on student outcomes, regression models comparing the predictive power of the model with and without Goal Groups included were run. The last row in Tables ES1 shows the results of the regression analysis, answering whether Goal Groups was found to be a statistically significant predictor (Yes or No) and showing the direction of the impact (positive (+) or negative (-)).

For students in kindergarten through 8th grade, the *Goal Groups* predictor was found to have a statistically significant impact on students' engagement rates, ELA progress between pre- and post-assessments (measured by GLE Change), and the percentage of students who either met grade level skill or showed at least one grade level worth of growth in both ELA and Math. *Goal Groups*, however, was not found to be a predicter of GLE Change in math among the students in grades K-8.

High School Student Results

Table ES2 summarizes the average student engagement outcome among high school students, as measured by engagement rates (as defined in the K-8 section above), annual enrollment duration, and annual credit earning rates. It should be noted that "annual" here does not mean that a student had to be enrolled in the school for the entire year. Each engagement measure captured information for the period that each student was enrolled during the year that data was provided.

For the engagement rate measure, Groups 2, 3, and 4 all had higher average rates than Group 1, and Group 4 had the highest rate. For enrollment duration, measured by the number of calendar weeks between the date students entered the school in a given year and the date that the exited the school that year (or the last day of school, whichever came first), there was no difference between Groups 1 and 2, and Group 4 had the shortest enrollment duration of all four Groups. Group 1 had the highest credit earning rates, followed by Group 4.

Table ES2. Summary of the Average High School Students' Student Engagement Results, by Goal Group, and Results of Regression Model Test of Relationship (and Direction of the Relationship).

Goal Group	Avg. Engagement Rate	Avg. Annual Enrollment Duration, in Weeks	Avg. Credit Earning Rate
Group 1	54%	35.3	62%
Group 2	63%	35.3	55%
Group 3	63%	34.1	57%
Group 4	69%	32.9	61%
Were Goal Groups a significant predictor?	**Yes (+)**	**Yes (-)**	**No**

In the regression analyses, the *Goal Groups* variable was not found to predict Credit Earning Rates among the high school students in the sample, but it was found to have a statistically significant impact on high school students' engagement rates and enrollment duration.

Consistent with the averages seen in Table ES2, the direction of the impact that *Goal Groups* had on enrollment duration was negative, meaning that students enrolled in schools that had adopted Responsive Goals for a longer period had shorter enrollment durations than those who were enrolled in schools that had adopted Responsive Goals more recently.

Whether shorter enrollment duration for high school students should be interpreted as a positive or negative impact on students was explored by looking at the frequency distributions for students' enrollment status at the end of each year (EOY Status). Findings suggest that the shorter enrollment durations were associated with more positive student outcomes, showing that as the number of years

with Responsive Goals increases, there were lower percentages of continuers (students remaining enrolled into the next year), lower percentages of dropouts, and higher percentages of graduates.

Table ES3 summarizes the average GLE Change between pre- and post-assessments among the high school students in the sample, as well as the percentage of students who either scored at or above grade level, or showed at least one grade level of growth in ELA and math.

Table ES3. Summary of the Average High School Students' Academic Results, by Goal Group, and Results of Regression Model Test of Relationship (and Direction of the Relationship).

Goal Group	Avg. ELA Pre- Post-Test Difference (in GLE)	Avg. Math Pre-Post-Test Difference (in GLE)	% at Grade Level or Grew in ELA	% at Grade Level or Grew in Math
Group 1	0.25	0.03	48.9%	39.9%
Group 2	-0.23	0.06	47.5%	37.8%
Group 3	-0.56	-0.44	59.3%	50.1%
Group 4	0.15	0.62	61.7%	50.3%
Were Goal Groups a significant predictor?	**No**	**No**	**Yes (+)**	**Yes (+)**

The average GLE Change in ELA and math had no discernible pattern based on how long students' schools had been using Responsive Goals (Table ES3), and neither regression model found that the *Goal Groups* variable had a significant impact on the amount of change between pre- and post-tests. However, when using a combined metric that evaluated whether students either met grade level skill or grew by at least one grade level, a clearer pattern emerged: For both ELA and math, Goal Group 2 had the lowest percentage of students at grade level or who grew by at least one grade level, dipping below the percentage of the Goal 1 group; however, percentages increased with both Group 3 and Group 4. Therefore, *the Goal Groups* variable was found to impact students' outcomes on this metric for both ELA and math. For math, the *Goal Groups* variable was the strongest predictor within the model.

Conclusions

The analyses presented in this report tested whether schools that had been using Responsive Goals for a longer period had better student engagement and academic outcomes than schools that had adopted Responsive Goals more recently. Results were mixed, though generally support the hypothesis.

Among the K-8 students, the measure of the how long schools had been using Responsive Goals, labeled *Goal Groups*, was found to predict engagement rates, ELA GLE Change between pre-and post-assessment, and whether students either performed at grade level or grew at least one grade level during the year in both ELA and math. Though the size of the effects tended to be small, they were statistically significant. However, *Goal Groups* were not found to predict K-8 students' Math GLE Change.

Among the high school students, the Goal Groups predictor was found to impact engagement rates, enrollment duration, and whether students either scored at grade level or showed at least one grade

level of growth in both math and ELA. Goal Groups were not found to impact high school students' credit earning rates or ELA or Math GLE Change alone.

With one exception, the Goal Groups predictor was found to be in the positive direction; meaning that higher or better student outcomes were associated with students' enrollment in schools that had been using Responsive Goals for longer. Goal Groups, however, were found to be negatively associated with high school students' enrollment duration, meaning that students enrolled in schools that had been using Responsive Goals for longer tended to have shorter enrollment durations than students enrolled in schools that had adopted Responsive Goals more recently. Follow-up analysis suggests, however, that the shorter enrollment duration among students enrolled in schools that had been using Responsive Goals for longer may be a positive outcome for students. In all cases, the size of the impact of the Goal Groups predictor was small, even when they were statistically significant.

Unfortunately, only one school was able to provide data from the year prior to adopting Responsive Goals, and data was not collected from schools that had never adopted Responsive Goals. Thus, it is possible that the results of the analysis are due to other factors that were not tested in the regression models. Another observation suggests that schools' improved data collection practices may be at least part of the reason for the findings.

A-GAME Impact Study: Do Responsive Goals Positively Impact Students in Alternative Education Campuses

In the fall of 2018, the National Charter Schools Institute (Institute) and Momentum Strategy & Research (Momentum) began a collaborative project funded by a Charter School Program Dissemination Grant through the U.S. Department of Education, which came to be known as the A-GAME initiative. In 2018, A-GAME was an acronym that stood for Advancing Great Authorizing and Modeling Excellence. The A-GAME initiative was centered on collaborating with charter school authorizers across the country to develop and disseminate tools that all authorizers could use to improve oversight and accountability policies and practices with a particular emphasis on charter schools that are considered "alternative education campus" (or AECs).[1]

As part of A-GAME's work, its leadership team worked with a selected set of authorizers who were representative of the nation's authorizer landscape (e.g., small, large, state agencies, colleges & universities, and non-profit authorizers) to disseminate the tools via in-person events that provided authorizers with professional development opportunities and allowed them to work with their peers to develop or update their current policies and practices around AEC accountability and oversight. Due to the outbreak of COVID-19 and subsequent closure of offices and school buildings and halt on travel, A-GAME's leadership had to pivot to meet the goals of their grant and continue this important work. First, the team switched to remote meetings, like everyone else. But it was the second adjustment to the dissemination plan—the Responsive Goal process—that we believe had the largest impact, which will be tested in this and subsequent studies.

The Responsive Goal Process

The second adjustment to the A-GAME dissemination plan involved the A-GAME team working in a consultative fashion with authorizers and their alternative charter school(s). The A-GAME team's goal was to facilitate a process working with both the authorizers and their schools in a collaborative effort to develop highly customized accountability goals for these highly specialized schools. This process is outlined in detail in "Building Responsive Goals: Guidance for Authorizers on Working with School to Develop Quality Responsive Goals," (available on the A-GAME page of CharterNetwork.org) but a brief description follows:

Step 1. Authorizers and schools partner in the work to develop goals that work for both the school's internal use and the authorizer's needs to provide oversight and support.

Step 2. Review current goals to see which are working, and for whom, and which do not work for anyone.

Step 3. Incorporate community voice, asking stakeholders what they value most about the school, via surveys, stakeholder meetings, board presentations, and the like.

[1] There is no consistent definition of what an AEC is or who they are meant to educate. Some states define them in state statute, others in regulation, and others have no official designation at all. The A-GAME community of authorizers came to consensus on a definition of AECs, which can be found in the A-GAME first report—"Measuring Quality: A Resource Guide for Authorizers and Alternative Schools," available on the A-GAME page of CharterNetwork.org.

Step 4. Using information from steps 2 and 3, begin to discuss how to measure the same areas (e.g., student academic success, post-secondary readiness, or student engagement) using different data, assessments, and/or business rules. Think big and outside the box. At this point, do not worry about logistics.

Step 5. Once all ideas are on the table, begin to discuss the data collection and analysis effort that would be involved; school and authorizers should attempt to run the data for prior years to test this. If the data collection and analysis are too cumbersome, or the data one thought was readily available is not, this indicates the goal should likely be crossed off the list.

In the end, each alternative school had between 8-10 goals that were then implemented either the following year or upon their next contract term.

In total, 12 authorizers and 18 schools participated in the A-GAME Responsive Goal process between fall of 2020 and fall of 2022.[2]

A-GAME Measure What Matters

In the fall of 2022, the Institute and Momentum collaborated again and received a second Charter School Program Dissemination grant. This time, the scope was expanded to work with authorizers and charter schools of all types, to develop goals like those that were developed in the first A-GAME initiative, and to develop tools and resources that would help authorizers in working with their charter schools to develop Responsive Goals without need of A-GAME facilitators. Another component of this second grant project was to measure the impact of schools' use of Responsive Goals on students' social-emotional, behavioral, and academic growth, which is summarized in this report.

