

Building Teacher Knowledge to Increase College Readiness



Evaluation of the Washington GEAR UP College Readiness Professional Development Project

2012

Washington State GEAR UP Evaluation Report Series, Volume II

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PREFACE

In order to help all students reach their educational potential, Washington State GEAR UP, administered by the Washington Student Achievement Council (formerly the Higher Education Coordinating Board), strives to work with low-income students and families through collaborative efforts with schools and partners to create opportunities for better education attainment.

In this series of third-party evaluation reports, we share findings that evaluate the progress we have made in GEAR UP. Applying both qualitative and quantitative data and research methods, these evaluation reports highlight best practices, delineate impactful program approaches, and summarize student education achievements and program outcomes.

The third of these reports is “Evaluation of the Washington GEAR UP College Readiness Professional Development Project”. This pilot project studied the impact of increased teacher knowledge and skills related to college readiness standards and habits of mind on student academic achievement and aspirations. The ACT COMPASS was used as one measure of student college readiness.

While the results were varied, several lessons were learned that have informed our current program efforts. For example, while COMPASS scores remained flat over the project’s short timeline, we did receive consistent feedback from our schools that this was a valuable exercise for those students specifically interested in attending community college after graduation. The Council will maintain the site license and continue to offer the test through our partner schools. Most schools have been able to work with their local community colleges so that the students’ COMPASS scores are accepted for admission.

Teachers in the project valued the peer networks they created and the ongoing support they received over the year long project. This network model will be used more as we focus on the Common Core State Standards implementation. We will continue to invest in building teacher capacity to support students in building the academic, social and emotional skills needed to be college and career ready.

Providing professional development opportunities for sustained support and services for student success is one of the main approaches of the Washington State GEAR UP program. Through strategic partnerships, we strive to improve teacher capacity in preparing students for college in subject areas. We will continue to work to create those opportunities.



Weiya Liang
Director, Washington State GEAR UP

INTRODUCTION

This report provides summary results of the Arroyo Research Services evaluation of the College Readiness Professional Development Project for the State of Washington Higher Education Coordinating Board (HECB). The purpose of the evaluation was to measure the effects of the program's intensive, content-focused tutoring and instructional model that assists students in the core academic areas necessary for college success. The program included treatment and control schools that agreed to submit comparable student and other data designed to enable comparison of school conditions and student support services. Teachers in the treatment schools participated in professional development and coaching related to the Washington State College Readiness Standards and Student Attributes and redesigned student experiences and classroom lessons to better address those standards.

Data for the study are drawn from seven treatment schools and six control schools that participated. Control schools were matched to the treatment schools in pairs based on student demographics, region, and prior performance on state assessments. The data include:

- Teacher participation and professional development surveys conducted following professional development sessions held for treatment teachers in summer 2010, winter 2010, and spring 2011.
- ACT COMPASS College Placement Test results from participating students, administered in fall 2010 (pretest) and spring 2011 (posttest). This assessment measures the college readiness of students based on their performance in reading, writing, and mathematics.
- Student surveys that assessed students' college aspirations and demographic characteristics, administered concurrently with the ACT COMPASS.
- Summary results from these data are presented within the body of this report. Detailed responses to the survey items are presented in the Appendices. School level results have been made available to each school in separate reports.

EXECUTIVE SUMMARY



Implemented during the 2010-2011 school year, the program sought to increase students' college readiness through intensive, content-focused tutoring and an instructional model that assists students in the core academic areas necessary for college success.

To achieve these outcomes, the program was designed to increase teacher knowledge and skills with addressing the Washington College Readiness Standards, to assist teachers in redesigning lessons that address specific College Readiness Standards, and to promote direct student participation in activities and learning experiences that promote college readiness. Specific program activities included:

- A one week GEAR UP Summer Institute for Educators that focused on providing information about College Readiness Standards, closing the gap between 10th grade High School Proficiency Exam (HSPE) scores and graduation/college enrollment and assisting teachers with creating unit and lesson plans that address College Readiness Standards within the local curriculum.
- Follow-up professional development sessions on College Readiness Standards and lesson plans in development during winter and spring of the 2010-2011 school year.
- Use of revised units and lesson plans with students.
- Other college awareness and preparation activities for students.

The evaluation was designed to establish the extent to which program outcomes were achieved by comparing student and teacher outcomes among seven treatment schools and six matched control schools. Data collected for the study is described below; evaluation methods are described in more detail in the body of the report.

Data Collected

- Teacher surveys conducted following professional development sessions for treatment teachers in summer 2010, winter 2010, and spring 2011.
- ACT COMPASS College Placement Test results from participating students, administered in fall 2010 (pretest) and spring 2011 (posttest). This assessment measures the college readiness of students based on their performance in reading, writing, and mathematics.
- Student surveys that assessed students' college aspirations and demographic characteristics, administered concurrently with the ACT COMPASS.

TEACHER RESULTS:

Thirty-five math and English teachers participated in the intervention. Findings from the teacher surveys and focus group include:

- Teachers agreed more strongly over time that they had good working knowledge of the College Readiness Standards and that they designed activities that addressed these standards.
- Teachers were more comfortable over time teaching College Readiness Standards and developed strategies for working with students regarding student attributes.
- Teachers agreed less strongly over time that that they designed lessons to more directly address student attributes. The evaluators often see similar declines in reported knowledge and confidence as respondents acquire a more thorough understanding of the depth of content promoted by an intervention.
- Teachers reported that they spent between one hour per week and 200 hours per semester preparing lessons that addressed College Readiness attributes and outcomes, and that they redesigned between two and all of their lessons to do so.
- Teachers reported increasing utility and satisfaction with the key elements of project-related professional development.
- Teachers expected that student outcomes will include increased:
 - *Understanding of College Readiness Standards*
 - *Engagement*
 - *Self-efficacy*
- Teachers valued collaborating with their peers, learning about formative assessments, and incorporating these lessons into their classrooms. The most commonly expressed frustration was that expectations of teachers were unclear. For example, one teacher explained that “expectations of participation [were] not communicated or made clear until the very end.”

STUDENT RESULTS:

Participants included 1,589 students. Findings from the ACT COMPASS assessments and student surveys include the following:

ACT COMPASS

- Although there were matched pairs of schools, treatment and control groups performed differently during the pretest:
 - *Control students performed significantly better than treatment students on the writing and algebra pretests.*
 - *There were no significant differences on the reading pretest.*
- Treatment and control groups also performed differently during the posttest:
 - *Control students performed significantly better than treatment students on the reading and algebra posttests.*
 - *There were no significant differences on the writing posttest.*
- Students who had both pretest and posttest scores performed differently between testing periods on some assessments:
 - *Control students scored significantly higher on the writing pretest than on the writing posttest and substantially similar on all others.*
- Treatment students scored significantly higher on the reading pretest than on the reading posttest, significantly lower on the trigonometry pretest than on the posttest, and substantially similar on all others.

ACT COMPASS uses raw scores to assign students into categories that indicate whether they meet benchmarks. The table below shows that a substantial percent of students who did not meet their benchmark on the pretest did so on the posttest.

PERCENT OF STUDENTS WHO DID NOT MEET BENCHMARK ON ACT COMPASS PRETEST, BUT DID SO ON POSTTEST

Subject	Control	Treatment
Writing	21.4%	16.2%
Reading	13.5%	10.5%
Algebra	19.0%	13.7%

The table below provides information only for students who planned to go to a 2-year community college after high school. Once again, a substantial percent of students who did not meet benchmark on the pretest did so on the posttest.

PERCENT OF STUDENTS PLANNING TO ATTEND COMMUNITY COLLEGE WHO DID NOT MEET BENCHMARK ON ACT COMPASS PRETEST, BUT DID SO ON POSTTEST

Subject	Control	Treatment
Writing	25.0%	17.4%
Reading	14.0%	10.4%
Algebra	25.0%	15.0%

- Outcomes when controlling for prior performance and other student background characteristics:
 - *Writing:* The treatment group was associated with higher writing posttest scores (3.51 points).
 - *Reading:* The treatment group was associated with lower reading posttest scores (-4.22 points).
 - *Algebra:* There were no significant treatment effects.
- Had families that wanted them to go to college (both who could and could not afford it).
- Students who did not participate in extra tutoring, homework help, or athletic study table performed better on the writing and reading tests compared to students who did participate in these services. Students who received tutoring performed better in algebra than students who did not receive tutoring.
- There was a substantial increase between pretest and posttest in the percent of students who planned to enroll in a 4-year college or university.
- Forty-two percent of students who did not plan to have a job while attending college during the pretest and 59% of those who were undecided did plan to have a job during the posttest.
- Both treatment and control students were very confident that they would complete a 2- or 4-year degree during the posttest.

