THE BERC GROUP

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PROGRESS REPORT

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# College Readiness Math Initiative: Year 1 (Baseline) Report

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## Prepared for College Spark Washington

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Members of *The* **BERC** *Group* have K–20 experiences as teachers, counselors, psychologists, building administrators, district administrators, and college professors. The team is currently working on research and evaluation projects at the national, state, regional, district, school, classroom, and student levels in over 1000 schools in Washington State and nationally.

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# EXECUTIVE SUMMARY

College Spark Washington (CSW) is a grant making organization dedicated to improving educational outcomes for low-income students in Washington State. In 2014, CSW launched a multifaceted Math Initiative designed to support college readiness around the state. The goal of the initiative was to prepare students to transition into college level math without the need of remediation or other placement courses. This evaluation provides formative and summative data to help understand the fidelity of program implementation as well as help measure program impact.

Additionally, the Charles A. Dana Center at the University of Texas, Austin (Dana Center), conducted a "Teacher Mindsets and Practices Survey" as well as a "Student Learning Mindsets and Strategies Survey" in the schools where SY-AYD and AI were implemented. The results of their findings are detailed in their Fall 2017 report (attachment A), and incorporated throughout this evaluation report.

Equal Opportunity Schools (EOS) is working with four high schools to increase equity in Advanced Placement (AP) and International Baccalaureate (IB) course enrollment for students of color. Agile Mind developed the School-Year Academic Youth Development (SY-AYD) program and Intensified Algebra (IA) curriculum to encourage growth mindset in students. SY-AYD is designed to integrate into an advisory or similar program, and Intensified Algebra is a standalone course designed for students who are not prepared to succeed in a traditional algebra course. Finally, the State Board of Community and Technical Colleges (SBCTC) developed two courses designed for high school seniors who are not prepared to succeed in college-level coursework; Bridge to College English and Bridge to College Math.

There were 148 grantee schools in Cohort 1, with some schools implementing more than one program. The breakdown of programs is as follows:

- Academic Youth Development – 7 Schools
- Intensified Algebra – 18 Schools
- Equal Opportunity Schools – 4 Schools
- Bridge to College English – 99 Schools
- Bridge to College Math – 112 Schools

***Equal Opportunity Schools***

The goal of Equal Opportunity Schools (EOS) is to achieve parity between a school's demographic make-up and their AP/IB class demographics. To that end, students were surveyed about their

knowledge of the AP/IB classes in their programs and their attitudes towards them. EOS then worked with schools to develop strategies to increase enrollments for historically underrepresented groups (primarily African-American and Hispanic). Strategies included increasing options for AP/IB classes, conducting targeted outreach to students prepared to succeed in advanced courses, and removing barriers to enrollment.

During Year 1, researchers visited two schools working with EOS. At Bremerton High School, the principal described EOS as a "great piece to what we've been doing at the high school." The administrator noted staff members were working to address the equity gap but also pointed out that their normal timeline for registration was at odds with the EOS timeline. At Wenatchee High School, school leaders made policy changes around student registration and counselors had individual conversations with students about their schedules. The school increased the number of AP classes and sections they offered. At both high schools, administrators noted that EOS was well aligned with other college-bound programs, such as Advancement via Individual Determination (AVID) and Gear-Up (Gaining Early Awareness and Readiness for Undergraduate Programs).

The main recommendation for Year 1, is to ensure school leaders are aware of the timeline during Year 1. At schools with early registrations, it is important the data collection and analysis happen early enough that counselors and other staff members can conduct a thorough outreach. Alternatively, school leaders can adjust the timing of registration if they have ample warning (at least a year).

***School Year Academic Youth Development***

The SY-AYD program was delivered in a variety of formats, most typically during an advisory program. Schools used a variety of strategies to select students; some enrolled entire grade levels while others targeted students with low test scores. The curriculum was primarily delivered online, although some schools delivered it with printed materials and some schools noted issues with technology and internet access as a barrier to implementation.