Study Methodology

In the initial year of the Measure What Matters grant project, A-GAME's principal researcher, Dr. Jody Ernst, communicated with the authorizers and/or school leaders of each of the 18 schools that participated in an A-GAME Responsive Goal process to request student-level data that captured each student's demographic characteristics, grade level, attendance behavior, credit earning behavior, number of out-of-school suspensions, as well as formative assessment data for English language arts (ELA) and math. Schools and authorizers were offered a $5,000 stipend to help with the cost of gathering and formatting the data for this study. In cases where the authorizer provided the data, the authorizer received the stipend (unless it was waived), and when the school provided the data, the stipend went directly to the school. Schools and authorizers who participated in the first grant year were asked to participate again in years 2 and 3 of the grant initiative. Each year, participants received the stipend, unless they waived it, after data was uploaded into a secure data-sharing platform.

In total, at least two years of data was provided for 11 schools, with nine schools providing data across three years. As each school worked with their authorizer and the A-GAME team in different years, the data provided represents a varying number of years since the schools had adopted A-GAME Responsive Goals. Table 1 summarizes the number of schools that provided data, based on the number of years since their Responsive Goals were adopted.

[2] Three of the engagements were done outside of the A-GAME grant, with the authorizers paying for the consultative services of the Institute and Momentum.

Table 1. Number of Schools that Provided Student Outcome Data, based on the Number of Years Since Adopting A-GAME Responsive Goals.

Years Since Adopting Responsive Goals	Number of Participating Schools (out of 11)
Not yet adopted (0 Years)	1
In first year of adoption (1 Year)	7
In second year of adoption (2 Years)	11
In third year of adoption (3 Years)	10
In fourth year of adoption (4 Years)	5

Only one school provided data from the year prior to adopting A-GAME Responsive Goals. Unfortunately, the number of students whose data was from before Responsive Goals were adopted was too small to provide meaningful differences in the analysis. Therefore, the student data from "Year 0" (the year prior to adopting Responsive Goals) was combined with the data for schools in "Year 1" (the first year of Responsive Goal adoption) for all analyses presented in this report.

Of the 11 participating schools, seven enrolled students in grades 9-12, one enrolled students in grades K-5, one enrolled students in grades K-8, and two enrolled students in grades 6-12. Analyses were conducted separately for two grade bands, K-8 and 9-12. This was done because attendance rates and enrollment for students in elementary school and middle school tend to be higher than those of high school students. Thus, a combined analysis using students across all grades would make the outcomes of the analysis less clear—and may likely result in no findings. This is in part due to parents having more control over their younger children's school-going behaviors than they do for their high school aged children. Therefore, differences in engagement and academics are expected to be different for the two groups.

Another reason for separating the two grade level groups in each analysis is that the earlier grade levels in this group of schools come from schools that are alternative due to serving very high proportions of students receiving special education services—with most students having moderate to severe learning disabilities—while the schools in this study that enroll high school students tend to be alternative schools with missions to serve youth who are at high risk of dropping out of school for a variety of reasons. One high risk factor might be mild/moderate or undiagnosed special education needs, while other high-risk factors include (but are not limited to) pregnancy and parenting, current or prior adjudication, large gaps in school enrollment, and/or being more than one- or two-years overage for their grade level. For this reason, too, it is logical that school engagement and academic achievement and growth might look different for students in the two grade bands.

Research Question

The goal of the study was to answer the question: Do student engagement and academic outcomes improve as the number of years authorizers and schools have been implementing A-GAME Responsive Goals increase?

The hypothesis for the impact study is that students enrolled in alternative schools that have been utilizing Responsive Goals for a longer period will have higher student engagement (as measured by engagement rates, enrollment duration, and credit earning rates), which will eventually lead to improvements in their academic performance and growth.

Predictors

The main predictor of interest, or the factor we are "testing" to see if it impacts the student outcomes, is the number of years since the students' school adopted A-GAME's Responsive Goals. As shown in Table 1, the number of years since adopting Responsive Goals ranged from 0 to 4. As stated previously, due to limited sample size, we combined data from the school who had provided the data for the year prior to adopting Responsive Goals (0 Years) with the schools' data from those who were in their first year of adoption (1 Year). Thus, there were four "Goal Groups" in the study: *Goal Group 1* includes students who were enrolled in participating schools that were in their first year of adopting Responsive Goals as well as students enrolled in the school that had not yet adopted Responsive Goals. *Goal Group 2* includes students who were enrolled in schools that had adopted Responsive Goals two years prior, *Goal Group 3's* schools had adopted the goals three years prior, and *Goal Group 4's* schools had adopted the goals four years prior. Table 2 provides the breakdown of the proportion of students in each Goal Group, for the K-8 and 9-12 samples.

Table 2. Percentage of K-8 and 9-12 of Students in the Sample, by Number of Years Since the School Adopted Responsive Goals.

Goal Group	K-8 Percentage (n=1,360)	9-12 Percentage (n=5,002)
Group 1	37.4%	15.8%
Group 2	38.2%	33.6%
Group 3	23.8%	33.6%
Group 4	<1%	17.0%

To test whether Goal Groups impacted students' outcomes, each regression analysis compares two models: One model includes only the students' demographic factors, free- and reduced-price lunch eligibility (FRL Status), special education status (SPED Status), and English learner status (EL Status). The second model includes the same three demographic factors plus the Goal Groups factor. When the model with the Goal Groups factor is statistically significant and is found to account for more of the variance in students' outcomes, we conclude that the amount of time schools had been using Responsive Goals had an impact.

All data was collected between June-August of each year, with schools providing data from the preceding school year. For example, data that was collected in the summer of 2023 included student data from the 2022-2023 school year. Each school was asked to provide data on all students who enrolled in the school for the year, regardless of how long the students remained enrolled.

Student demographic characteristics that were included in each analysis were free- and reduced-price lunch eligibility (FRL Status), whether students were receiving special education services (SPED Status), and whether students were classified as English language learners (EL Status). Each student received a code of one (1) if they met the condition and a code of zero (0) if they did not. Other student demographic characteristics were also provided by the schools but were not included in the statistical models. The next section describes the students in the dataset.

Sample Description

In total, across all schools and all years of data, there were 6,609 student records. However, students who were enrolled in the school for fewer than 40 days were removed from the sample because they often had no outcome data—156 students in total. The resulting dataset included 6,453 student records which are included in each analysis (provided they had the relevant outcome data). Table 3 summarizes the sample of students by grade level, across all three years of data.

Table 3. Number and Percentage of Students in Each Grade from the Participating Schools, Across all Three Years of Data.

Student Grade	Frequency	Percent of Total	Percent of Valid Responses (n=6,362)
K	114	1.8%	1.8%
1st	155	2.4%	2.4%
2nd	148	2.3%	2.3%
3rd	148	2.3%	2.3%
4th	146	2.3%	2.3%
5th	151	2.3%	2.4%
6th	114	1.8%	1.8%
7th	170	2.6%	2.7%
8th	214	3.3%	3.4%
9th	846	13.1%	13.3%
10th	1,234	19.1%	19.4%
11th	1,449	22.5%	22.8%
12th	1,473	22.8%	23.2%
Missing count	91	1.4%	
Total count	6,453	100%	

Seventy-nine percent of the students in the sample were in grades 9-12, and 21% were in grades K-8.

Table 4 summarizes the demographic characteristics of the study sample, broken out by two grade bands, K-8 and 9-12.

Table 4. Characteristics of Students from the A-GAME Impact Study, by Student Grade Bands K-8 and 9-12.

Student Characteristics	K-8 Percentage (n=1,360)	9-12 Percentage (n=5,002)
Gender		
Male	74.3%	50.1%
Female	23.6%	47.4%
Nonbinary	-	1.0%
No Data	2.1%	1.6%
Race/Ethnicity		
American or Alaskan Native	4.5%	1.2%
Asian or Pacific Islander	4.0%	1.0%
Black	12.1%	27.1%
Hispanic	13.0%	31.5%

Multiracial	1.8%	3.8%
White	62.4%	27.8%
No Data	2.1%	7.6%
Program Participation		
Special Education	94.9%	33.9%
English Learner	12.1%	10.9%
Free & Reduced Lunch	51.8%	80.9%

As mentioned previously, students in the sample who were enrolled in grades K-8 were largely students attending alternative education campuses with a mission to educate students who have moderate to severe special education needs. The K-8 sample is, therefore, very high in the percentage of students reported as receiving special education services (94.9%). The K-8 sample is also overrepresented with male students—as males are far more likely to be identified for special education services for a variety of reasons[i,ii,iii]. In addition, the K-8 sample includes a much higher percentage of white students than the high school sample.

The high school student sample is reflective of the alternative student enrollment seen across the country, with slightly higher percentage of males than females (50.1% vs. 47.4%), and larger percentages than national averages of Black (27.1% vs. 15.9% nationally) and Hispanic students (31.5% vs. 20.4%, nationally) and larger percentages of students receiving special education (33.9%, vs. 17.3%, nationally), English learner services (10.9%, vs. 8.3% nationally), and subsidized meal services (80.9% vs. 45.8%, nationally) than a national sample of high school students.

Student Outcomes of Interest

Below are brief descriptions of the data used in the analysis, which were derived from data provided by the 11 participating schools. As schools provided different data for some of the outcomes of interest, data standardization was required to transform the student data into the same metrics. A detailed accounting of the standardization process is provided in Appendix A.

Student Engagement included traditional in-seat attendance data, students' interactions with the school and an online learning platform, student-school touch points (e.g., came to school to talk to a counselor, but did not attend class, student spoke with a teacher via email or phone, etc.), and observations of students engagement within core subject classes. Each type of engagement data was converted into a percentage, ranging from 0-100%.

Enrollment Duration was derived from students' entry and exit dates and was computed as the number of weeks students were enrolled during each academic year and allowed for fractions of a week up to two decimal places. As students who attended for fewer than forty calendar days were excluded from the analysis, the range of enrollment duration was 5.7 to 40.5 weeks.

Credit Earning Rates were based on both traditional credit accounting data as well as students' mastery of academic competencies. Each data point was converted into a percentage of credits/competencies earned during the year out of the number of credits/competences attempted. Students who were enrolled for less than a full year were included and the rates were based on the number of credits/competencies earned and attempted during the time they were enrolled. Thus, the resulting data ranged from 0-100%.

Grade Level Equivalents: Formative assessment data for math and ELA were provided by each of the participating schools. These formative assessments included i-Ready math and reading, Renaissance Learning's STAR math and reading, Northwest Education Association's Measures of Academic Progress (NWEA MAP) math and reading, and the Test of Adult Basic Education (TABE) math and reading components. Each of these assessments provides myriad performance and growth metrics for each student, but none that are comparable across all of them. However, several of the assessments report on each student's skill level using a metric called the Grade Level Equivalent, or GLE. For those assessments that do not report GLE, grade level norms published by the assessment vendors were used to convert scale scores into GLEs.[3] GLEs ranged for 0-12, with 0 being kindergarten level skill and 12 being 12th grade level or higher.