STUDENT SURVEY:

- Students performed better on the ACT COMPASS assessments when they:
 - Believed they would graduate early from high school;
 - Took AP, Honors, or International Baccalaureate classes;
 - Were enrolled in college preparation classes;
 - Were enrolled in AP English or Calculus classes;
 - Planned to enroll in a 2-year community college or higher after high school graduation;
 - Expected to obtain a 2-year college degree or higher;

TEACHER RESULTS

This section summarizes teacher related outcomes associated with the intervention.

Although the intervention focuses on producing student outcomes, the program relies on teacher professional development, coaching, and changes in instruction to achieve them. The evaluation therefore sought to identify outcomes related to professional development and coaching as well as the extent to which teachers modified their lessons and changed the way they worked with students. Thirty-five math and English teachers participated in the study.

Results are reported for treatment teachers only and address treatment teacher responses to professional development as well as changes in teacher practice. Treatment teachers participated in a GEAR UP Summer Institute for Educators June 28-July 2, 2010, which focused on understanding College Readiness Standards, filling the gap between 10th grade High School Proficiency Exam (HSPE) scores

and graduation/college enrollment, and building units and lesson plans that fit local curriculum and address College Readiness definitions. Treatment teachers, supported by intervention-funded coaches, redesigned lessons during and after this session and met for additional professional development in winter 2010 and spring 2011. At the end of each professional development session, teachers were asked to complete online surveys about their knowledge and experience with College Readiness Standards, along with their reactions to the professional development session. During the first survey administration, teachers also answered questions about their experience prior to the workshop (see Table 1). Teachers report that they developed their knowledge of College Readiness Standards over the course of the intervention and increasingly designed activities and acquired teaching strategies that addressed these standards. In general, teachers agreed more strongly over time that they had good working knowledge of College Readiness Standards and that they designed



activities that addressed them. Teachers also grew more comfortable over time teaching these standards and developed strategies for working with students regarding student attributes. However, although teachers understood that student attributes are part of the College Readiness Standards, they agreed less strongly in spring 2011 that they were designing lessons to more directly address these attributes. The evaluators often see similar declines in reported

knowledge and confidence as respondents acquire a more thorough understanding of the depth of content promoted by an intervention.

Teachers reported that they spent between one hour per week and 200 hours per semester preparing lessons that addressed College Readiness attributes and outcomes, and that they redesigned between two and all of their lessons to do so.

TABLE 1. TREATMENT TEACHER PROFESSIONAL DEVELOPMENT SURVEY RESPONSES

	Prior to Workshop M (SD)	Summer M (SD)	Winter M (SD)	Spring M (SD)
I have a good working knowledge of the College Readiness Standards in English or math (as applicable)	3.06 (1.41)	4.16 (.81)	4.13 (.57)	4.10 (.79)
I design lessons and teaching activities that address the College Readiness Standards	3.06 (1.32)	4.03 (.93)	4.17 (.74)	4.06 (.93)
I am comfortable teaching lessons that address College Readiness Standards	3.38 (1.26)	4.31 (.82)	4.33 (.55)	4.26 (.82)
I understand the student attributes that are part of the College Readiness Standards	3.16 (1.42)	4.50 (.51)	4.40 (.50)	4.29 (.64)
I design or redesign lessons and teaching activities to more directly address the student attributes	2.97 (1.33)	4.00 (.84)	4.07 (.75)	3.81 (.98)
I have strategies for teaching or working with students regarding the student attributes	3.03 (1.33)	4.00 (.95)	3.97 (.67)	4.03 (.91)

Scale: 1 = Strongly Disagree; 5 = Strongly Agree

N = 32 for “Prior to Workshop” and “Summer”; 30 for “Winter”; 31 for “Spring”

Teachers also report increasing utility and satisfaction with the key elements of project-related professional development. Teachers rated how they felt about various aspects of the each session, including the usefulness of the tools and applicability of the content (see Table 2). Each item was rated on a scale ranging from 1 = Lowest to 10 = Highest. Mean scores indicated that all items were rated highly and more positively over time. The most highly rated item across all administrations of the survey was “attention to my questions.”

TABLE 2. TREATMENT TEACHER PROFESSIONAL DEVELOPMENT SURVEY RESPONSES

Question	Summer N (SD)	Winter M (SD)	Spring M (SD)
Usefulness of the tools	6.20 (2.68)	6.90 (2.07)	7.13 (2.15)
Applicability of the content	7.29 (2.18)	7.17 (2.14)	7.70 (2.07)
Depth of research behind the material	6.58 (2.88)	6.48 (2.56)	7.55 (2.47)
Quality of the presenters	6.84 (2.53)	7.27 (1.93)	7.73 (7.78)
Organization of the sessions	6.77 (2.59)	6.90 (1.90)	7.30 (2.35)
Attention to my questions	8.06 (1.97)	7.93 (2.16)	8.43 (1.70)
Usefulness of the research (math only) ¹	6.56 (3.13)	6.65 (2.47)	-
Applicability of the 5 Key Strategies for Assessment and Learning (math only)	7.33 (2.74)	7.28 (2.11)	-
Applicability of the Feedback Strategies (math only)	7.11 (2.56)	7.44 (2.20)	-

Scale: 1 = Lowest; 10 = Highest

N = 32 for “Prior to Workshop” and “Summer”; 30 for “Winter”; 31 for “Spring”

“ I have found it extremely useful to work with other teachers who have been a wealth of information. ”

In addition to gains in knowledge and comfort level with College Readiness Standards, teachers report that key elements of the project for them included structured collaboration with peers and increased training in formative assessment. An open-ended question asked teachers to describe aspects of the project that most helped them address college readiness in their courses during both the winter and spring surveys. Several participants indicated that they found value in working with other teachers and learning about formative assessment techniques. For example, one math teacher said, “I have found it extremely useful to work with other teachers who have been a wealth of information. Being an ‘experienced’ teacher for whom it has been quite a long time since college, it has been very good for

¹ Not all items were asked on both the pre and post surveys; cells marked as “-” indicate that the question was not included.

me to be trained on formative assessments and I have appreciated learning about the research that supports why you should do things a certain way in class.” The complete range of teacher responses can be found in Appendix A.

Teachers anticipated that students would have an increased (a) understanding of College Readiness Standards, (b) engagement, and (c) self-efficacy. During the spring survey teachers described what outcomes they expected from the changes they made during this project. Open-ended responses indicated that many teachers believed students had a better understanding of College Readiness Standards, were more engaged, and felt more confident in their abilities. One teacher explained that “higher level writing is taking place, therefore better preparing students for college writing. Increased rigor has created a greater sense of self-confidence resulting in higher levels of college applications and acceptance.”

FOCUS GROUP:

A focus group for teachers led by the GEAR UP staff was conducted on June 24, 2011. Participants were asked to discuss their experiences in the program in small groups as well as with the larger group. Themes from the discussion included:

- Several teachers reported that their greatest personal insight or learning in the project came from working with other teachers and learning about formative assessments. (“I loved the connections and relationships formed with other math teachers around the state.” “Other schools in the state have the same issues and problems that we do. Commonality of problems was eye opening.”) Interacting with other teachers was also noted as their greatest celebration. (“The collaboration and planning time allowed us to develop more in-depth critical reading activities and support student achievement of these challenges with college readiness reflections.”)
- The most commonly expressed frustration was having unclear expectations. (“Expectations changed way too much and things got confusing.” “Should have had consistent expectations between the two content teams.” “We were scrambling to keep up but the expectations kept changing.”)
- Experiences with virtual coaching and site visits were mixed. For example, some teachers indicated that the materials provided were useful and more site visits would have been helpful, while others found them unproductive. Comments ranged from, “Virtual coaching forums and webinars were not conducive to our overall goal” to, “We loved Robin Henrickson’s site visit and got a lot out of the taping experience.” Some teachers said, “Face to face visits with colleagues from all over were most helpful...there was lots of growth in lesson development and delivery. What would have made it more valuable? Schedule an extra day after each session so teams can work on applying what they learned.” Other teachers asked, “Virtual coaching and site visits: did these happen for anyone?”
- Teachers believed that school level outcomes related to the project included raised standards and increased rigor. (“We’ve seen increased rigor.” “We’re doing a better job of transitioning students from high school to college.”)

- Teachers explained that they will continue to implement the strategies and lessons they learned with their future classrooms. Although most teachers were already motivated to continue implementing lessons learned, several noted that continued collaboration with teachers and mentors would be helpful in the future.
- Time to collaborate was needed most to continue this work. If this support is not provided, teachers indicated they would continue teaming with colleagues and using the standards to motivate themselves. (“Time for training and collaboration is what will allow us to continue to implement definitions and to spread them to other teachers. We are simply too overwhelmed to add on anything on our own without support, which is critical for keeping us on track, refreshing our motivation, providing helpful feedback and additional resources.” “We will continue to implement formative assessment strategies.”)
- When asked if the experience was worth their participation, most teachers agreed while some disagreed. The ACT COMPASS assessment was mentioned as being unhelpful. Participation affected their classroom because teachers had new ideas they could implement and they could make the connection between formative assessment and student learning. (Some comments were: “Yes: The money was refreshing, getting paid for work outside my classroom [helped]. The collaboration was invaluable.” “No: This took too much time away from working in classroom.” “Yes: Math face-to-face was a great.” “No: Forums/webinars felt like busy work.”)
- Finally, teachers indicated that more interactive activities, improving the structure of math, higher compensation, and consistent expectations would improve the program. (Comments included: “Make expectations consistent.” “Paid sub time for buildings to do local in-service/planning would help.” “We need unencumbered time for planning.” “Scale it up – make it an even bigger project.” “Math and English trainers should talk to each other.” “We could use a training session for the technologically challenged.” “Site visits would be more useful if they included a set agenda.”)