School stakeholders, including students, approved of the course theory around brain research and how people learn. However, there was a perception among teachers and students that the actual content was "worksheet heavy." In addition, students at several schools talked about the repetitive nature of SY-AYD. Another consistent theme identified during focus groups and observations was the need to staff SY-AYD classrooms with the "appropriate" teacher(s) who possessed an aligned belief system about how students learn. Finally, students and teachers spoke overwhelmingly of the need to provide more age appropriate content.

Teachers noted that the Agile Mind two and a half-day summer institute clarified the theory, although some would have liked more focus on the content. The school-based coaching was even

more beneficial; one teacher described this level of support as "useful, palatable, enjoyable, and respectful." Teachers noted that even more time with the advisors would be helpful. Administrators were concerned about the cost of a 3-day training when grant funding ends.

Teachers shared that the trust, support, and flexibility from their administrators was essential to the success of the program. Early scheduling, with embedded peer collaboration time for teachers to meet and share ideas, was also noted as a needed organizational change to best support SY-AYD. Finally, adequate technology for all students and staff participating in SY-AYD was brought up during several focus groups across the state.

Teachers reported that their students seemed more engaged and confident, and were more willing to attempt and persist with challenging tasks. Students also made several positive remarks about SY-AYD, including: "[I have] more confidence for high school"; "I now realize you have to be engaged in school to do well in school"; and "I can apply SY-AYD skills to help me to get to the answers. It helps me to get farther."

Recommendations for SY-AYD include:

- integrate the curriculum into core classes, rather than in a stand-alone advisory class;
- allow teachers some autonomy over the delivery and content of the program to limit repetitiveness and worksheet fatigue;
- include clarification of the expectations for online login time in future training and onsite support;
- communicate survey deadlines, procedures, and purpose to program coordinators as early and as often as possible;
- more direct time with advisors, even if it means less large-scale training;
- training delivered to all staff, not limited to program teachers;
- build in time for SY-AYD teachers to meet and discuss the curriculum and instructional strategies needed to implement the program successfully; and
- reduce confusion about implementation timelines by having grantees create a communication plan either as part of their application process or as a later addendum

***Intensified Algebra (IA)***

Most teachers interviewed expressed support for the program and a belief that it was changing student mindsets about math and school in general. Students shared that they felt successful in math for the first time ever and that they enjoyed coming to school because of the class. A student remarked, "Last year I plain hated math. I didn't want to go to math. Now I'm always looking forward to waking up in the morning and going to school and learning math." For teachers, the

difference in the class was not the extra time in the classroom, but the opportunity to build relationships with students and help them develop growth mindsets.

At some small high schools, administrators had to select a teacher that did not support the program. At those schools, teacher comments revealed they did not believe in a growth mindset or were unwilling to teach the program as designed (focusing on real-world problems and having students collaborate and explain their thinking). However, most teachers expressed their support of the curriculum and highlighted positive results.

Other issues that arose during implementation of the program included:

- A language barrier for ELL students accessing a text-heavy curriculum
- Technology issues, especially internet access and dedicated computers for the class
- Balancing the pace of the program to maintain rigor but not overwhelm students

Most teachers found the 2.5-day summer institute very helpful in understanding the program philosophy, while others would have preferred more focus on the content. Visits from academic advisors were the most helpful professional development. Teachers noted visits to other high schools to see the curriculum taught by another teacher was very helpful.

During the spring of 2016, researchers observed 10 Intensified Algebra classrooms. In addition, researchers observed five comparison algebra classrooms in schools that had more than one algebra section. None of the comparison classrooms received an overall positive rating (no 3s or 4s), while 50% of the IA classrooms observed received a positive rating "3" (Somewhat). Instructional practices in the IA classrooms were significantly more aligned than in the study control group or the existing high school math STAR average. However, researchers could not attribute any differences between treatment and control to the Intensified Algebra curriculum, as teacher assignment was not random.

In addition to The BERC Group evaluation activities, the Dana Center also contributed to the evaluation. The Dana Center focused on measuring multiple factors of student agency—the learning mindsets and behaviors that contribute to success and positive academic outcomes for students. They surveyed students and teachers in the Cohort 1 CRMI schools in the 2015-2016 (baseline) and 2016-2017 school years.