GLEs were calculated for both pre- and post-tests which were then used to calculate the difference between each students' GLE and their grade level (GLE Diffs) the pre-tests and the post-tests, in both math and ELA. The range of GLE Diffs for pre- and post-tests in math and ELA are summarized in Table 5, by grade level.

Table 5 Summary of Sample Students' Pre-Test and Post-Test GLE Diffs in Math and ELA, by Students Grade Level (Unmatched).

Student Grade	GLE Diff ELA Pre-Test	GLE Diff ELA Post-Test	GLE Diff Math Pre-Test	GLE Diff Math Post-Test
K	-1.0	-0.6	-0.7	-0.2
1st	-1.1	1.0	-1.2	-0.1
2nd	-0.6	0.6	-1.6	-0.7
3rd	-1.6	-0.8	-2.3	-1.0
4th	-2.5	-1.6	-2.6	-1.4
5th	-2.7	-2.4	-3.7	-2.4
6th	-3.2	-3.5	-3.6	-2.8
7th	-3.6	-3.5	-4.2	-3.1
8th	-3.1	-2.6	-3.4	-2.7
9th	-3.2	-2.9	-3.8	-3.8
10th	-2.9	-3.0	-3.4	-4.1
11th	-3.9	-3.6	-4.6	-4.4
12th	-4.5	-4.7	-5.0	-5.3
All Grades	-3.6	-3.3	-4.1	-3.9

The figures in Table 5 include all students in the sample with at least one test result and is not based on students with match pre- and post-test. Subsequent analysis will be based only on matched student results.

[3] One school, however, moved to using an internally developed benchmarking assessment in years 2 and 3 of the study. As the assessments were not externally validated and did not provide anything that was a clear assessment of grade level skill, those data were omitted from the analysis.

In addition to GLE Diff scores, GLE Change scores were computed between each student's pre- and post-tests in both subjects. This resulted in a continuous variable for ELA (ELA GLE Change), which ranged from -11 to 10 for the high school group and -6 to 5 for the K-8 group, and for math (Math GLE Change), which ranged from -12 to 12 for grades 9-12, and -3 to 7 for K-8.[4]

The last set of outcome measures are combined measures. One of the hallmarks of the goals set during the Responsive Goal process was that they provided multiple opportunities for students to show success within one goal. For instance, goals set around ELA and math outcomes often combined grade level achievement and growth together, rather than looking at them as separate metrics. This means students would count as having met the goal if they showed either grade level skill or growth in math/ELA.

For the measures of *ELA Mastery or Growth* and *Math Mastery or Growth*, students received a one (1) if they met either condition, or a zero (0) if they met neither condition.

The number of students with reported math and ELA results for these combination measures are markedly higher than the number of students with both pre- post-test results (Table 6). Table 6 shows that less than 25% of students' records included both pre- and post-test results in ELA or Math assessment results, while about 49% had one or the other. Thus the analysis using the combined measure will include many more students in each analysis than the CLE Change score analysis.

Table 6. Number (and Percentage) of Students in the K-8 and 9-12 Samples Who Had Both Pre- and Post-Tests vs. Number (and Percentage) Who Had Either Pre- or Post-Test, for Math and ELA.

Measures	K-8 (N=1,360)	9-12 (N=5,002)
ELA Pre-Test & Post-Test	199 (15%)	1,215 (24%)
ELA Pre Test or Post-Test	793 (58%)	2,569 (51%)
Math Pre-Test & Post-Test	306 (23%)	1,057 (21%)
Math Pre Test or Post-Test	930 (68%)	2,444 (49%)

End-of-Year Status (EOY Status) data provided information on all students who either exited the school during the year, or remained enrolled into the following year, and reports the reason for the exits. Many EOY Status categories were combined to simplify analysis. For example, transferred within district to another school, transferred to another district school, and transferred out of state were all considered transfers. Table 7 summarizes the number and percentage of students in K-8, high school, and grade 12 only who were reported in each of the eight EOY Status categories. (See Appendix A for the definition of each category).

[4] "Negative growth," especially to the level seen here, tends to happen when a student is not motivated to take the assessment—for a variety of possible reasons—and has been found to occur in between 35 to 48% of students enrolled in alternative schools (J. Ernst, 2012[4], 2016[4]; J. Ernst and A. Beckler, 2018[4]). In the two grade groups in this study, 12% of K-8 students changed by -.01 or more in ELA and 5.3% did so in math. Among the high school student group, 35.7% of students showed negative growth (of -.01 or more) in ELA and 36.8% did so in math, which is consistent with previous research on alternative schools.

Table 7. Number and Percentage of Students End-of-Year (EOY) Status for Students in Grades K-8, 9-12, and 12th Grade Only Across all Schools and all Goal Years.

EOY Status	Grades K-8		Grades 9-12		Grade 12 Only	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Aged Out	0	0%	5	0%	5	0%
Completed	0	0%	16	0%	15	1%
Continuing	81	6%	2,445	49%	470	32%
Deceased	0	0%	1	0%	0	0%
Dropped Out	0	0%	255	5%	110	7%
Expelled	0	0%	11	0%	2	0%
Graduated	0	0%	551	11%	507	34%
Retained	0	0%	27	1%	27	2%
Transferred	4	0%	310	6%	65	4%
Not Reported	1,274	94%	1,381	28%	272	18%
Total	1,360	100%	5,002	100%	1,473	100%

As 94% of K-8 students did not have a reported end-of-year status, that sample will not be included in the analysis of EOY Status later in this report.

Among the high school sample (72% of which did have EOY Status data), 49% of students were reported as continuing students, 11% graduated, 6% transferred, and 5% dropout. Among the 12th grade students—which included students who some refer to as "super seniors," or those who are in their 5th, 6th, or 7th cohort year—24% were reported as graduates, 32% were reported as continuing their education, 7% were reported as having dropped out, and 4% were reported as transfers.

As has been mentioned several times, not all participating schools provided data for all data elements requested. Table 8 summarizes number of schools that provided each of data elements, based on the grant's fiscal year (FY).

Table 8. Summary of the Data Provided by Schools Participating in the A-GAME Impact Study (N=11).

Data Requested	# of Schools that Provided Data in each Fiscal Year (FY) of the Grant		
	FY1	FY2	FY3
Student demographic data	9	10	11
Engagement data	7	10	9
Annual Entry and Exit dates	7	7	7
Credit data	7	7	7
End-of-Year status data	5	7	7
ELA and Math formative assessment data	11	11	11

Results

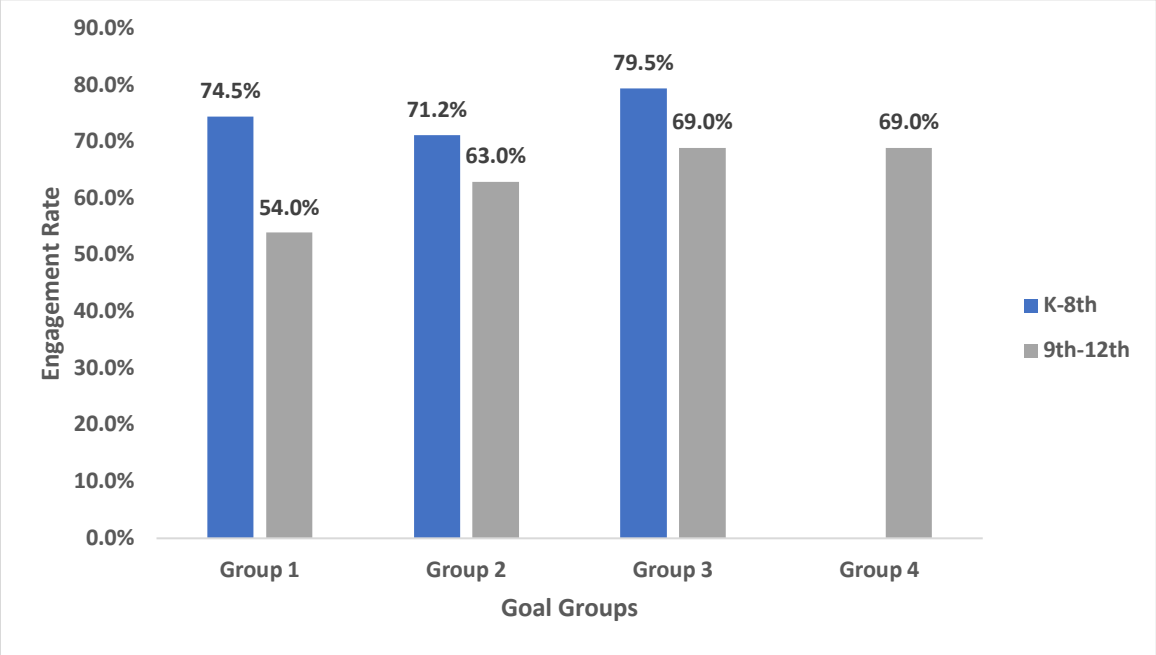
This section summarizes students' average outcomes in the K-8 and 9-12 samples, based on the number of years since the school they were enrolled in adopted Responsive Goals. For each analysis, we provide the averages based on the "Goal Groups" for the two samples of students and describe whether the

Goal Group was found to be a significant predictor based on regression analysis. The regression model summaries are provided in Appendix B.

Engagement Rates

Figure 1 summarizes the average engagement rates among the K-8 and high school student samples, based on their Goal Groups. K-8 students in Goal Group 3 had the highest average engagement rate, while K-8 students in Goal Group 2 had the lowest, on average. This finding suggests that there may not be a relationship between K-8 students' engagement rates and how long their school had been using Responsive Goals. For high school students, however, engagement rates increased between Goal Groups 1, 2, and 3, then remained the same for Groups 3 and 4, suggesting there may be a relationship between the two variables.

Figure 1. Average Engagement Rates Among the K-8 and 9-12 Samples, by Goal Groups.