STUDENT RESULTS



Student results are drawn from ACT COMPASS achievement data and student survey items administered concurrently with the ACT COMPASS. Students participating in the study completed pretest and posttest ACT COMPASS reading, writing, and mathematics tests. In addition, they provided demographic information during both time periods. Table 3 provides demographic information for students participating in the study. (Information is based only on pretest responses; minor differences in the posttest survey can be found in Appendix B.)

TABLE 3A. STUDENT DEMOGRAPHIC INFORMATION ²

Question	Response Option	Percent
What is your gender?	Male	53.2%
	Female	46.8%
Is English your first (primary) language?	No	10.9%
	Yes	89.1%
What is your ethnicity?	Black/African American	5.1%
	American Indian/Alaskan Native	3.9%
	White/Caucasion	63.2%
	Mexican American/Chicano	7.1%
	Asian/Pacific Islander	8.1%
	Puerto Rican/Cuban/Other Hispanic	1.2%
	Filipino	1.7%
	Other	6.5%
Prefer not to respond	3.2%	

N = 1,589

² Students provided demographic information as part of the ACT COMPASS test during the pretest and completed the demographic information on a separate online survey for the posttest. Because some students on the posttest completed the ACT COMPASS but not the survey items, the number of students with demographic information available is not equal to the number completing both the pre and post ACT COMPASS.

TABLE 3B. STUDENT DEMOGRAPHIC INFORMATION

Question	Response Option	Percent
What is the highest level of education your father received?	High School or less	38.5%
	Apprenticeship or other on the job training program	4.2%
	Technical or vocational program	3.2%
	Some college, but less than a 2-year college degree	10.3%
	2 year college degree	8.5%
	4 year college degree	11.4%
	Master's degree	6.0%
	Doctorate degree (PhD/Ed.D.,M.D.,etc.)	1.5%
	I don't know	16.4%
What is the highest level of education your mother received?	High school	33.6%
	Apprenticeship or other on the job training program	2.8%
	Technical or vocational program	2.8%
	Some college, but less than a 2-year college degree	13.7%
	2 year college degree	12.5%
	4 year college degree	14.4%
	Master's degree	5.4%
	Doctorate degree (PhD/Ed.D.,M.D.,etc.)	.7%
I don't know	13.9%	

N = 1,499

TABLE 3C. STUDENT DEMOGRAPHIC INFORMATION ³

Question	Response Option	Pretest	Posttest
Which of the following best describes your participation in your school's GEAR UP program?	I participate in all GEAR UP activities	8.5%	9.1%
	I participate in most GEAR UP activities	26.6%	22.8%
	I participate in a few GEAR UP activities	19.0%	28.2%
	I do not participate in GEAR UP activities	19.4%	-
	I am not eligible to participate in GEAR UP activities	4.3%	9.8%
	I don't know what GEAR UP is	22.2%	30.1%
Are you currently enrolled in, or have you been enrolled in AVID?	Yes	12.1%	9.6%
	No	79.6%	78.9%
	Not offered at my school	8.3%	11.5%
Are you currently enrolled in or have you been enrolled in Running Start?	Yes	7.8%	-
	No	91.8%	-
	Not offered at my school	.4%	-

N = 1,499 for pretest; 918 for posttest. For question "Which of the following best describes your participation in your school's GEAR UP program?" N=1,255 for pretest.

³ Not all items were asked on both the pre and post surveys; cells marked as "-" indicate that the question was not included.

ACT COMPASS RESULTS



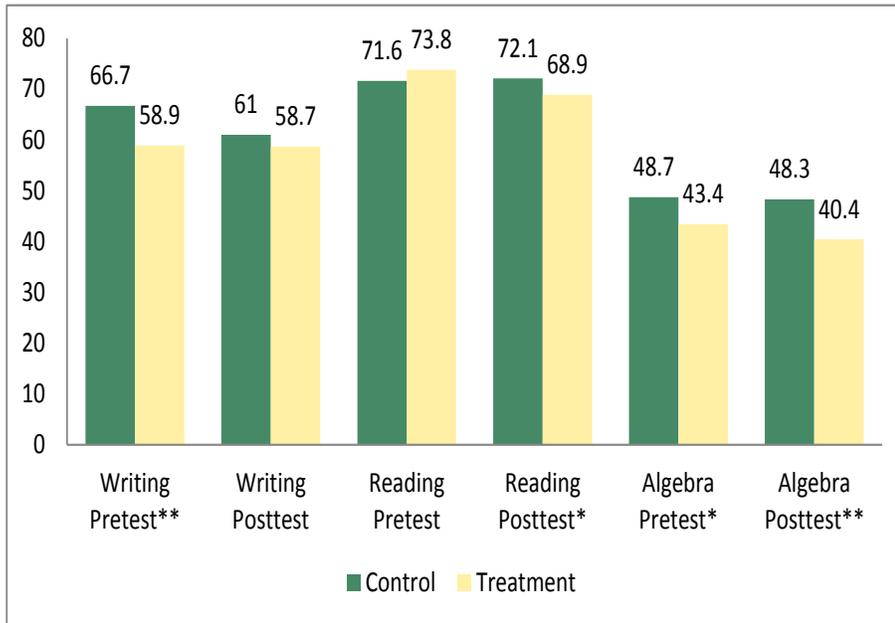
This section reports on student academic achievement outcomes using the ACT COMPASS assessment. Student academic achievement outcomes were mixed, with the treatment associated with higher writing scores but lower reading scores. The analyses conducted and discussed below include examination of differences in scores between control and treatment students, examination of differences in scores based on student demographics and survey responses, and a multivariate analysis that seeks to establish treatment effects while controlling for other factors. Many analyses resulted in null findings and have not been described in detail. Significant findings have been described where appropriate.

The ACT COMPASS College Placement Test assesses writing skills, reading, pre-algebra, algebra, college algebra, and trigonometry. One thousand and eighty two students completed both a pretest and posttest in at least one content area (690 students took only a pretest or posttest and 43 only completed the posttest survey; see Table 4). Scores on each test could range between one and one hundred.

TABLE 4. ACT COMPASS DATA AVAILABILITY

	n
Pretest Only	545
Posttest Only	145
Posttest Student Survey Only	43
Pretest and Posttest	1,082

FIGURE I. PRETEST AND POSTTEST SCORES ON THE ACT COMPASS (CONTROL AND TREATMENT STUDENTS)



*P < .05, **P < .001

Although treatment and control schools were matched based on demographics, student performance, and region, they were not statistically equivalent. Because students were not randomly assigned to the treatment or control groups, the evaluators sought to determine the extent to which the groups may have differed on their pretest performance using independent samples t-tests. Control students performed significantly better than treatment students on the writing and algebra pretests (see Figure I). No other pretest differences were statistically significant. The significant differences on the writing pretest shrank to within the range of statistically indistinguishable during the posttest. Differences between treatment and control groups on the reading and algebra tests remained statistically significant on the posttests.

Student scores differed by gender and for non-native English speakers. Specifically, females scored higher than males for all tests, and significantly better on the pretest writing and reading assessments⁴. Students whose first language was English performed significantly better than students whose first language was not English on all tests except algebra⁵. For the latter, non-native English speakers performed significantly better on the pretest but equal to English speakers on the posttest.

Control group students with both pretest and posttest scores scored significantly lower on the writing posttest, and substantially similar on all other tests⁶ (see Table 5).

⁴ Writing pretest: Mfemale = 65.1 and Mmale = 59.5, $t(1496) = 3.56, p < .001$. Reading pretest: (Mfemale = 73.1 and Mmale = 70.8), $t(1490) = 2.01, p < .05$.

⁵ Algebra pretest: MnotEnglish = 54.9 and MEnglish = 47.6, $t(680) = 2.26, p < .05$. Algebra posttest: MnotEnglish = 44.7 and MEnglish = 44.4, $t(468) = .06, ns$

⁶ Paired samples t-tests indicated that control group scores decreased significantly between pretest (M = 66.66, SD = 28.39) and posttest (M = 61.74, SD = 31.97) on the writing skills test, $t(425) = 3.94, p < .001$.