AYD was implemented in 7 schools representing 7 districts, while IA was implemented in 18 schools representing 11 districts. For both programs across these schools, all six aspects of learning on the Learning Mindsets and Strategies Survey improved between students' retrospective ratings at the beginning of the year to their current ratings at the end of the school year. This indicates a positive shift in mindsets and strategies.

Across the 18 schools implementing IA, 28 teachers completed the midyear survey and 28 the end-of-year survey. IA teachers showed significant increases on all of three scale scores from their initial survey to their midyear and end-of-year enactment surveys. These increases indicate that teachers' self-reported beliefs and teaching practices improved over that period. The strongest impact was for Teacher Efficacy.

Across the seven schools implementing AYD, 45 teachers completed the midyear survey and 34 the end-of-year survey. AYD teachers showed significant increases on all of three scale scores from their initial survey to their midyear and end-of-year enactment surveys. These increases indicated that teachers' self-reported beliefs and teaching practices improved over that period, with strong effects for all scale scores

Results from the Dana Center fall 2017 report (see Appendix B: College Spark Washington's College-Ready Math Initiative-Annual Report Fall 2017) indicate that the impact of IA and SY-AYD was strongest for students in terms of their perceptions of engagement, metacognition, and belonging. (p 4) There was a small, not significant, negative impact on students' growth mindset. (p 4). Additionally, according to the report, "Teaching IA or SY-AYD had a significant positive impact on teachers' beliefs about their self-efficacy, growth mindset, and teaching practices that promote persistence and self-regulation." (p 3 2016-2017 school year; Year 2, Cohort 1 schools).

Recommendations for Intensified Algebra include:

- more direct time with academic advisors even if it means less large-scale training; and
- a school-wide focus on growth mindset and effective instructional practices.

***Bridge to College***

Teachers and administrators highlighted the engaging, student centered materials, and high-level problem-solving activities in the math class. Teachers shared they were using the worksheets and pacing guides provided with moderate fidelity, noting there were units that required additional materials, or the elimination of content. Others noted the "flow" of the curriculum was "clunky" or "not linear." Teachers and administrators also addressed concerns about the style of learning and instruction, worrying that "students will most likely be back to direct instruction in college and not learn this way." In English Language Arts, teachers expressed an appreciation for the flexibility in the program and the adoption of new materials. They agreed that flexibility in delivery was critical to the success of these classes.

Teachers participated in a three-day summer institute and in "Communities of Practice" during the school year. Program stakeholders identified these communities of practice and trainings as a strength of the Bridge to College initiative. In several of the communities, The State Board of

Community and Technical Colleges (SBCTC) paired a college professor with the high school teachers so they could discuss alignment between the Bridge to College course and college courses. Most teachers felt they had plenty of opportunities to meet with colleagues about the curriculum. One exception was teachers at small schools who did not have a local colleague to meet with more informally.

The SBCTC staff were responsive to teacher concerns throughout the year. Some concerns remained that math content was occasionally "too childish" and that some of the ELA novel selections were outdated or irrelevant to students. Further, teachers did comment that they would have liked more time to become familiar with the material, rather than waiting until August to receive it.

Bridge to College Math classrooms were well aligned with the STAR protocol and Powerful Teaching and Learning in 75% of the classrooms observed, compared to 40% of the comparison classrooms. Likewise, Bridge to College English Language Arts classrooms were well aligned in 83% of the classrooms observed compared to 40% of the comparison classrooms. Overall, increased student engagement, motivation, and confidence were noted for Math and English Language Arts (ELA) programs. Teachers shared that their students were developing "stronger problem-solving skills with multiple strategies," and "just seem more confident."

Recommendations for the Bridge to College program include:

- provide teachers regular updates with anecdotes about successes and challenges, as well as tips for overcoming the challenges;
- provide timely guidance to grantees about how to place students and, if the data are not available, other methods for placing students in the courses;
- let teachers make recommendations about material to remove or update;
- recruit additional higher education partners;
- continue support for professional learning communities (PLCs)throughout Year 2;
- provide all the English rubrics at the beginning of the year and provide several examples of student work for teachers to review;
- develop and distribute pacing guides for every module; and
- provide materials in Spanish (and potentially other languages, depending on the needs of the student population.)