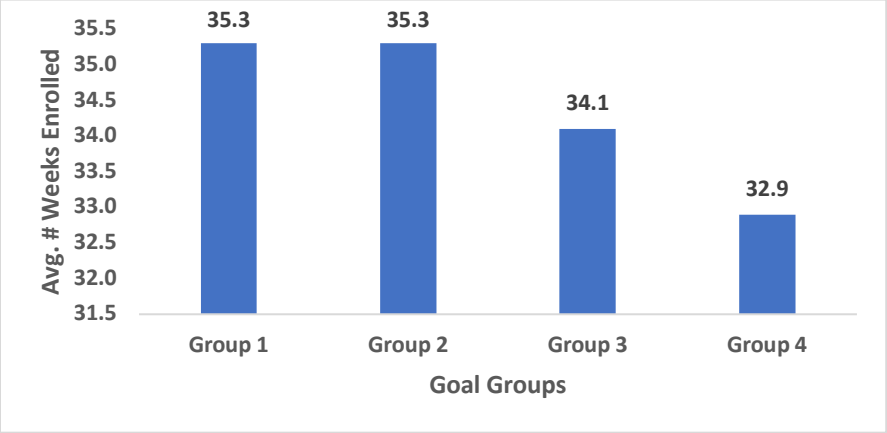


Based on linear regression analysis, *Goal Groups* was found to significantly predict engagement for both the K-8 students and the high school students at statistically significant levels, when controlling for the other factors that are known to correlate with engagement behaviors, including: FRL Status, SPED Status, and EL Status. In both models, the amount of variance accounted for by Goal Group was very small (predicting approximately 2% of the observed variance in engagement rates), and the size of the effect was larger for the high school students than it was for the K-8 students (see Appendix B for model specifications).

Enrollment Duration

Unfortunately, data on entry and exit dates was only provided for 87 K-8 students, and a regression model could not be fit based on other missing data for those students. Therefore, the following analysis provides the average outcomes for high school students only. Figure 2 summarizes the average number of weeks the high school students remain enrolled in the participating schools each year, based on their Goal Group.

Figure 2. Average Number of Weeks Enrolled in Participating Schools for High School Students, by Goal Group.



As shown in Figure 2, the average enrollment durations were the same for Goal Group 1 and Goal Group 2, then decreased for Goal Group 3 and Goal Group 4, suggesting that the longer schools had been using Responsive Goals, the shorter students' enrollment duration.

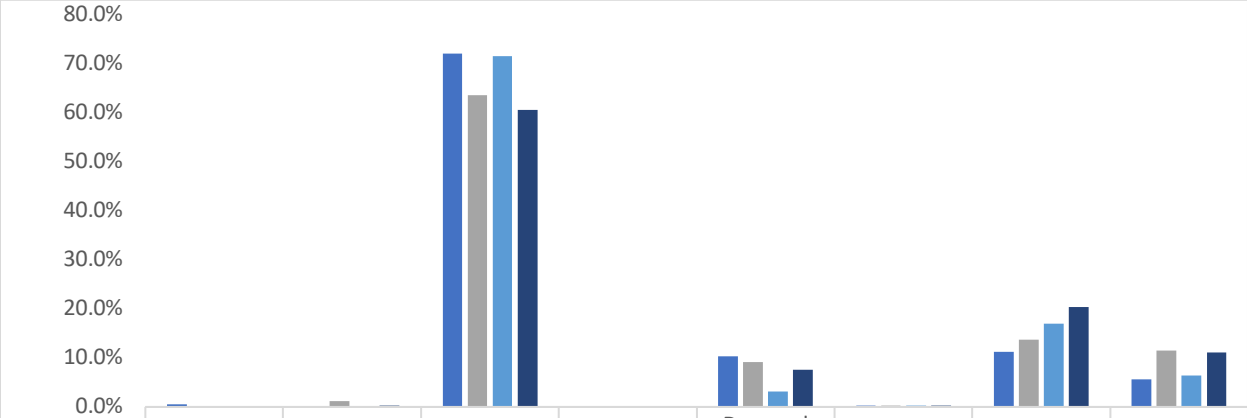
This finding was confirmed in the regression analysis, which found that high school students' enrollment duration was significantly predicted by *Goal Groups*, and that the direction of the Goal Group effect was negative.

Though the direction of the relationship was negative, that does not mean that the outcome for students is negative. It is possible that the average enrollment duration for high school students decreased by the number of years the school had been using Responsive Goals because they were moving through the programs and graduating more quickly than did students enrolled in schools that had adopted the goals more recently, making the negative relationship a "good" outcome. To explore this possibility, Figure 3 summarizes the frequency of high school students' EOY statuses by *Goal Groups*.

A review of Figure 3 shows that there is a clear relationship between the percentage of students who are reported as continuing and those reported as transferred. For Goal Groups 1 and 3, the percentage of students continuing at the school (72% and 71.5%, respectively) is nearly the same, as is the percentage of students who transferred (5.7% and 6.4%, respectively. Similarly, Goal Groups 2 and 4 show similar, lower percentages of continuing students (63.5% and 60.5%, respectively) and higher percentages of transferred students (11.5% and 11.2%, respectively).

What appears to differ across the Goal Groups is the percentage of students to graduate, which increases as the number of years schools had been using Responsive Goals increases, and the percentage of students dropping out, which declines as the number of years of implementing Responsive Goals increases (though not in as linear a fashion).

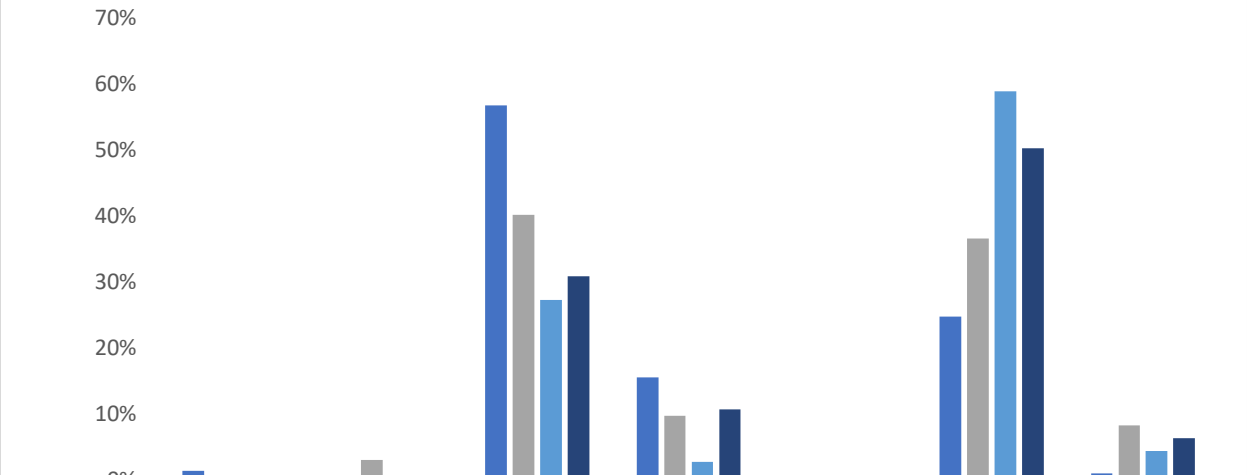
Figure 3. Percentage of High School Students in Each EOY Status Category, by Goal Groups.



	Aged Out	Completed	Continuing	Deceased	Dropped Out	Expelled	Graduated	Transferred
Group 1	0.6%	0.0%	72.0%	0.0%	10.3%	0.3%	11.2%	5.7%
Group 2	0.1%	1.2%	63.5%	0.1%	9.1%	0.3%	13.7%	11.5%
Group 3	0.0%	0.0%	71.5%	0.0%	3.2%	0.3%	17.0%	6.4%
Group 4	0.0%	0.2%	60.5%	0.0%	7.6%	0.2%	20.3%	11.2%

Thus, it appears that the negative relationship between Goal Groups and enrollment duration is an overall positive outcome for the students. Among 12th grade students only, the trends are even more pronounced, as illustrated in Figure 4.

Figure 4. Percentage of 12th Grade Students in Each EOY Status Category, by Goal Groups.

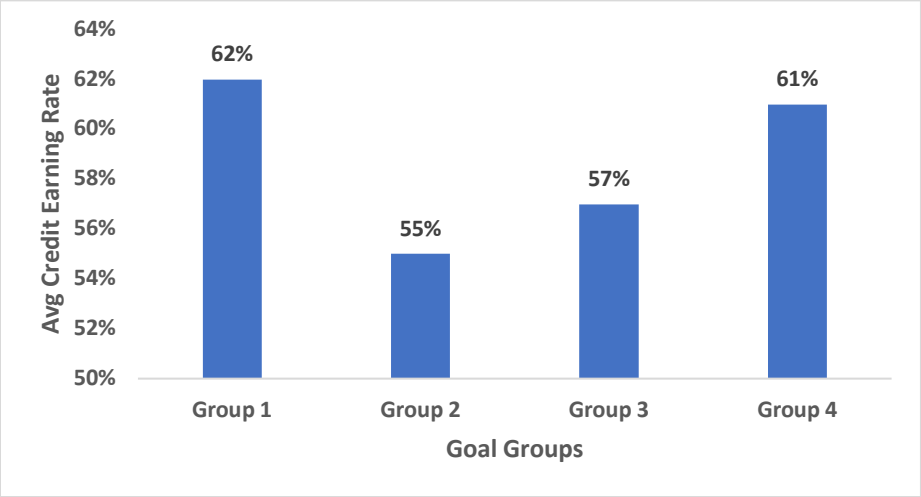


	Aged Out	Completed	Continuing	Dropped Out	Expelled	Graduated	Transferred
Group 1	1%	0%	57%	16%	0%	25%	1%
Group 2	0%	3%	40%	10%	0%	37%	8%
Group 3	0%	0%	27%	3%	0%	59%	5%
Group 4	0%	1%	31%	11%	1%	50%	6%

Credit Earning Rate

As elementary and middle schools do not tend to track credits the same way high schools do, this analysis was only conducted for the high school student group. Figure 5 shows a U-shaped curve, with students' credit earning rates at the highest for Goal Group 1 (62%), seven percentage points lower for Goal Group 2 (55%), and higher again for Groups 3 (57%) and 4 (61%).

Figure 5. Average Credit Earning Rates among High School Students, by Goal Group.



The Goal Groups predictor, however, was not found to have a statistically significant impact on high school students' credit earning rates once the student demographic characteristics were considered in the model (see Appendix A for model specifications).