TABLE 5. PRETEST AND POSTTEST SCORES ON THE ACT COMPASS (CONTROL STUDENTS)

Test ⁷	Pretest M (SD)	Posttest M (SD)	t
Writing Skills	66.66 (28.39)	61.74 (31.97)	-3.94*
Reading	71.84 (22.19)	72.51 (23.01)	.65
Pre-Algebra	58.92 (23.42)	58.78 (24.73)	-.15
Algebra	51.50 (23.57)	52.30 (25.26)	.61
College Algebra	60.61 (14.19)	60.75 (18.14)	.06
Trigonometry	51.86 (13.49)	52.96 (15.57)	.36

*p < .001

Treatment group students with both pretest and posttest scores scored significantly lower on the reading posttest, significantly higher on the trigonometry posttest, and substantially similar on all others⁸ (see Table 6).

TABLE 6. PRETEST AND POSTTEST SCORES ON THE ACT COMPASS (TREATMENT STUDENTS)

Test ⁹	Pretest M (SD)	Posttest M (SD)	t
Writing Skills	59.40 (30.80)	59.45 (30.97)	.05
Reading	73.68 (21.43)	69.81 (23.87)	-4.84*
Pre-Algebra	51.19 (23.95)	50.82 (24.42)	-.47
Algebra	46.64 (21.85)	46.01 (22.74)	-.43
College Algebra	61.56 (12.24)	66.48 (14.00)	1.62
Trigonometry	39.20 (11.89)	54.55 (16.73)	4.95*

*p < .001

Examination of change in student performance levels showed some unexpected variance in pretest to posttest results, including higher than expected numbers of students who perform at lower levels on the posttest than on the pretest. Along with providing raw scores on each test, the ACT COMPASS also arranged student scores into categories. Those who scored far below the benchmark for a particular content area (writing, reading, algebra) were categorized as “need help now.” Students who had mid-range scores but were also below a benchmark were categorized as “need some help and review,” whereas students who had scores that met benchmarks were categorized as “competent and college ready.” Table 7 shows the percent of treatment and control students who scored in the “need help now” or “need some help and review” categories on the pretest but scored in the “competent and college ready” category on the posttest. For example, 21.4% of

⁷n = 426 for writing, 419 for reading, 407 for pre-algebra, 185 for algebra, 44 for college algebra, and 28 for trigonometry
⁸Reading: pretest (M = 73.68, SD = 21.43), posttest (M = 69.81, SD = 23.87), t (571) = 4.84, p < .001. trigonometry: pretest (M = 39.20, SD = 11.89), posttest (M = 54.55, SD = 16.73), t (19) = -4.95, p < .001.

16 ⁹n = 595 for writing, 572 for reading, 490 for pre-algebra, 149 for algebra, 25 for college algebra, and 20 for trigonometry.

control students who scored below their benchmark on the writing pretest had scores that met it on the posttest. The same was evident for 16.2% of treatment students. Overall:

- 44.1% of control students and 39.0% of treatment students met the writing benchmark on the posttest.
- 31.7% of control students and 28.5% of treatment students met the reading benchmark on the posttest.
- 47.0% of control students and 32.2% of treatment students met the algebra benchmark on the posttest.

TABLE 7. PERCENT OF STUDENTS REPORTING THEY ARE “COMPETENT AND COLLEGE READY ON THE ACT COMPASS PRETEST VERSUS POSTTEST

Subject	Control	Treatment
Writing	21.4%	16.2%
Reading	13.5%	10.5%
Algebra	19.0%	13.7%

N = 1,021 for writing, 991 for reading, and 334 for algebra

TABLE 8. PERCENT OF STUDENTS PLANNING TO ATTEND COMMUNITY COLLEGE WHO WERE “COMPETENT AND COLLEGE READY” ON PRETEST VERSUS POSTTEST

Subject	Control	Treatment
Writing	21.4%	16.2%
Reading	13.5%	10.5%
Algebra	19.0%	13.7%

N = 359 for writing; 238 for reading; 58 for algebra

Change in performance level from pretest to posttest by college plans reveals differences in control group and treatment group effects. The ACT COMPASS is an assessment used by 2-year community colleges to determine where to place students when they enter school. It is possible that students who were planning to enter 2-year community colleges after graduating high school took the assessment more seriously than students who did not plan to attend community college. Thus, for this section, pretest and posttest ACT COMPASS results were analyzed for only those students who indicated they would go to a 2-year community college after high school (N = 349; 158 control; 191 treatment).

A substantial percent of students who were planning to attend a 2-year college and scored below their benchmark on the pretest scored in the “competent and college ready” category during the posttest (see Table 8). Specifically, 25.4% of control students and 17.4% of treatment students who scored below the benchmark on the writing pretest had scores that met it on the posttest. Because only 58 students who planned to attend a 2-year community college completed the algebra tests, movement between algebra categories for this group should be interpreted with caution. Overall:

- 37.0% of control students and 35.9% of treatment students met the writing benchmark on the posttest.
- 26.2% of control students and 27.5% of treatment students met the reading benchmark on the posttest.
- 36.7% of control students and 25.0% of treatment students met the algebra benchmark on the posttest.



MULTIVARIATE ANALYSIS:

The analysis used multiple regression to control for student prior performance and background characteristics in order to isolate the effect of the intervention on student performance on the posttest. Multiple regression provides information about the relationship between several independent variables and a dependent variable. More specifically, these data can help to understand which variables are the best predictors of student performance. In addition to prior performance and condition (control or treatment

group), gender and English as a first language are included because the groups differed on these variables. Performance on a self-efficacy pretest and posttest (see the next section for a description) was also included. The dependent variable was a student's score on the ACT COMPASS posttest. Overall regression results are summarized in Table 9.

The treatment group was associated with higher posttest scores in writing (see Table 9). For this assessment, predictors accounted for 47% of the variance in student performance. Other significant predictors in posttest scores included:

- Pretest writing scores: This result suggests that for every one point increase in a student's pretest writing score, it can be expected that he/she will have a .75 point increase in his/her posttest writing score.
- Pretest and posttest scores on the self-efficacy scale: Lower scores on the self-efficacy pretest were related to higher scores on the writing posttest, while higher scores on the self-efficacy posttest were related to higher scores on the writing posttest.
- Treatment condition: When controlling for prior performance and other student background characteristics, students in the treatment group were expected to have a 3.51 point increase in their posttest writing score.

The treatment was associated with lower posttest scores in reading. Other significant predictors in posttest scores included:

- Pretest reading scores: This result suggests that for every one point increase in a student's pretest reading score, it can be expected that he/she will have a .68 point increase in his/her posttest reading score.
- Pretest scores on the self-efficacy scale: Lower scores on the self-efficacy pretest were related to higher scores on the reading posttest.
- Treatment condition: When controlling for prior performance and other student background characteristics, students in the treatment group were expected to have a 4.22 point decrease in their posttest writing score.

No significant treatment effects were found for algebra. One significant predictor in posttest scores included:

- Pretest algebra scores: This result suggests that for every one point increase in a student's pretest algebra score, it can be expected that he/she will have a .64 point increase in his/her posttest algebra score.

TABLE 9. SUMMARY OF MULTIPLE REGRESSION ANALYSIS FOR VARIABLES PREDICTING ACT COMPASS POSTTEST SCORES

Subject	Predictor	B	SEb	β
Writing	Constant	12.28	8.10	-
	Writing pretest	.75	.03	.69***
	Gender	-.11	1.72	-.00
	English as a first language	.37	3.40	.00
	Self-efficacy pretest	-4.39	2.26	-.06*
	Self-efficacy posttest	4.32	1.88	.07*
	Condition	3.51	1.74	.06*
Reading	Constant	31.95	6.38	-
	Writing pretest	.68	.04	.62***
	Gender	-.45	1.34	-.01
	English as a first language	1.45	2.60	.02
	Self-efficacy pretest	-4.23	1.76	-.08*
	Self-efficacy posttest	1.84	1.50	.04
	Condition	-4.22	1.36	-.10**
Algebra	Constant	-8.87	10.25	-
	Writing pretest	.64	.04	.67***
	Gender	.12	2.12	.00
	English as a first language	-.01	4.23	.00
	Self-efficacy pretest	4.27	2.71	.08
	Self-efficacy posttest	3.35	2.25	.07
	Condition	-.57	2.05	-.28

Note: Gender was coded as 0 = Female and 1 = Male; English as a first language was coded as 0 = No and 1 = Yes; Condition was coded as 0 = Control and 1 = Treatment.

R² = .47, F (6, 682) = 100.68, p < .001

*p < .06, **p < .01, ***p < .001

STUDENT SURVEY RESULTS

In addition to the content tests on the ACT COMPASS, students also completed surveys related to high school, college, family, and jobs. Tables 10-17 provide information about responses on the pretest and posttest surveys and, when appropriate, their relationship to scores on the ACT COMPASS tests. The evaluators first compared responses between treatment and control group students and for only students who completed both the pretest and posttest student survey. Because response patterns did not differ meaningfully between treatment and control groups, the following tables provide pretest and posttest responses in aggregate form.