# COLLEGE READINESS MATH INITIATIVE: YEAR 1 (BASELINE) REPORT

## Introduction

College Spark Washington (CSW) is a grant making organization dedicated to improving educational outcomes for low-income students in Washington State. In 2014, CSW launched a multifaceted Math Initiative designed to support college readiness around the state. The goal of the initiative was to prepare students to transition into college level math without the need for remediation or other placement courses. The initiative began by developing strategies and partnerships to provide programs targeted to students who performed below grade level on the Smarter Balanced Assessment. However, the initiative has evolved into a series of best practices in college-readiness that will provide additional support to students who are not prepared to succeed in college-level courses. While the seven-year initiative included strategies for students who performed at all levels on the Smarter Balanced Assessment, the programs as designed were not intended to target specific achievement levels on the SBA. Information is included below about the different strategies within the initiative.

***Equal Opportunity Schools: Higher Level Math***

Equal Opportunity Schools (EOS) is an organization that strives to increase Advanced Placement (AP) and International Baccalaureate (IB) courses in high schools. College Spark included EOS within the comprehensive college readiness initiative to ensure that course offerings were not only expanded, but that class enrollment reflected the diversity of the schools. This initiative focused on strategies for students who might have been prepared for college-level work, but were not necessarily enrolling in advanced classes in high school.

The partnership with EOS first included the identification of the greatest areas for growth by analyzing data. Second, the Partnership Directors worked with the schools to develop a plan. Third, EOS provided support for implementation; including outreach, recruitment, and a review of the data. A subset of AYD and IA high schools worked with EOS to close participation gaps in AP and IB.

***Academic Youth Development***

Agile Mind, in collaboration with the Dana Center, developed Academic Youth Development (AYD). This program translates research on student motivation, engagement, and learning into practical strategies and tools teachers and students can use in the classroom daily. A specific focus is on *Growth Mindset*, whereby teachers and students understand that intelligence is not a fixed quantity. That students can improve their academic success through effective effort, persistence, collaboration, and motivation.

Within CSW's Math Initiative, AYD was designed to be delivered during advisories or in other dedicated settings to students in Grades 8, 9, and 10. The intent was to improve all students' Smarter Balanced Assessment (SBA) scores in the 11th grade. Additional research on this program, conducted by the Dana Center, demonstrated improvements in students' overall Grade Point Average (GPA) as well as decreases in student absences and disciplinary referrals.

***Intensified Algebra 1***

Agile Mind and the Dana Center also developed Intensified Algebra 1 (IA), an intervention program for students struggling in math. This 70 to 90 minute per day math course utilized an assets-based approach to build on students' strengths and develop their academic skills through engaging learning experiences. Intensified Algebra 1:

- Targeted conceptual understanding
- provided integrated review/repair strategies
- supported distributed practice
- reengaged learners through multiple representations of mathematical ideas
- integrated interventions from social psychology to motivate students' positive beliefs
- encompassed enhanced formative assessment strategies, and
- included support for struggling students and for literacy and language development.

Within CSW's Math Initiative, IA was delivered to 8th, 9th, and 10th grade students who were one to three years behind in math. The intent of this program was to have more students become successful at Algebra 1 by passing the course the first time and by reducing the percentage of students scoring below standard on the SBA.

***Bridge to College Math and English/Language Arts***

The State Board for Community and Technical Colleges (SBCTC) created and implemented senior year college readiness math and English courses* that were designed to align with the Common Core State Standards and with pre-college courses in higher education. The courses were developed collaboratively with high school and college faculties. Seniors who have completed the transition courses are able to move directly to college level math and English courses in college without remediation or additional placement testing.

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* Senior transition English courses were included in the Math Initiative evaluation as a courtesy to the State Board of Community and Technical Colleges so they could receive evaluation feedback on both programs.

Twenty-five schools piloted the Senior Year Transition Courses in the 2014-2015 school year, with 120 additional sites anticipated for Year 2, and an anticipated 150 sites added Year 3. The goal of the strategy was to improve the college readiness of students graduating high school, to develop college to school partnerships, to reinforce transcript placement efforts with the SBA, and to provide rigorous alternatives to Algebra 2 as the third-year math course.