GLE Change between Pre- and Post-Test in Math and ELA

The following analysis summarizes the average difference between students' grade levels and their tested skill levels in grade level equivalents (GLEs) at pre-test (Pre-Test Diff) and post-test (Post-Test Diff), as well as the average GLE Change between pre- and post-tests. Table 8 summarizes the results for the K-8 students in the sample, and Table 9 summarizes the results for the high school students.

Interpreting GLE Differences (GLE Diffs) and Change in GLE between pre- and post-test (GLE Change)

GLE Diffs that are negative mean students' tested skill levels are below the grade level that they are in; GLE Diffs that are positive mean students' tested skill levels are above the grade level that they are in; and GLE Diffs of zero means that students' tested skill levels are on par with the grade level that they are in.

For GLE Change, positive values indicate that students increased their skill level between the pre- and post-test, while negative values mean that students' post-test GLEs were lower than their pre-test GLEs,[5] and change values of 0 indicate that students did not make any progress between pre- and post-assessments.

[5] Prior research has shown that between 30-45% of students enrolled in alternative schools demonstrate negative pre-post test results. This finding has been consistent across multiple national (NWEA MAP and Renaissance Learning's STAR) and state standardized assessments (Colorado and Arizona) of math and reading.

For K-8 students, average ELA pre-test differences were between -2.0 and -2.8 GLE (Table 9), meaning that, on average, students were between 2 grade levels and 2.8 grade levels behind at the start of the year. Average post-test differences in ELA were lower than the pre-test differences across each of the Goal Groups, ranging from -1.2 to -2.1. Students in Goal Group 1 had the largest skill level gaps in ELA, but students in Goal Group 2 had the smallest skill level gaps, on average, on both pre- and post-tests. While students in Goal Group 3 had average skill gaps that were lower than the students in Goal Group 1, their average GLE Diffs were larger than that of Goal Group 2.

The average GLE Change in ELA was very similar across all three Goal Groups, with both Goal Group 1 and Goal Group 3 showing improvement of 0.7 GLE (or approximately 7 months) between pre- and post-assessment, on average, and Goal Group 2 showing an average improvement of 0.8 GLE between pre- and post-test.

Table 9. Average Difference Between Grade Level and Skill Level (Measured in Grade Level Equivalents, or GLEs) and Average GLE Change between Pre-and Post-Test among Students in Grades K-8 with Two Test Results

Goal Groups[a]	# of Students (ELA/ Math)	Median Difference Between Students' Grade and Skill Level in ELA			Median Difference Between Students' Grade and Skill Level in Math		
		Pre-Test Diff	Post-Test Diff	GLE Change[b]	Pre-Test Diff	Post-Test Diff	GLE Change[b]
Group 1	126/ 152	-2.8	-2.1	0.7	-2.9	-1.8	1.1
Group 2	45/ 130	-2.0	-1.2	0.8	-2.8	-1.9	1.0
Group 3	21/ 17	-2.3	-1.6	0.7	-3.3	-1.8	1.6

a. The K-8 sample had fewer than 10 students in Group 4, so results are not presented for that group.
b. The difference between pre- and post-test GLE scores.

In math, K-8 students' average skill gaps ranged between -2.8 and -3.3 at pre-test, and between -1.8 and -1.9 at post-test, with Goal Group 3 showing the largest average skill gap at pre-test (-3.3 GLE), and Goal Group 2 showing the largest skill gap at post-test (-1.9 GLE). However, while the average GLE Change was similar for Group 1 and Group 2 (1.1 and 1.0, respectively), the students in Goal Group 3 showed the largest gains between pre- and post-test, with an improvement of 1.6 GLE, on average.

Despite the average outcomes being so similar in ELA, the regression model did find that the Goal Groups variable was a statistically significant predictor of students' ELA GLE Change. This finding is likely attributed to the difference between Goal Group 1 and Goal Group 2, given the small number of students that had both pre- and post-assessment results in Goal Group 3. For that same reason, while there appears to be a large difference in Math GLE Change between Goal Group 3 and that of Goal Groups 1 and 2, the regression model did not find Goal Groups to be a statistically significant predictor of changes in pre- and post-test GLE in math.

For the high school students (Table 10), the average differences between students' ELA and math pre-test GLE and their actual grade level were smaller for Goal Groups 3 and 4 than they were for Goal Groups 1 and 2. The same is true for the post-test GLE Diffs. However, there is no discerning trend in the average GLE Change between pre- and post-test in either subject. In ELA, GLE Change was largest for Goal Group 1 (0.25 GLE), followed by Goal Group 4 (0.15 GLE), but for Goal Groups 2 and 3, the ELA GLE Change was negative—more so for Group 3.

Table 10. Average Difference Between Grade Level and Skill Level (Measured in Grade Level Equivalents, or GLEs) and Average GLE Change Between Pre-and Post-Test Among Students in Grades 9-12 With Two Test Results.

Goal Group	# of Students (ELA/ Math)	Avg. Difference Between Students' Grade and Skill Level in ELA			Avg. Difference Between Students' Grade and Skill Level in Math		
		Pre-Test Diff	Post-Test Diff	GLE Change*	Pre-Test Diff	Post-Test Diff	GLE Change*
Group 1	253/239	-4.5	-4.3	0.25	-5.3	-7.0	0.03
Group 2	329/319	-5.0	-5.2	-0.23	-5.4	-8.0	0.06
Group 3	204/262	-1.9	-2.5	-0.56	-3.5	-4.0	-0.44
Group 4	429/237	-3.0	-2.8	0.15	-2.7	-3.2	0.62

*The difference between pre- and post-test GLE scores.

In math, GLE Change was near zero (i.e., no change) for Goal Groups 1 and 2 (0.03 and 0.06, respectively), negative for Group 3 (-0.44 GLE), and positive for Group 4 (0.62 GLE).

Based on the regression analysis, Goal Groups was not a contributing factor to high school students' progress in either math or ELA.

ELA and Math Mastery or Growth

As mentioned previously, one of the hallmarks of the goals set during the Responsive Goal process was that they provided multiple opportunities for students to show success within one goal. Goals around test performance often included both whether students scored at or above grade level and, if not, if they showed at least one grade level progress during the academic year. These types of "combination" goals not only allow students' multiple opportunities to be successful, but they also allow schools to set higher targets for goals. For example, the typical school-level achievement goal, which uses students' proficiency level alone, requires 50, 60, or 70% of students to score proficient to "meet" expectations. By combining growth and proficiency (or scoring at grade level) into a single goal, targets for success can be set closer to the 80-90% range. This is particularly effective for alternative schools whose students tend to arrive with large skill gaps in ELA and math.

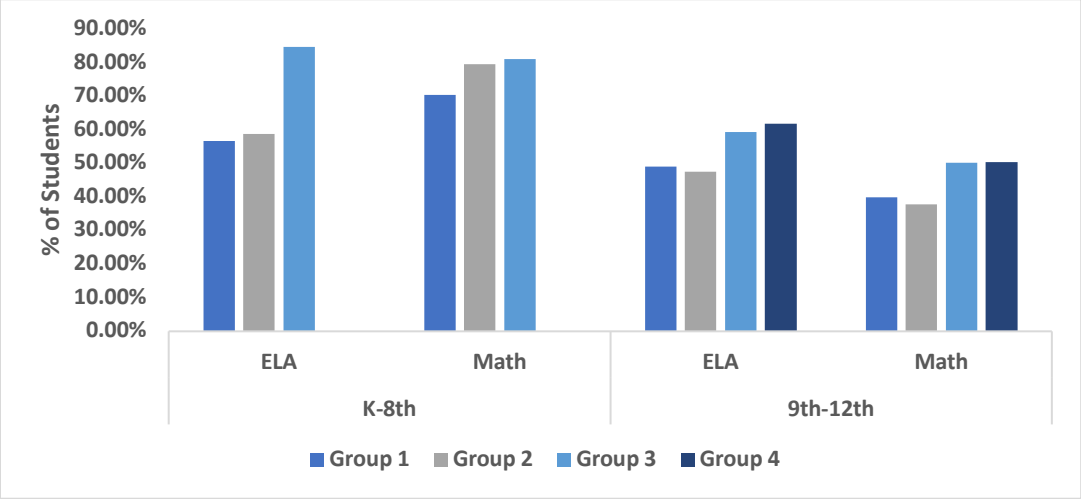
Thus, while the previous set of analyses looked at students' progress between pre- and post-assessments alone, the following analysis looks at the percentage of students to either score at grade level (or higher) or show at least one grade level growth as a combined measure. Table 11 and Figure 6 summarize the results.

Table 11. The Percentage of K-8 and High School Students to Either Perform at Grade Level (Mastered) or Show at Least One Grade Level Growth Between Pre- and Post-Tests, in ELA and Math.

Goal Group	K-8 Students			High School Students		
	Student Count (ELA/Math)	% Mastered or Grew ELA	% Mastered or Grew Math	Student Count (ELA/Math)	% Mastered or Grew ELA	% Mastered or Grew Math
Group 1	166/212	56.6%	70.3%	403/436	48.9%	39.9%
Group 2	300/390	58.7%	79.5%	693/754	47.5%	37.8%
Group 3	320/321	84.5%	81.0%	776/765	59.3%	50.1%
Group 4	<10/<10	-	-	697/489	61.7%	50.3%

For students in grades K-8, the percentage to either score at grade level or show at least one grade level worth of growth increases with each Goal Group, suggesting a positive relationship between the number of years a school had been using Responsive Goals and the combined measure of students' achievement and growth outcomes in math and ELA. Regression analyses supported this finding, showing that the Goal Groups predictor accounted for a small, but statistically significant, amount of the variation in students' outcomes in both subjects.

Figure 6. Percentage of K-8 and 9-12 Students to Either Score at or Above Grade Level or Show at Least One Grade Level Improvement Between Pre- and Post-Test in ELA and Math



Similarly, though there was a modest dip in the ELA and Math Mastery or Growth between Goal Group 1 and Goal Group 2, the proportion of students to do so in Goal Groups 3 and 4 were markedly higher. And, again, both models that included Goal Groups predicted more of the variance in high school students ELA and math outcomes for this measure than the models that only include students' demographic characteristics.

Conclusions

The analyses presented in this report tested whether schools that had been using Responsive Goals for a longer period had better student engagement and academic outcomes than students in schools that had adopted Responsive Goals more recently. Results were mixed, though generally supported the hypothesis.