Student course taking and tutoring was significantly associated with ACT COMPASS performance. Student responses regarding high school experience are summarized in Table 10. Mean scores on the ACT COMPASS pretests were compared to responses on the pretest student survey. Results from a one-way ANOVA indicated that students who believed they would graduate early from high school performed better on the writing, reading, and algebra tests than all other students. This same pattern was evident for students who took AP, Honors, or International Baccalaureate classes versus those who did not, and for students who were enrolled in college preparation

classes versus those who were not. Data also indicated that students who did not participate in extra tutoring, homework help, or athletic study table performed better on the writing and reading tests as compared to students who did participate in these services. However, this pattern was different for algebra: data showed that students who received tutoring performed better in algebra than students who did not receive tutoring (Tutoring: $M = 52.63$, $SD = 26.31$, No Tutoring¹⁰).

Most students responded with the same answers related to course taking and academic activities on the pretest and posttest. One exception was that 61% of students who participated in extra tutoring, homework help, or athletic study table during the pretest did not participate during the posttest.



“My students will have more self-confidence and usable skills as they move forward with their lives after school.”

¹⁰Tutoring: $M = 52.63$, $SD = 26.31$, No Tutoring:

$M = 47.16$, $SD = 23.12$, $F(2, 586) = 3.27$, $p < .05$.

TABLE 10. STUDENT SURVEY, HIGH SCHOOL EXPERIENCE

Questions		Pretest	Posttest
When do you expect to graduate from high school?	I will graduate early	2.9%	.7%
	I will graduate on time	92.8%	94.5%
	I will graduate late	4.1%	4.0%
	I don't expect to graduate	.2%	.8%
Do you currently participate in extra tutoring, homework help, or athletic study table?	Yes	29.4%	18.2%
	No	68.5%	79.6%
	Not offered at my school	2.1%	2.2%
Are you taking, or have you taken, any AP, Honors, or International Baccalaureate classes?	Yes	59.2%	57.2%
	No	38.0%	40.4%
	Not offered at my school	2.8%	2.4%
How would you describe your high school class schedule?	College Preparation	47.3%	-
	Vocational or Career/Technical	7.8%	-
	General Education	38.7%	-
	Other	6.2%	-
Which statement best describes your peer group?	All my friends are going to college	26.4%	29.4%
	Most of my friends are going to college	44.5%	46.0%
	Some of my friends are going to college	20.3%	19.4%
	None of my friends are going to college	.8%	.8%
	I don't know	6.8%	3.5%
	My friends don't have any plans for after graduation	1.2%	1.0%

N = 1,270 during pretest; 920 during posttest



College plans were associated with performance on the ACT COMPASS. Table 11 presents student responses to questions about plans after high school graduation. Results from a one-way ANOVA indicated that students who planned to enroll in a 2-year community college and expected to obtain a 2-year college degree or higher performed significantly better on the ACT COMPASS writing, reading, and algebra pretests than students who did not.

Students had notable changes in reported college plans, as well as confidence in their ability to pay for college, between pretest and posttest. Fifty-five percent of students who responded as “other” and 31% of students who were “undecided” about their plans for the year following high school graduation on the pretest reported that they planned to enroll in a 4-year college or university during the posttest. There was also a substantial increase in the percent of students who believed they would enroll in a 4-year college or university between pretest and posttest. Specifically, while only 8% of students believed they would enroll during the pretest, 33% of students believed they would enroll in a 4-year college or university during the posttest. Finally, 35% of students who believed they would “probably not” be able to afford to complete the highest level of education with the help of financial aid, scholarships, and family resources on the pretest believed they would “probably” be able to afford it during the posttest.

“ I have been intentional in implementing the new material I have learned so students can develop the necessary skills to be successful after high school. ”

TABLE 11. STUDENT SURVEY, PLANS AFTER HIGH SCHOOL

Questions		Pretest	Posttest
Which of the following best describes your plans for the year following high school graduation?	Get a job	15.3%	13.7%
	Serve in the armed forces/military	7.1%	4.9%
	Care for a home/family	.6%	.3%
	Enroll in Job Corps or other training program	1.2%	.7%
	Enroll in vocational or technical program	3.8%	2.8%
	Enroll in 2 year community college	40.1%	38.0%
	Enroll in 4 year college or university	8.3%	32.9%
	Other	13.1%	3.3%
	Undecided	10.5%	3.4%
What is the highest level of education that you expect to obtain?	High school or less	1.9%	2.3%
	Apprenticeship or other on the job training program	2.4%	2.2%
	Technical or vocational program	3.1%	5.2%
	Some college, but less than a 2-year college degree	1.2%	1.1%
	2 year college degree	13.0%	13.5%
	4-year college degree	39.3%	36.7%
	Master's degree	18.7%	20.0%
	Doctorate (PhD) degree	10.8%	9.2%
Undecided	9.6%	9.8%	
Do you think that you will be able to afford to complete the highest level of education selected above, with the help of financial aid, scholarships, and family resources?	Definitely	24.3%	23.8%
	Probably	43.5%	39.7%
	Not sure	24.3%	26.1%
	Probably not	5.6%	7.8%
	Definitely not	2.3%	2.6%

N = 1,268 during pretest; 920 during posttest. For “Which of the following best describes your plans for the year following high school graduation?,” N=896 during pretest.

Family attitudes toward college were significantly associated with higher performance on the ACT COMPASS. Student responses about their families are summarized in Table 12. A one-way ANOVA indicated that students whose families wanted them to go to college (both who could and could not afford it) tended to perform better on the ACT COMPASS writing and reading tests than students whose families were unsure or did not want them to go to college. These results were not significant for those taking the algebra test given the small number of students in each category, and comparison of responses revealed that most students overall remained in the same category between pretest and posttest.

Most students indicated that they had access to an Internet-connected computer outside of school. On average, students spent 3.76 (SD = 2.39) hours per week using a computer outside of school for school related work.

TABLE 12. STUDENT SURVEY, FAMILY AND HOME

Questions		Pretest	Posttest
I will be the first in my family (father, mother, sister(s), brother(s)) to graduate from high school ¹¹ .	Yes	15.2%	-
	No	82.0%	-
	Don't know	2.7%	-
	I don't plan to graduate high school	.1%	-
I will be the first in my family (father, mother, sister(s), brother(s)) to attend college.	Yes	25.4%	-
	No	67.8%	-
	Don't know	4.4%	-
	I don't plan to go to college	2.4%	-
Which statement best describes your family? My family...	wants me to go to college	78.6%	74.3%
	is unsure about me going to college	2.0%	1.3%
	does not want me to go to college	.4%	.4%
	wants me to go to college, but can't afford it	12.7%	15.9%
	I don't know	6.3%	8.1%
Do you have access to an Internet-connected computer outside of school?	No	6.9%	-
	I share access to an internet connected computer in my home	43.4%	-
	I have my own internet connected computer	43.9%	-
	I use an internet connected computer in a public location	2.6%	-
	I use a friend's internet connected computer	3.2%	-

N = 1,270 during pretest; 919 during posttest

¹¹Not all items were asked on both the pre and post surveys; cells marked as "--" indicate that the question was not included.

TABLE 13. STUDENT SURVEY, PLANS FOR COLLEGE

Questions		Pretest	Posttest
Have you taken the PSAT and/or the PLAN test(s)?	Yes	70.2%	-
	No	29.4%	-
	Not offered at my school	.4%	-
Have you taken the SAT and/or the ACT test(s)?	Yes	47.3%	65.5%
	No	29.9%	28.8%
	Not offered at my school	.1%	.4%
	No, but plan to this year	22.6%	5.3%
If you have decided on a college or program for next year, have you visited the college campus or program?	Yes	46.9%	58.5%
	No	22.7%	17.5%
	Not yet, but plan to this year	18.1%	16.2%
	I have not decided on a college or program	11.1%	5.7%
	I do not plan to attend college or other program	1.2%	2.1%
If you do not plan to enroll in a 2 or 4 year college next year, which of the following best describes the reason?	College is not required for my chosen career	3.7%	4.3%
	My family cannot afford to help me attend college	6.8%	5.2%
	I am undecided about a career, so won't enroll yet	4.8%	3.3%
	I need to work to help my family	1.5%	3.0%
	I am tired of going to school and need a break	2.0%	2.7%
	I don't want to go to college	1.2%	1.3%
	I don't think I'm prepared for college	1.0%	1.2%
	I am joining the armed services/military	7.9%	3.8%
	I am going to get a job	10.0%	6.0%
Does not apply – I am going to college next year	61.1%	69.2%	

N = 1,257 during pretest; 918 during posttest

Plans for college were also associated with ACT COMPASS results. Table 13 summarizes questions regarding student plans for college. Forty-five percent of students who had not visited a college campus or program at the time of the pretest, along with 59% of students who reported on the pretest that they planned to visit a college, reported on the posttest that they had visited a college campus or program. Students who had not visited a college campus or program during the pretest but planned to later in the year, along with those who had not decided on a college or program, showed more positive growth on the writing and reading posttest than other students when analyzed using a one-way ANOVA. The previous analysis suggested that many of these students had visited a college campus by the posttest. It is possible that students who visited a campus during the school year recognized the importance of doing well in high school and worked harder during the posttest, but there are no direct data to support this explanation.