## Evaluation Design

College Spark Washington's Math Initiative was unique because of the multi-pronged strategy to improve math. As such, in addition to the overall comprehensive evaluation presented in this report, each partner conducted their own research and collected their own data on the intervention. For example, the Dana Center and Agile Mind collected data on program usage and measures of growth-mindset and non-cognitive factors (appendix A). The State Board of Community and Technical Colleges additionally gathered data to assess the value of the course material, the quality of the course training and technical support, and the impact on college readiness and success in college.

The purpose of this comprehensive report was to address each of these initiatives and to assess the levels of implementation and impact individually and collectively. This evaluation was intended to provide formative and summative data to help understand the fidelity of program implementation as well as help measure program impact. To this end, the evaluation included both mixed-methods and multiple measures. By using both qualitative and quantitative measures, and by providing both formative and summative evaluation data, we were able to tell the story of program development, measure the fidelity of program implementation, determine the impact of program components, and provide information for on-going program advocacy and development. In future reports, we will analyze cohorts of students who receive the intervention longitudinally to determine long-term impact. This serves as the Year 1 report (SY 2015 – 2016).

To strengthen the study, we identified two different comparison groups to study, helping us to understand the impact of the initiatives more clearly. Within schools, we analyzed the results of students participating in the initiatives compared to similar students who did not participate in these courses. In addition, we also identified a group of comparison schools to analyze the impact of School Year Academic Youth Development (SY-AYD) and Intensified Algebra (IA) on the school as a whole. The comparison schools are similar to the grantee schools in size, percent free/reduced lunch, and percent non-white.

## Research Questions

There are four separate programs of study. Research questions are listed below:

1. To what extent was the initiative implemented as intended?
    a. Equal Opportunity Schools
    b. Academic Youth Development
    c. Intensified Algebra 1
    d. Senior Year Bridge Math/ English Course
2. What were the barriers/challenges to implementing the initiative?
    a. Equal Opportunity Schools
    b. Academic Youth Development
    c. Intensified Algebra 1
    d. Senior Year Bridge Math/ English Course
3. To what extent did the technical assistance support implementation?
    a. Equal Opportunity Schools
    b. Academic Youth Development
    c. Intensified Algebra 1
    d. Senior Year Bridge Math/ English Course
4. What organizational changes are required for, or correlate with, successful project implementation?
    a. How do schools successfully implement multiple components?
5. What role did leadership play in successful project implementation?
6. To what extent did student outcomes change overtime (by strategy)?
    a. Attendance
    b. Discipline Referrals
    c. Academic Mindset
    d. Algebra by 8th and 9th Grade
        i. Failure Rates
        ii. Grades
    e. Math Course Taking Patterns in High School
        i. Failure Rates
        ii. Highest Level of Math
    f. Math Achievement on SBA
    g. College Attendance and Persistence
    h. College Remediation Rates
    i. Completion of First Math Course (1st Year and 2nd Year)
    j. Completion of First English Course (1st Year and 2nd Year)
7. To what extent did the initiatives collectively impact student outcomes?
8. What were the promising practices?
9. To what extent were the changes sustainable?

## Study Schools

Researchers at The BERC Group created a matched set of comparison schools for the Agile Mind schools using propensity score matching based on school demographics and location (see Table 1). Table 2 is a comprehensive list of all grantee schools for Agile Mind (IA and AYD), Equal Opportunity Schools, and Bridge to College (Math and English). A list of schools disaggregated by program is available at the beginning of each subsection. Researchers from The BERC Group worked with the Educational Research and Data Center (ERDC) to gather student-level data for all cohort and comparison schools, including demographic, achievement, and grade history data. In future years, researchers will also collect and analyze college-going and persistence data.