Among the K-8 students the measure of the how long schools had been using Responsive Goals, labeled *Goal Groups*, was found to predict engagement rates, ELA GLE Change between pre-and post-assessment, and whether students either performed at grade level or grew at least one grade level during the year in both ELA and math. Though the size of the effects tended to be small, they were statistically significant. However, *Goal Groups* was not found to predict K-8 students Math GLE Change.

Among the high school students, the Goal Groups predictor was found to impact engagement rates, enrollment duration, and whether students either scored at grade level or showed at least one grade level of growth in both math and ELA. Goal Groups was not found to impact high school students credit earning rates or ELA or Math GLE Change alone.

With one exception, the Goal Groups predictor was found to be in the positive direction; meaning that higher or better student outcomes were associated with students' enrollment in schools that had been using Responsive Goals for longer. For high school students, the Goal Groups predictor was negatively related to enrollment duration, meaning that students enrolled in schools that had been using Responsive Goals for longer tended to have shorter enrollment durations than students enrolled in schools that had adopted Responsive Goals more recently. However, subsequent analysis evaluating the exit reasons of the students in each Goal Group and suggests that the shorter durations may have been due to students' positive outcomes, including higher percentages of graduation rates and lower percentages of dropout rates. In all cases, the size of the impact of the Goal Groups predictor was small, even when they were statistically significant.

Study Limitations

Unfortunately, only one school was able to provide data from the year prior to adopting Responsive Goals and data was not collected from schools that had never adopted Responsive Goals, so it cannot be ruled out that other factors that were not measured in the study were responsible for the findings. For example, one observation was made by a participating authorizer suggesting that schools' improved data collection practices may be at least part of the reason for the findings. A review of the completeness of the data provided by the schools each year also supports this as a possibility. Tables presented in Appendix B show the average completeness of the data provided by schools based on the Goal Groups, and show that as the number of years schools had been using Responsive Goals (i.e., Goal Groups) increased, so did the average percent of data provided, as measured by the percentage of students for whom each data point was provided.

Appendix A:

Data Standardization

As not all schools provided the same data for each of the outcomes of interest, data standardization was required to convert each school's data into the same metric. Below is a detailed description of the standardization that was done for the analysis presented in this report.

Engagement Data: For purposes of this student engagement is defined as the proportion of school days that the students interacted in school activities. For more traditional, in-person schools student engagement was measured by in-seat attendance. For these schools, a student counted as present if they came to school in-person. For schools with hybrid or flexible scheduling options, students counted as present when they came to the school's facility or participated in a remote manner, such as turning in work online, logging into the learner platform and interacting with content or a teacher or attending an online class. In instances where students took part in internships, work study, or classes at a local college, they were also counted as present if they were confirmed to have attended those activities.

In all cases, the student-level engagement metric was computed as follows:

Numerator: Sum of the number of days counted as attended/engaged

Denominator: Sum of the number of days counted as enrolled

This resulted in a standardized engagement rate for each student in the study that ranged from 0.00-1.00 (i.e., 0%-100%).

Enrollment Duration Data: Schools were asked to provide each student's entry and exit dates for the preceding year. From this data, the number of weeks and days each student was enrolled in their participating school was computed. Schools were inconsistent with the data that was provided, so some enrollment durations were imputed, based on the following assumptions. One school provided the original date of entry, rather than the date that each student started enrollment in the current year (e.g, reporting an enrollment date in 2019 for data that was being collected for 2022). For students whose enrollment was continuous across multiple years, their annual enrollment duration was assumed to be the full academic year (or 40.5 weeks). In FY2, two schools provided entry dates only, and in FY3, one school provided entry dates only. In cases where the exit date was missing, but the school included the students' end-of-year status (EOY Status), and the EOY status for a student was "continuer" or "graduate," the last day of school was added to the students' records, for purposes of calculating enrollment duration. For all other EOY statuses, including no reported status, exit dates were left as missing.

Credit Earning Rate Data included the number of credits each student earned during the school year and either the number of credits attempted (for schools that are self-paced and not required to assign a specific number of credits each year) or the number of credits expected (for schools that are required to assign a specific number of credits to every student each year). As the number of credits assigned to a single course differ across states and school districts, a credit completion rate was calculated, as follows:

Numerator: Sum of the number of credits the student earned during the school year

Denominator: Sum of the number of credits the student attempted (or that was expected) during the school year

In addition, two schools use a competency-based method of course completion. For those two schools, data was provided for the number of competencies each student attempted to master and the total number of competencies they mastered at the school's requisite level (e.g., 80% mastery). For those schools, these two figures were used to compute the percentage of competencies mastered, using the calculation:

Numerator: Sum of all competencies the student mastered for the year

Denominator: Sum of all the competencies attempted for the year

Both computations result in a standardized percentage that summarizes the work completed as a percentage of the work attempted (or expected), ranging from 0.00-1.00 (or 0%-100%).

Grade Level Equivalency Data: Formative assessment data for math and ELA were provided by each of the participating schools. These formative assessments included i-Ready math and reading, Renaissance Learning's STAR math and reading, Northwest Education Association's Measures of Academic Progress (NWEA MAP) math and reading, and the Test of Adult Basic Education (TABE) math and reading components. Each of these assessments provides myriad performance and growth metrics for each student, but none that are comparable across all of them. However, several of the assessments report on each student's skill level using a metric called the Grade Level Equivalent, or GLE. For those assessments that do not report GLE, grade level norms for the scale scores are provided, from which GLE conversions were created.[6]

As some assessments provide only whole grade level GLEs and other provide GLEs by the month of the grade that a students tested in (e.g., the 5th month of 6th grade, which is reported as 5.6) all GLE were rounded to the nearest whole number. GLE's for both math and ELA, therefore, ranged for kindergarten to 12th grade (coded as 0-12, with 0 meaning the kindergarten level).

The GLEs were then used to compute GLE difference scores (GLE Diffs) between each student's pre-test GLE and their grade level and between their post-test GLE and their grade level. This resulted in a continuous variable for ELA (ELA GLE Change), which ranged from -11 to 10 for the high school group and -6 to 5 for the K-8 group, and for math (Math GLE Change), which ranged from -12 to 12 for grades 9-12, and -3 to 7 for K-8.

For the combined metric, which assessed whether students were either at grade level or grew at least one GLE, students received a 1 if either GLE equaled their grade level or if their GLE Change score was greater than or equal to 1. Students received a 0, if neither condition were true.

End-of-Year Status: Another data element that many of the schools provided was each student's status at the end of the year (or EOY Status). This provided information on all students who exited the school during the year: Did they transfer to another educational setting, graduate, move out of the state or country, or were they still enrolled at the end of the year and plan to continue attending the school the next year? EOY Status codes (sometimes called Exit Reason Codes) were provided along with each state's

[6] One school, however, moved to using an internally developed benchmarking assessment in years 2 and 3 of the study. As the assessments were not externally validated and did not provide anything that was a clear assessment of grade level skill, those data were omitted from the analysis.

code translation documentation. EOY Status Codes were first converted into narrative categories based on the state's code books (e.g., graduated with a state diploma, transferred to another district, etc.), then the narrative categories were consolidated into one of eight categories, described below:

- Aged out: Students who did not graduate prior to turning 21 or 22, depending on state policies.
- Completed: Students who completed high school but with certification other than a standard state-issued diploma. Examples include GED, high school equivalency certificate, or certificate of completion.
- Continuing: Students who finished the school year but did not graduate and are expected to return to the same school the following year.
- Deceased: Student who passed away during the school year.
- Dropped out: Students who were reported as dropouts, unknown, or high school students reported as transferring to homeschool.[7]
- Expelled: Students who exit the school due to being expelled.
- Graduated: Students who graduated with a state standard diploma.
- Retained: Students who are continuing with the school and are repeating the same grade level.
- Transferred: Students who transferred to any educational setting, including transferring to adult education, moving out of state, moving out of the country, transferring to a state facility or detention center, and, for students in K-8, transferring to homeschool.

[7] In Momentum's 20 years of working with alternative schools, a high school student who transfers to homeschool is almost always later recoded as a dropout because they do not provide sufficient evidence to the district that they are doing any schoolwork. Typically, the recode from "transfer to homeschool" to "dropout" occurs when the student does not provide evidence of work and does not enroll in a school the following fall. Therefore, high school students in grades 9-12 who transferred to homeschool from one of the participating schools were classified as a dropout in this study.

Appendix B: Technical Appendix

Regression Analysis Model Specifications

For the following analysis, linear regressions were conducted to evaluate whether a student's "Goal Group" (*Group 1* = 0-1 Years, *Group 2* = 2 Years, *Group 3* = 3 Years, *Group 4* = 4 Years) explained the variation in each outcome variable, over and above student factors that are known to be correlated with them, including: FRL Status (1 = FRL eligible, 0 = Not RFL eligible), SPED Status (1 = Classified as a special education student, 0 = Not classified as a special education student), and EL status (1 = Classified as an EL student, 0 = Not classified as an EL student). For each analysis, the regressions conducted compared two models: The first model uses only the student demographic factors as predictors of the outcome of interest (e.g., engagement rates, ELA GLE Change, etc.,); the second model includes both the student demographic characteristics and the Goal Group variable.

The model statistics tables summarize each of the two models, assessing whether either model predicted the student outcome better than chance. When the Sig of F Change is less than 0.05, the model (as a whole) is said to predict the variance in the students' outcome better than random chance. The lower the p-value, the more statistically significant the model. In addition, the model statistics tables provide an assessment of how much of the variation in the outcome is accounted for by the model, which can be viewed in the R Square and Adjusted R Square columns of each table. Adjusted R Squares are more conservative estimates of the amount of variation each model accounts for and are the figures used throughout this report. Each R Squared value can be converted into percentages. For example, an Adjusted R Square of 0.025 would mean that the model accounts for (or predicts) 2.5% of the variation in the outcome in the analysis.

The model coefficients tables are then presented for the two models tested in each analysis, which summarize the relative strength of the influence of each factor (i.e., predictor) in the model, present in the B column. The larger the B, the more influence the factor has on the outcome variable, relative to the other factors in the model. However, a factor can have a large B and not be found to be significant within the model. "Sig", found in the final column of each model coefficients table, stands for statistical significance, also known as a p-value, and is interpreted the same as described above, where a Sig. (or p-value) of 0.05 or smaller denotes that a factor is a significant predictor of the outcome within the model.