Course enrollment was associated with ACT COMPASS results. English and math course information is summarized in Table 14. As expected, students enrolled in AP English or Calculus performed significantly better on the ACT COMPASS writing, reading, and algebra tests than students in other English and math courses. Changes in student scores were also compared.



“ I believe my students will have a better understanding of how to prepare for success in math at the college level and as a result of this they will hopefully be more proficient in math skills all around. ”

TABLE 14. STUDENT SURVEY, ENGLISH AND MATH COURSES

Questions		Pretest	Posttest
Which best describes your current class schedule?	I am enrolled in senior English	60.3%	61.5%
	I am enrolled in AP English	21.2%	22.4%
	I am enrolled in elective English	10.3%	8.2%
	I am enrolled in two or more English classes	4.5%	2.3%
	I am not enrolled in an English class	3.7%	5.6%
Whether you plan to enroll in college next year or not, how prepared are you for college-level English classes?	Extremely well-prepared	10.7%	13.5%
	Well-prepared	32.8%	35.8%
	Prepared	38.1%	34.0%
	Not prepared	6.3%	5.8%
	I don't know	12.1%	10.9%
If you plan to enroll in college next year or sometime in the future, what grade would you expect to earn in English?	A	29.6%	30.7%
	B	51.3%	50.5%
	C	15.5%	14.0%
	D or less	.9%	1.3%
	I don't plan to enroll in college	2.7%	3.5%
Which best describes your current class schedule?	I am enrolled in Pre-Algebra	2.7%	2.2%
	I am enrolled in Algebra	18.5%	17.2%
	I am enrolled in Calculus	14.6%	10.9%
	I am enrolled in an AP math course	10.6%	11.9%
	I am enrolled in a math course not listed	42.8%	43.5%
	I am not enrolled in a math class	10.8%	14.3%
Whether you plan to enroll in college next year or not, how prepared are you for college-level math classes?	Extremely well-prepared	9.3%	7.3%
	Well-prepared	22.9%	20.7%
	Prepared	35.2%	38.6%
	Not prepared	20.7%	22.1%
	I don't know	11.9%	11.3%
If you plan to enroll in college next year or sometime in the future, what grade would you expect to earn in math?	A	25.1%	21.8%
	B	40.3%	39.1%
	C	25.8%	28.5%
	D or less	6.4%	7.2%
	I don't plan to enroll in college	2.4%	3.6%

N = 1,258 during pretest; 920 during posttest

Surprisingly, analyses indicated that students who believed they would get a “D or less” if they enrolled in a math course in college during the pretest performed better between pretest and posttest than other students¹².

Students’ work plans during college are reported in Table 15. Forty-two percent of students who did not plan to have a job while attending college during the pretest and 59% of those who were undecided did plan to have a job during the posttest.

Overall, both treatment and control group students were very confident they would complete a 2- or 4-year degree during the posttest. Students indicated how confident they were that they would complete a 2- or 4-year degree using a scale from 1 to 10, where 1 = Not Confident and 10 = Completely Confident. Although control students had a higher mean score than treatment students, this difference was not statistically significant¹³.

TABLE 15. STUDENT SURVEY, JOB DURING COLLEGE

Questions		Pretest	Posttest
If you plan to enroll in college next year, do you plan to have a job while attending college?	Yes	68.0%	72.9%
	No	7.0%	4.5%
	Undecided	20.1%	15.9%
	I am not going to college next year	4.9%	6.7%
If you plan to have a job while attending college, how many hours do you expect to work?*	Less than 10 hours	5.5%	3.3%
	10 to 20 hours	27.0%	26.0%
	20 to 30 hours	17.0%	25.8%
	30 to 40 hours	7.1%	11.4%
	I will work, but I don’t know how many hours	31.4%	33.5%
	I don’t plan to work while attending college	8.6%	0.0%
	I am not going to college	3.4%	0.0%

N = 1,253 during the pretest and 920 during the posttest.

*N = 669 on the posttest.

SELF-EFFICACY SCALE:

Student self-efficacy is an important leading indicator of academic performance, and the evaluation therefore included an established, 7-item self-efficacy scale¹⁴ in the student surveys. Table 16 shows mean scores for each of these questions on the pretest and posttest; students had average scores of 3.4 across the 7 scale items on both. In order to determine how best to scale and report results across these items, an exploratory factor analysis was conducted. Factor analysis looks for evidence that questions are related to one another and can

¹²F (4, 812) = 2.59, p < 05.

¹³Control: M = 8.45, SD = 1.99, Treatment: M = 8.21, SD = 2.14, t (912) = 1.78, ns.

¹⁴Jerusalem, M. & Schwarzer, R. General Self-Efficacy Scale items indicated by *

¹⁵The factor analysis was conducted using the Principal Component Analysis extraction method and Varimax Rotation with Kaiser Normalization for both the pretest and posttest. Factors were determined to be valid when they showed an Eigen value greater than one.

be used to group items into scales of related questions. A “factor” may be a personal attribute or skill that explains a respondent’s answer to multiple questions. The results of the factor analysis confirmed that there was only one underlying factor (see Table 16)¹⁵. A reliability analysis that determines how well items function as a scale confirmed that the 7-item scale had strong reliability (Cronbach’s alpha = .88 on posttest).

TABLE 16. STUDENT ATTITUDE SURVEY, PRETEST AND POSTTEST MEANS

Questions	Pretest M(SD)	Posttest
If I try my best, I can be successful in school	3.67 (.54)	3.67 (.61)
I can always manage to solve difficult problems if I try hard enough*	3.38 (.63)	3.39 (.65)
It is easy for me to stick to my aims and accomplish my goals*	3.16 (.69)	3.17 (.70)
I can solve most problems if I invest the necessary effort*	3.50 (.61)	3.44 (.66)
When I am confronted with a problem, I can usually find several solutions*	3.21 (.68)	3.25 (.68)
If I am in trouble, I can usually think of a solution*	3.40 (.65)	3.34 (.70)
I can usually handle whatever comes my way*	3.35 (.66)	3.32 (.72)

Scale: 1 = Not at all true, 2 = Hardly true, 3 = Moderately true, 4 = Exactly true

No significant treatment effects were found for self-efficacy. A multiple regression was used to understand what variables best predicted scores on the self-efficacy posttest. Self-efficacy pretest score, gender, English as a first language, and condition (control versus treatment group) were entered as predictors and self-efficacy posttest score was the dependent variable (see Table 17). As expected, higher scores on the self-efficacy pretest were significantly related to higher self-efficacy scores on the posttest. No other variables significantly predicted posttest scores.

TABLE 17. SUMMARY OF MULTIPLE REGRESSION ANALYSIS FOR VARIABLES PREDICTING SELF-EFFICACY SCALE POSTTEST SCORES

Predictor	B	SEb	β
Constant	1.42	.15	-
Self-Efficacy Scale Pretest	.54	.04	.45*
Gender	.04	.03	.04
English as a first language	.12	.07	.06
Condition	.05	.03	.05

Self-Efficacy Scale scores ranged 1-4; Gender was coded as 0 = Female and 1 = Male; English as a first language was coded as 0 = No and 1 = Yes; Condition was coded as 0 = Control and 1 = Treatment.

N = 715

*p < .001

CONCLUSION

While the College Readiness Professional Development Project has produced mixed results during its first year of implementation, the program is designed for long-term outcomes. Among the considerations for interpreting the year one results and program accomplishments are the following:

- Although the ACT COMPASS does map well to the academic achievement portions of College Readiness Standards, it does not map completely to the full range of the standards addressed by the intervention. That is, not every lesson change can be captured by changes in ACT COMPASS performance.
- The extent and nature of student motivation for taking the ACT COMPASS posttest is unclear and could have a material effect on student performance.
- Data was insufficient to compare the intensity of the intervention across schools in order to distinguish between schools and teachers with high levels of intervention implementation and teachers with lower levels of intervention implementation.
- Lesson redesign began with a partial set of lessons and can be expected to include additional lessons over time.
- Many lessons and changes in instruction were not put in place until well into the school year. The effects of lesson redesign, increased teacher knowledge and skill in implementing instructional changes, and repeated implementation can reasonably be expected to increase over time.
- Teachers indicate that they found time for collaboration to be highly valuable, responsible for much of the instructional change they made, and important for future continuation of the work begun through the intervention.
- Teachers expect to continue to implement the strategies and lessons they learned with their future classrooms.