The model constant values represent what the model predicts a student's outcome would be if all factors were equal to zero, or the lowest possible value provided for each factor (e.g., FRL Status = no; SPED Status = no, EL Status = no, and Goal Group = 1). A thorough description of the model interpretation is provided for the first model presented in this Appendix for the reader's benefit in interpreting the remainder of the analyses.

Engagement Rates

The first analysis evaluated the amount of variance in K-8 students' engagement rates that is accounted for (or predicted) by students' FRL Status, SPED Status, and EL status in Model 1, and FRL Status, SPED Status, EL status, and Goal Group in Model 2.

Table A1. Model Statistics Testing the Impact of Goal Groups on K-8 Students' Engagement Rates.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.137[a]	.019	.016	.22798	.019	6.723	3	1060	<.001**
2	.158[b]	.025	.021	.22736	.006	6.789	1	1059	.009**

a. Predictors: (Constant), FRL Status, SPED Status, EL Status,

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

* Significant at the p<0.05 level: ** Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Comparing the two model statistics (Table A1), both models are statistically significant (both Sig. F Change are below 0.05), and the model including Goal Group (Model 2) accounts for more variance in K-8 students' engagement rates (Adjusted R Square = 0.21, or 2.1%) than the model without it (Adjusted R Square = 0.16, or 1.6%).

In addition, Table A2 shows that the *Goal Groups* variable was a statistically significant predictor of engagement rates (p=0.009), but that the impact of Goal Groups is very small (B=0.024), predicting an increase of approximately 2.4% per increase in years with Responsive Goals over the predicted engagement rate of 79.5% (Model 2 Constant = 0.795) when all factors are equal to zero (not FRL, not SPED, Not EL, Goal Group = 1). In model 2, students' special education status had the strongest impact on engagement (B = -0.131), where students reported as receiving special education services (SPED Status = 1) were predicted to have an engagement rate that is 13.1% below the constant rate of 79.5% (all other factors being equal).

Table A2. Model Coefficients Predicting the Impact of Goal Groups on K-8 Students' Engagement Rates.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.836	.043		19.475	<.001***
	FRL Status	.042	.014	.092	3.008	.003**
	SPED Status	-.126	.042	-.091	-2.973	.003**
	EL Status	-.019	.020	-.029	-.950	.342
2	(Constant)	.795	.045		17.483	<.001***
	FRL Status	.043	.014	.095	3.105	.002**
	SPED Status	-.131	.042	-.094	-3.097	.002**
	EL Status	-.020	.020	-.030	-.992	.322
	Goal Groups	.024	.009	.079	2.606	.009**

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

The next analysis evaluated the amount of variance in high school students' engagement rates that is accounted for by students' FRL Status, SPED Status, and EL status in Model 1, and FRL Status, SPED Status, and EL status, and Goal Group in Model 2.

Table A3. Model Statistics Testing the Impact of Goal Groups on High School Students Engagement Rates.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.101[a]	.010	.009	.29418	.010	11.778	3	3443	<.001***
2	.199[b]	.040	.038	.28981	.029	105.464	1	3442	<.001***

a. Predictors: (Constant), FRL Status, SPED Status, EL Status

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

* Significant at the p<0.05 level. ** Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Like the K-8 analysis, both models predicted variation in high school students' engagement rates, but the model that included Goal Groups (Model 2) accounted for more variance in engagement rates (Adjusted R Square = 0.038, or 3.8%) than the model without it (Adjusted R Square = 0.009, or <1%). Additionally, the Goal Groups predictor was found to have the most impact on high school students' engagement in the model (B=0.056, p < 0.001). See Table A4.

Table A4. Model Coefficients Predicting the Impact of Goal Groups on High School Students' Engagement Rates.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.691	.014		49.462	<.001***
	FRL Status	-.056	.014	-.068	-3.979	<.001***
	SPED Status	-.042	.011	-.068	-3.965	<.001***
	EL Status	.034	.016	.036	2.125	.034*
2	(Constant)	.519	.022		23.981	<.001***
	FRL Status	-.037	.014	-.045	-2.636	.008**
	SPED Status	-.015	.011	-.023	-1.348	.178
	EL Status	.008	.016	.009	.525	.600
	Goal Groups	.056	.005	.181	10.270	<.001***

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Enrollment Duration

This analysis evaluated the amount of variance in high school students' enrollment duration that is accounted for by students' FRL Status, SPED Status, and EL status in Model 1, and FRL Status, SPED Status, and EL status, and Goal Group in Model 2.

Table A5. Model Statistics Testing the Impact of Goal Groups on High School Students Enrollment Duration (in Weeks).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.243[a]	.059	.058	9.85405	.059	41.162	3	1971	<.001
2	.308[b]	.095	.093	9.66510	.036	78.819	1	1970	<.001

a. Predictors: (Constant), FRL Status, SPED Status, EL Status

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Both models predict the variance in high school students' enrollment duration (Table A5), but the model including the Goal Groups predictor accounted for more variance (Model 2 Adjusted R Square= 0.093, or 9.3%) than the model that did not include it (Model 1 Adjusted R Square= 0.058, or 5.8%).

Within Model 2 (Table A6), the Goal Group variable was not the strongest factor (B= -2.390, p <0.001), relative to the other factors included in the model, and the impact was in the negative direction. This suggests that the longer a school has been using Responsive Goals, the fewer the number of weeks (by about 2.3 weeks per additional year with goals) students remain enrolled.

Table A6. Model Coefficients Predicting the Impact of Goal Groups on High School Students' Enrollment Duration (in Weeks).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	28.786	.693		41.520	<.001***
	FRL Status	6.348	.711	.196	8.931	<.001***
	SPED Status	2.651	.566	.103	4.685	<.001***
	EL Status	-3.173	.641	-.108	-4.952	<.001***
2	(Constant)	35.404	1.009		35.088	<.001***
	FRL Status	6.012	.698	.185	8.612	<.001***
	SPED Status	2.465	.555	.095	4.438	<.001***
	EL Status	-2.251	.637	-.077	-3.534	<.001***
	Goal Groups	-2.390	.269	-.193	-8.878	<.001***

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Whether the negative relationship between enrollment duration and Goal Groups is positive or negative with respect to student outcomes is explored in the body of the report.

Credit Earing Rates

In Table A7, Model 2, which included the Goal Groups variable as a predictor, did not explain variance in students' credit earning rates, while Model 1 did. Therefore, we conclude that Goal Groups did not impact high school students' credit earning rates.

Table A7. Model Statistics Testing the Impact of Goal Groups on High School Students Credit Earning Rates

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.119[a]	.014	.013	.34236	.014	18.057	3	3781	<.001***
2	.122[b]	.015	.014	.34227	.001	3.009	1	3780	.083

a. Predictors: (Constant), FRL Status, SPED Status, EL Status
b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group
*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A8 summarizes the model coefficients for both models for the interested reader.

Table A8. Model Coefficients Predicting the Impact of Goal Groups on High School Students' Credit Earning Rates.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.546	.014		39.282	<.001***
	FRL Status	.065	.015	.071	4.372	<.001***
	SPED Status	-.041	.013	-.052	-3.202	.001**
	EL Status	-.090	.017	-.084	-5.174	<.001***
2	(Constant)	.513	.023		21.988	<.001***
	FRL Status	.067	.015	.074	4.534	<.001***
	SPED Status	-.038	.013	-.048	-2.939	.003**
	EL Status	-.095	.018	-.088	-5.378	<.001***
	Goal Groups	.011	.006	.029	1.735	.083

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

ELA and Math GLE Change

Tables A9 and A10 summarize the analyses assessing whether the predictor Group Goals significantly predicted variance K-8 students' progress in ELA, as measured by the change in GLE between pre- and post-test, over and above the variance accounted for by students' demographic characteristics.

Table A9. Model Statistics Testing the Impact of Goal Groups on K-8 Students' ELA GLE Change Between Pre- and Post-Assessments.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.169[a]	.029	.008	.96295	.029	1.391	3	142	.248
2	.315[b]	.099	.073	.93068	.070	11.017	1	141	.001**

a. Predictors: (Constant), FRL Status, SPED Status, EL Status

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A9 shows that only Model 2, which includes Goal Groups as a predictor, predicted K-8 students' ELA progress, accounting for roughly 7.3% of the observed variation in ELA GLE Change.

In addition, Table A10 shows that the Goal Groups variable had the strongest impact, relative to other factors in the model, on ELA GLE Change, increasing the predicted GLE Change score by .77 GLE, per increase in the number of years with Responsive Goals (assuming all other factors in the model are equal).

Table A10. Model Coefficients Predicting the Impact of Goal Groups on K-8 Students' ELA GLE Change Between Pre- and Post-Assessments.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.325	.356		.915	.362
	FRL Status	.296	.160	.153	1.849	.067

	SPED Status	.323	.351	.076	.920	.359
	EL Status	-.081	.223	-.030	-.361	.718
2	(Constant)	-.473	.419		-1.129	.261
	FRL Status	.373	.156	.193	2.387	.018*
	SPED Status	.223	.340	.053	.656	.513
	EL Status	-.208	.219	-.077	-.949	.344
	Goal Groups	.766	.231	.273	3.319	.001**

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Neither model for predicting change for K-8 students' math GLE between pre- and post-assessment, however, was found to be statistically significant (Table A11). Therefore, we concluded that Goal Groups did not impact K-8 students' progress in math. Table A12 provides the model coefficients for the interested reader

Table A11. Model Statistics Testing the Impact of Goal Groups on K-8 Students' Math GLE Change Between Pre- and Post-Assessments.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.122[a]	.015	.003	.95442	.015	1.285	3	257	.280
2	.147[b]	.022	.006	.95299	.007	1.773	1	256	.184

a. Predictors: (Constant), FRL Status, SPED Status, EL Status
b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group
*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A12. Model Coefficients Predicting the Impact of Goal Groups on K-8 Students' Math GLE Change between Pre- and Post-Assessments.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.548	.301		1.821	.070
	FRL Status	.018	.119	.010	.155	.877
	SPED Status	.520	.295	.110	1.762	.079
	EL Status	-.173	.197	-.054	-.879	.380
2	(Constant)	.760	.340		2.235	.026
	FRL Status	.007	.119	.004	.060	.952
	SPED Status	.542	.295	.114	1.836	.068
	EL Status	-.179	.197	-.056	-.908	.365
	Goal Groups	-.160	.120	-.083	-1.332	.184

The next set of analysis evaluated whether Goal Groups impacted high school students' progress between pre- and post-assessments. Tables A13 and A14 show the analysis for ELA GLE Change, and Tables A15 and A16 show the analysis for Math GLE Change.