The evaluators find that the program was implemented with vigor and fidelity and expect that additional results would be obtained from continued implementation and support. Absent ongoing instructional support of some kind, however, only limited teacher and student results can be expected. Further implementation support and outcomes monitoring is warranted.

APPENDIX A

Question: What aspect of this project has most helped you address college readiness in your courses?

Math Teachers (Winter Survey Responses)

Connecting the CRSs and the state standards.

The lessons from the presenters and the dialogue with colleagues.

Creating learning progressions that are aligned to the CRS.

Opportunities to collaborate with teachers who teach the same standards and compare my practice with things that work for them.

I liked the feedback portion.

Very little has helped me. I already was aware of these standards and always do my best to implement them!

I have found it extremely useful to work with other teachers who have been a wealth of information. Being an 'experienced' teacher for whom it has been quite a long time since college, it has been very good for me to be trained on formative assessments and I have appreciated learning about the research that supports why you should do things a certain way in class.

I appreciate [learning] how to develop a learning progression and the key parts. This has helped see the big picture and organize a plan that will help me elicit information about student learning, to script what questions I can ask to develop mathematical thinking and to allow students to be informed about what the learning target is for them.

Developing units that help students learn the standards. The time collaborating with my teammates has been productive and has helped my students.

Feedback and formative assessments.

Working with other math teachers and designing new lessons.

Working with other teachers.

The learning progressions and effective feedback have been helpful in designing higher cognitive demand lessons and assessments. I honestly knew ALL of the other things they were trying to teach us.

Being able to speak with other teachers outside my district.

Not sure.

Mind set.

Time allowed to create a growth mindset unit.

Math Teachers (Spring Survey Responses)

Learning about student attributes was very meaningful to me and just familiarizing myself with the standards has improved my instruction.

The ideas that either were presented to us or ideas we came up with in a group setting.

The ability to connect my students with criteria with which I wasn't familiar.

Knowing the standards.

Math Teachers (Spring Survey Responses Cont.)

Learning about formative assessments, brain research (mindset), and the college readiness standards.

I already knew the CRS and the student attributes, but I hadn't seen the Marzano rubrics. Those are my favorite and I am going to create ones for each major learning target (power standard).

Working on the learning progressions and also learning more about formative assessments. Becoming more familiar with the College Readiness Standards also helped.

Just learning the College Readiness Standards was a big help.

Learning how to design and implement the learning progressions. Also, the collaborative time to work and share ideas with colleagues from different areas of the state.

Formative assessment training was GREAT! Tracing student learning was also valuable and being exposed to different educational research was interesting.

Spending time learning about each topic and then having our content groups design a learning progression using the new information.

Very little!

The summer session, where we developed lessons around growth mindset vs fixed mindset, was useful. Other than that all lessons were based on state geometry standards.

Feedback and formative assessment techniques. Knowing math teachers from all over the state.

Research.

Using formative assessment strategies and having students track their work has helped with the College Readiness student attributes. I already use standards-based grading, so the lessons I teach are already aligned with the state and college readiness standards.

English Teachers (Winter Survey Responses)

Lesson planning with colleagues.

Concrete definitions for each of the attributes. Brainstorming with colleagues. Conversations with John Marshall.

Working with Frances on the list of CRS and student attributes.

Time to collaborate with my colleagues with a specific focus on improving lessons for increasing college readiness.

Discussion of the standards and student attributes with other teachers.

Time to collaborate with colleagues, time to work on adaptation of lessons, and getting questions clarified.

Constantly questioning the purpose of our assignments. If assignments do not meet college readiness standards, they are revamped or revised or deleted.

Being able to collaborate with others and discuss where we can implement these CR ideas into lessons.

TIME to create, revise, and discuss lessons that incorporate college readiness.

Collaboration with other professionals from other high schools as well as from the university level allowed me to confirm that elements of my practice are reaching toward standards in both content and instructional strategies. Also, the collaboration motivated me to grow in my practice in the areas of content, instructional strategies, and student attribute infusion into classroom activities and language.

English Teachers (Winter Survey Responses Cont.)

The fact that colleges look for skills in reading and writing rather than a knowledge base in literature and literary movements was a big A-HA! for me.

The ability to pick the brains of the presenters and fellow teachers in an environment free of extraneous distractions!

The constructive and productive collaboration among teachers and facilitators. We are all professionals and have excellent strategies and this conference opened up the communication.

English Teachers (Spring Survey Responses)

Keeping College Readiness Standards as a focus in my planning.

Time to lesson-plan with colleagues.

Revisiting the attributes. Discussion and collaboration with colleagues.

The identification of student attributes needed for college success.

Understanding that the purpose of my assignments needs to raise the level of my students' writing from the superficial level of a summary to the level of analysis. The goal is always to reach a deeper level, beyond simply recalling what we have read and discussed.

Collaboration with fellow colleagues. I really enjoyed the way we got together as a group and worked together.

Working with the mentor.

Time provided at meetings to collaborate and design lessons that address college readiness standards.

Time to ask for clarification and time to work both individually and as a team.

Working with other teachers to hash things out and get more ideas; having college instructor mentors.

One on one interaction with mentor teachers and small group interaction during work sessions in Seattle and Yakima.

Having attributes and a set of standards.

Awareness of student attributes/standards.

Question: What additional support would best help you address college readiness standards in your courses?

Math Teachers (Winter Survey Responses)

Not applicable. I feel well prepared for use of the college readiness standards.

Lessons or progressions around the higher standards for calculus and pre-calculus.

I think it's important to stay current, sharing ideas that work well that align easily to the CRS.

Lessons that are already created and discussion on how to incorporate/modify these lessons to work in my room with my students.

The only issue I have is that I'm in the algebra group and I don't have any seniors in that group. It would have been more applicable if I had been in Stats, which is my senior class.

Math Teachers (Winter Survey Responses Cont.)

A decision on which standards we are going to use would be nice---federal or state???

I would like to learn more about Feedback Strategies. I feel do not have a good grasp on that material. Also, I would like to address in greater detail the College Readiness Standards that relate specifically to pre-calculus.

We had a guest speaker from Toppenish that helped us understand what their school was doing to develop assessments and tracking students through their learning. This was tremendously helpful.

Standards-based grading.

Use the compass test results to help guide our instruction.

Nothing at the moment.

I am already in the Riverpoint Advanced Mathematics Project (RAMP), where this is our primary focus in secondary and post-secondary cohorts. We have designed lessons, units, rich tasks, lesson studies, etc.

Make sure that the participants teach a subject where the College Readiness Standards (other than student attributes) are applicable.

English Teachers (Winter Survey Responses)

More collaborative time with peers.

Better understanding of what our final objective is with this work (besides making our seniors ready for college, obviously). More specific parameters of what constitutes documentation of evidence.

More time to work with my colleagues and to reflect on what has and has not been effective.

None.

Even more time to work with colleagues and develop lessons.

Perhaps an occasional meeting with our groups to reassess or refresh.

More examples that have been used and to be analyzed by us. I think it would be great to have a website where we could post lessons under specific topics or literature to share with one another.

Having college professors and/or students speak to my high school students regarding college expectations.

I would need more time with other teachers and our group leaders in order to clarify the objectives of our work and confirm that I am effectively applying the College Readiness Standards in a meaningful and purposeful manner with documented results.

Connections to professors at various colleges.

Having these seminars on a monthly basis.

Another go-round with this same cohort.

Question: What outcomes do you expect to result from changes you have made through this project (e.g. specific changes in student attainment of college readiness standards, student attitudes, or other student outcomes)?

Math Teachers (Spring Survey Responses)

Higher student engagement and more student responsibilities.

I believe my students will have a better understanding of how to prepare for success in math at the college level and as a result of this they will hopefully be more proficient in math skills all around.

I feel students have gained a deeper understanding for success but also feel see much more confident in their abilities.

I expect students to be more aware of the standards and to be able to judge for themselves whether they have attained these standards.

I expect my students to at least KNOW exactly what is expected of them in college. I would like for all my students to be better prepared and have a higher success rate, once in college, because of their understanding of the CRS.

I would expect that student performance will continue to improve. I especially enjoyed learning more about formative assessments and using a variety in my classes to gauge student understanding.

Very little.

I hope to hold my students to a higher standard in regards to their choices and behavior. I plan to share the student attributes with my students when I am going over procedures and expectations next year as well.

Formative assessments helped me better see where my students were and I was able to adjust accordingly so my students got the attention they needed.

I have been intentional in implementing the new material I have learned so students can develop the necessary skills to be successful after high school. I have fewer failures this year and students are asking higher-level questions more often.

I see no changes--I already was addressing these attributes!

Improved student learning from the techniques and the connections I have made with other teachers in the state.

Too early to tell.

I expect that I will continue to use more formative assessments and student self-assessments to track their progress. I will also be teaching the mindset lesson at the beginning of the year as I found that the students were more reflective about their progress after that lesson. I will continue to use the college readiness standards and work on designing more specific rubrics for reaching standards.