The results in Table A13 and A14 show that Goal Groups did not impact students' change in ELA GLE between pre- and post-assessment. In fact, neither model was found to predict variation in high school students' ELA progress (Table 13).

Table A13. Model Statistics Testing the Impact of Goal Groups on High School Students' ELA GLE Change Between Pre- and Post-Assessments.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.068a	.005	.002	2.93689	.005	1.521	3	987	.207
2	.079b	.006	.002	2.93593	.002	1.650	1	986	.199

a. Predictors: (Constant), FRL Status, SPED Status, EL Status

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A14. Model Coefficients Predicting the Impact of Goal Groups on High School Students' ELA GLE Change Between Pre- and Post-Assessments.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.104	.236		-.442	.659
	FRL Status	-.185	.243	-.024	-.761	.447
	SPED Status	.325	.201	.051	1.616	.106
	EL Status	.328	.282	.037	1.162	.246
2	(Constant)	.245	.359		.681	.496
	FRL Status	-.239	.246	-.031	-.968	.333
	SPED Status	.253	.208	.040	1.214	.225
	EL Status	.408	.289	.046	1.412	.158
	Goal Groups	-.109	.085	-.044	-1.284	.199

The results in Table A15 and A16 show that Goal Groups did not impact students change in Math GLE between pre- and post-assessment, with Model 2's Sig F Change well above 0.05. Therefore, we conclude that Goal Groups did not impact students' progress in math.

Table A15. Model Statistics Testing the Impact of Goal Groups on High School Students' Math GLE Change Between Pre- and Post-Assessments.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.132[a]	.017	.014	2.71612	.017	4.912	3	835	.002**
2	.137[b]	.019	.014	2.71577	.001	1.217	1	834	.270

a. Predictors: (Constant), FRL Status, SPED Status, EL Status

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A16. Model Coefficients Predicting the Impact of Goal Groups on High School Students' Math GLE Change Between Pre- and Post-Assessments.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.600	.256		2.347	.019*
	FRL Status	-.868	.258	-.116	-3.363	<.001***

	SPED Status	.021	.200	.004	.104	.917
	EL Status	.522	.294	.061	1.775	.076
	(Constant)	.899	.373		2.412	.016*
	FRL Status	-.914	.262	-.122	-3.496	<.001***
	SPED Status	-.035	.206	-.006	-.170	.865
	EL Status	.602	.303	.070	1.987	.047*
2	Goal Groups	-.104	.094	-.041	-1.103	.270

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

ELA and Math Mastery or Growth

Unlike the preceding four analysis, the following analysis evaluates the impact of Goal Groups on whether students either scored on or above grade level or grew at least one grade level equivalent (GLE). For the K-8 student analysis, the model including Goal Groups was found to be a significant predictor of whether students showed either mastery or growth in ELA, while the model that did not include Goal Groups was not statistically significant. Table A17 shows that Model 2 accounted for 8.2% of the variance in the percentage of K-8 students to meet grade level skill or show at least one GLE growth in ELA (Adjusted R Square=0.082, p<0.001).

Table A17. Model Statistics Testing the Impact of Goal Groups on K-8 Students' ELA Mastery or Growth.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.021[a]	.000	-.004	.454	.000	.107	3	726	.956
2	.294[b]	.087	.082	.435	.086	68.488	1	725	<.001***

a. Predictors: (Constant), FRL Status, SPED Status, EL Status
b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group
*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

In Model 2 (Table A18), K-8 students' Goal Groups had the most relative impact on students' ELA outcomes, increasing the percentage of students predicted to either meet grade level skill or show growth in ELA by 17.3% (Model 2 Goal Groups B=0.173, p <0.001) over the model constant prediction of 39.8%.

Table A18. Model Coefficients for K-8 Students Test of Goal Group Impact on ELA Mastery or Growth.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.714	.100		7.144	<.001***
	FRL Status	.018	.034	.020	.537	.591
	SPED Status	-.012	.099	-.005	-.125	.900
	EL Status	-.003	.050	-.002	-.058	.954
2	(Constant)	.398	.103		3.860	<.001***
	FRL Status	.022	.032	.024	.687	.492
	SPED Status	-.074	.095	-.028	-.782	.434
	EL Status	-.010	.048	-.008	-.218	.827
	Goal Groups	.173	.021	.295	8.276	<.001***

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Results of the K-8 students' analysis of math mastery or growth (Tables A19 and A20) show that Model 2 (including Goal Groups) significantly predicted students' math outcomes, but the Goal Groups only predicted a very small (1.3%), but statistically significant, amount of the variance. Goal Groups were

shown to have the strongest impact on math outcomes, relative to the other factors in the model (B= 0.067, p <0.001).

Table A19. Regression Model Statistics Testing the Impact of Goal Groups on K-8 Students' Math Mastery or Growth.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.039[a]	.002	-.002	.398	.002	.449	3	863	.718
2	.133[b]	.018	.013	.395	.016	14.184	1	862	<.001***

a. Predictors: (Constant), FRL Status, SPED Status, EL Status

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A20. Model Coefficients for K-8 Students' Test of Goal Group Impact on Math Mastery or Growth.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.780	.082		9.489	<.001***
	FRL Status	.023	.027	.029	.840	.401
	SPED Status	.008	.081	.004	.103	.918
	EL Status	.032	.040	.027	.798	.425
2	(Constant)	.661	.087		7.563	<.001***
	FRL Status	.024	.027	.031	.907	.365
	SPED Status	-.014	.081	-.006	-.175	.861
	EL Status	.030	.040	.026	.755	.450
	Goal Groups	.067	.018	.128	3.766	<.001***

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

For Student in grades 9-12, the analyses of ELA mastery or growth (Tables A21 and A22) show that Model 2 (including Goal Groups) significantly predicted students' outcomes, but the Goal Groups only predicted a small (5.4%), but statistically significant, amount of the variance.

Table A21. Regression Model Statistics Testing the Impact of Goal Groups on High School Students' ELA Mastery or Growth.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.129[a]	.017	.015	.492	.017	12.662	3	2247	<.001***
2	.168[b]	.028	.027	.489	.012	26.918	1	2246	<.001***

a. Predictors: (Constant), FRL Status, SPED Status, EL Status

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A22. Model Coefficients for High School Students' Test of Goal Group Impact on ELA Mastery or Growth.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.629	.024		26.075	<.001***
	FRL Status	-.073	.025	-.060	-2.890	.004*
	SPED Status	.048	.022	.046	2.180	.029*
	EL Status	-.145	.030	-.100	-4.754	<.001***
2	(Constant)	.463	.040		11.582	<.001***
	FRL Status	-.054	.025	-.045	-2.155	.031*
	SPED Status	.072	.022	.069	3.242	.001**
	EL Status	-.172	.031	-.119	-5.594	<.001***
	Goal Groups	.054	.010	.113	5.188	<.001***

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

The analysis of Goal Groups impact on high school students' Math Mastery or Growth (Tables A23 and A24) show that Model 2 significantly predicted students' outcomes and that Goal Groups was the strongest predictor of math performance, relative to the other factors in the model.

Table A23. Regression Model Statistics Testing the Impact of Goal Groups on High School Students' Math Mastery or Growth.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.120[a]	.014	.013	.495	.014	10.351	3	2127	<.001***
2	.137[b]	.019	.017	.494	.004	9.302	1	2126	.002**

a. Predictors: (Constant), FRL Status, SPED Status, EL Status,

b. Predictors: (Constant), FRL Status, SPED Status, EL Status, Goal Group

* Significant at the p<0.05 level: ** Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Table A24. Model Coefficients for High School Students' Test of Goal Group Impact on Math Mastery or Growth.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.574	.026		22.123	<.001***
	FRL Status	-.131	.027	-.106	-4.914	<.001***
	SPED Status	-.004	.022	-.004	-.171	.865
	EL Status	-.092	.032	-.061	-2.833	.005**
2	(Constant)	.474	.042		11.394	<.001***
	FRL Status	-.119	.027	-.096	-4.436	<.001***
	SPED Status	.011	.023	.010	.470	.639
	EL Status	-.110	.033	-.073	-3.338	<.001***
	Goal Groups	.034	.011	.069	3.050	.002**

*Significant at the p<0.05 level. **Significant at the p<0.01 level. ***Significant at the p<0.001 level.

Appendix C

Average Percentage of Students for Whom Data Was Provided, based on Goal Group

Table B1. Average Percentage of Students for Whom Data was Provided for Demographic Data, Special Education Status and English Learner Status, based on Goal Group

Goal Group	Number of Schools	Total Student Count	Student Demographic Data[a]	Special Education Status	English Learner Status
Group 1	7	1151	100%	99%	99%
Group 2	10	1800	98%	100%	78%
Group 3	9	1487	97%	100%	100%
Group 4	6	1103	100%	100%	100%

a. Demographics include gender, race, ethnicity, and free- and reduced-price lunch eligibility status

Table B2. Average Percentage of Students for Whom Data was Provided for Dates of Birth, Entry and Exit Dates, End of Year Status, and Engagement and Credit Earning Data, based on Goal Group

Goal Group	Dates of Birth	Entry and Exit Dates	End of Year Status[a]	Engagement Data	Credit Earning Data
Group 1	61%	38%	58%	73%	28%
Group 2	94%	46%	60%	79%	64%
Group 3	95%	51%	62%	80%	69%
Group 4	100%	100%	64%	100%	90%

a. Exit reason

Table B3. Percentage of Students for Whom Data was Provided for ELA and Math Pre-Tests and Post-Tests, based on Goal Group

Goal Group	ELA Pre-Test Results	ELA Post-Test Results	Math Pre-Test Results	Math Post-Test Results
Group 1	53%	50%	52%	45%
Group 2	39%	45%	39%	44%
Group 3	24%	24%	23%	23%
Group 4	54%	58%	55%	29%

End Notes

[i] Coles, Slavec, and Baroni (2012). Exploring the Gender Gap in Referrals for Children with ADHD and other Disruptive Behavior Disorders. *Journal of Attention Disorders*.

[ii] Arms, Bickett, and Graf (2008). Gender bias and imbalance: Girls in US Special Education Programs. *Gender and Education, Vol 20*.

[iii] Oswald, Best, Coutinho, and Nagle (2010). Trends in the Special Education Identification Rates of Boys and Girls: A call for research and change. *Exceptionality, Vol 11*.