English Teachers (Spring Survey Responses)

My students will have more self-confidence and usable skills as they move forward with their lives after school.

Student attributes have clear targets and students are aware of the targets.

Students' seriousness as it pertains to academics. More college acceptance and graduation numbers. Better essays to read.

English Teachers (Spring Survey Responses Cont.)

Probably more awareness of the student attributes and a desire to see them in my students. I would work more towards teaching them in my classes.

Higher level writing is taking place, therefore better preparing students for college writing. Increased rigor has created a greater sense of self-confidence resulting in higher levels of college applications and acceptance.

Reading and writing improvements on the HSPE, not to mention better preparing our students for higher-level education and their future endeavors.

My teaching will directly address (by way of activities) the attributes. The academics goals will be more specifically stated in the lesson.

Greater student preparation and confidence in their first year of college. Increased student ability to recognize and modify college readiness attributes as they prepare and begin college.

A heightened awareness of attributes necessary for success among students, reflected in both their words and actions.

Greater student awareness of college expectations, of how to play school in college, of the importance work ethics as well as academic skills to college success.

Student attitudes and outcomes will improve due to increased focus on learner development as a whole person and application of developing themselves as students. Increased ownership over the learning process and increased pride in work outcomes.

Continued use of the CRSs and student attributes.

I expect that students will have a greater understanding of and drive toward thinking critically.

	B	Winter (N=30)	Spring (N=31)
Have your students' COMPASS scores been made available to you?	Yes	76.7%	66.7%
	No	23.3%	33.3%
Has the GEAR UP Coordinator provided information to you about interpreting or using the COMPASS results?	Yes	40.0%	46.7%
	No	60.0%	53.3%
Do the COMPASS results provide any useful information to you regarding student needs or gaps in learning?	Yes	37.9%	31.0%
	No	62.1%	69.0%

APPENDIX B

TABLE 18A. STUDENT DEMOGRAPHIC INFORMATION

Question		Control	Treatment
Gender	Male	51.2%	54.9%
	Female	48.8%	45.1%
English first (primary) language?	No	11.9%	10.0%
	Yes	88.1%	90.0%
Ethnicity	Black/African American	5.8%	4.3%
	American Indian/Alaskan Native	2.7%	4.9%
	White/Caucasian	62.3%	64%
	Mexican American/Chicano	8.8%	5.7%
	Asian/Pacific Islander	8.4%	7.9%
	Puerto Rican/Cuban/Other Hispanic	1.6%	0.9%
	Filipino	1.5%	1.9%
	Other	5.2%	7.6%
	Prefer not to respond	3.7%	2.8%

N = 739 control; 850 treatment

TABLE 3B. STUDENT DEMOGRAPHIC INFORMATION

		Control	Treatment
What is the highest level of education your father received?	High School or less	35.5%	41.1%
	Apprenticeship or other on the job training program	2.4%	5.7%
	Technical or vocational program	3.2%	3.3%
	Some college, but less than a 2-year college degree	10.1%	10.5%
	2 year college degree	8.4%	8.5%
	4 year college degree	14.5%	8.6%
	Master's degree	8.1%	4.2%
	Doctorate degree (PhD/Ed.D.,M.D.,etc.)	2.8%	.5%
	I don't know	15.0%	17.6%
What is the highest level of education your mother received?	High school	30.2%	36.7%
	Apprenticeship or other on the job training program	2.7%	3.1%
	Technical or vocational program	2.3%	3.3%
	Some college, but less than a 2-year college degree	14.4%	13.1%
	2 year college degree	13.1%	12.0%
	4 year college degree	16.5%	12.5%
	Master's degree	6.3%	4.5%
	Doctorate degree (PhD/Ed.D.,M.D.,etc.)	1.1%	.4%
	I don't know	13.4%	14.4%

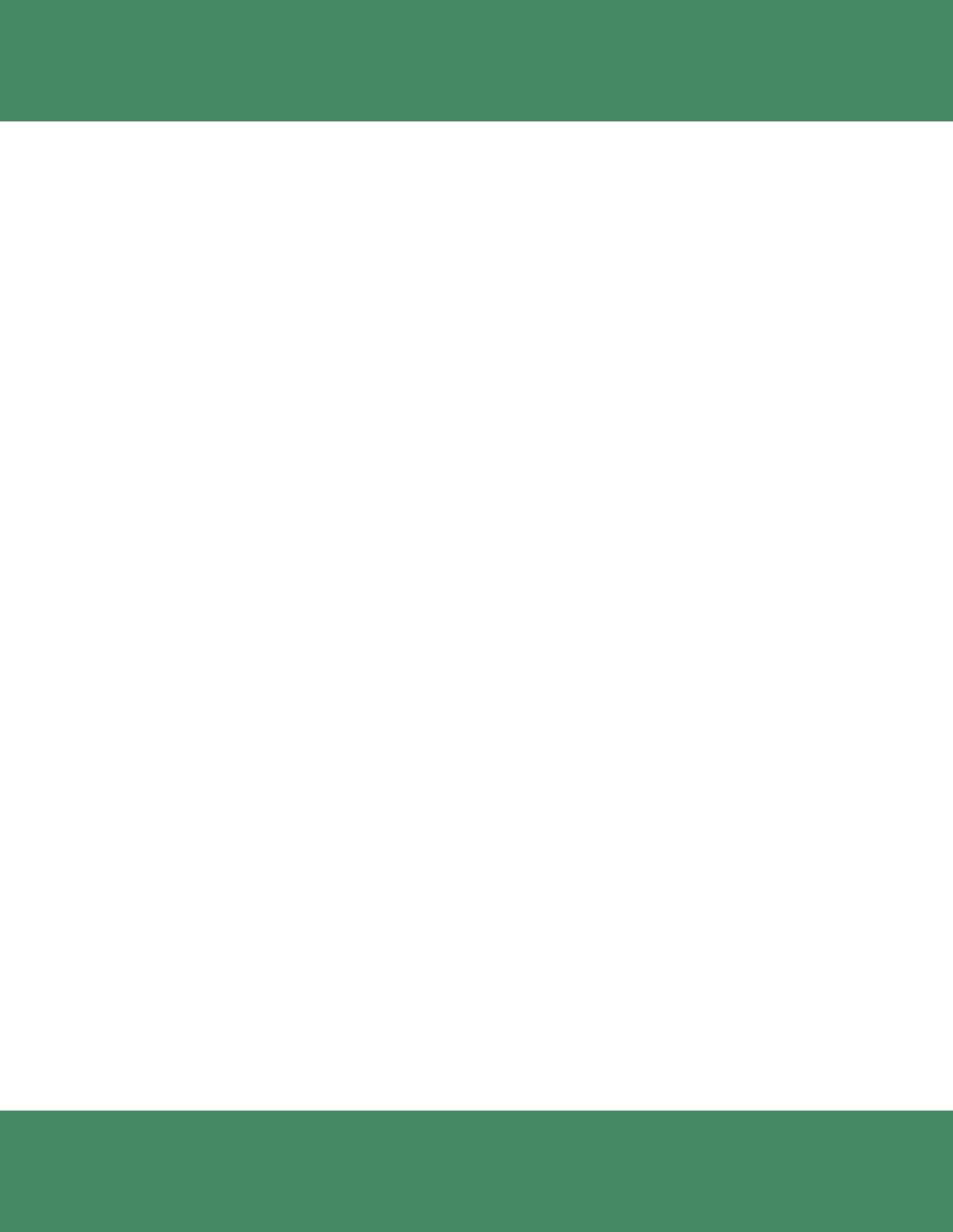
TABLE 3C. STUDENT DEMOGRAPHIC INFORMATION

		Control		Treatment	
		Pretest	Posttest	Pretest	Posttest
Which of the following best describes your participation in your school's GEAR UP program? ¹⁶	I participate in all GEAR UP activities	8.9%	9.5%	8.1%	8.7%
	I participate in most GEAR UP activities.	34.2%	29.2%	17.5%	17.1%
	I participate in a few GEAR UP activities	14.3%	30.6%	24.6%	26.2%
	I do not participate in GEAR UP activities	16.5%	-	22.8%	-
	I am not eligible to participate in GEAR UP activities	5.5%	9.0%	2.8%	10.5%
	I don't know what GEAR UP is	20.6%	21.7%	24.2%	37.5%
Are you currently enrolled in, or have you been enrolled in AVID?	Yes	8.3%	5.8%	15.5%	13.0%
	No	79.6%	80.3%	79.5%	77.5%
	Not offered at my school	12.1%	13.9%	5.0%	9.5%
Are you currently enrolled in or have you been enrolled in Running Start?	Yes	8.7%	-	7.1%	-
	No	91.0%	-	92.5%	-
	Not offered at my school	.3%	-	.4%	-

N = 685 during pretest and 432 during posttest for control group; N = 570 during pretest and 485 during posttest for treatment group

¹⁶Not all items were asked on both the pre and post surveys; cells marked as “-“ indicate that the question was not included.







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