*Table 1. Agile Mind Cohort 1 Comparison Schools*

| District/Consortium | School |
|---|---|
| Chimacum School District | Chimacum Elementary School |
| Entiat School District | Entiat Middle and High School |
| Everett School District | North Middle School |
| Everett School District | Sequoia High School |
| Granger School District | Granger Middle School |
| Klickitat School District | Klickitat Elem & High |
| Montesano School District | Montesano Jr-Sr High |
| Moses Lake School District | Moses Lake High School |
| Mukilteo School District | ACES High School |
| North Kitsap School District | North Kitsap High School |
| North Thurston School District | River Ridge High School |
| Sequim School District | Sequim Middle School |
| Toppenish School District | Toppenish High School |
| Toutle Lake School District | Toutle Lake High School |
| Tumwater School District | Tumwater High School |
| Vancouver School District | Jason Lee Middle School |
| Vancouver School District | Hudson's Bay High School |
| Warden School District | Warden Middle School |
| Warden School District | Warden High School |

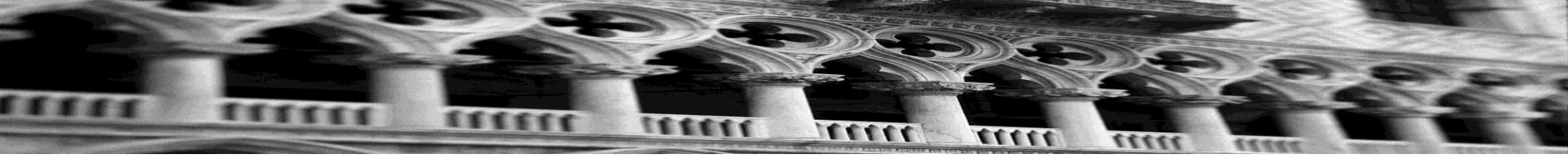
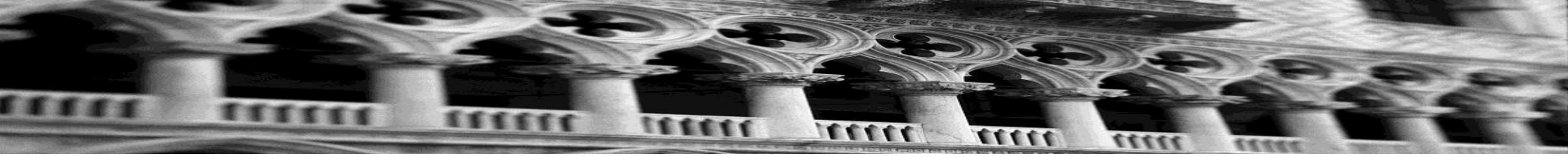


*Table 2. Grantee Schools by Program*

| District/Consortium | School† | AYD | IA | EOS | BtC English | BtC Math |
|---|---|---|---|---|---|---|
| Aberdeen School District | Harbor High School | | | | ● | |
| Aberdeen School District | J M Weatherwax HS (Aberdeen HS) | | | | ● | ● |
| Anacortes School District | Anacortes High School | | | | ● | ● |
| Arlington School District | Arlington High School | | | | ● | ● |
| Arlington School District | Weston High School | | | | ● | ● |
| Bainbridge Island School District | Bainbridge High School | | | | ● | ● |
| Battle Ground School District | Battle Ground High School | | | | | ● |
| Battle Ground School District | Prairie High School | | | | ● | ● |
| Bellingham School District | Bellingham High School† | | ● | | | |
| Bellingham School District | Sehome High School | | ● | | | |
| Bellingham School District | Shuksan Middle School† | ● | | | | |
| Bellingham School District | Squalicum High School | | ● | | | |
| Bethel School District | Bethel High School | | | | ● | ● |
| Bethel School District | Challenger High School | | | | ● | ● |
| Bethel School District | Graham-Kapowsin High School | | | | ● | ● |
| Bethel School District | Spanaway Lake High School | | | | ● | ● |
| Bremerton School District | Bremerton High School† | ● | | ● | | |
| Burlington-Edison School District | Burlington-Edison High School | | | | ● | ● |
| Camas School District | Camas High School | | | | ● | ● |
| Camas School District | Hayes Freedom High School | | | | ● | ● |
| Cape Flattery School District | Clallam Bay High School† | | | | ● | ● |
| Castle Rock School District | Castle Rock High School | | | | ● | |
| Central Kitsap School District | Klahowya Secondary School | | | | | ● |
| Central Kitsap School District | Olympic High School | | | | | ● |

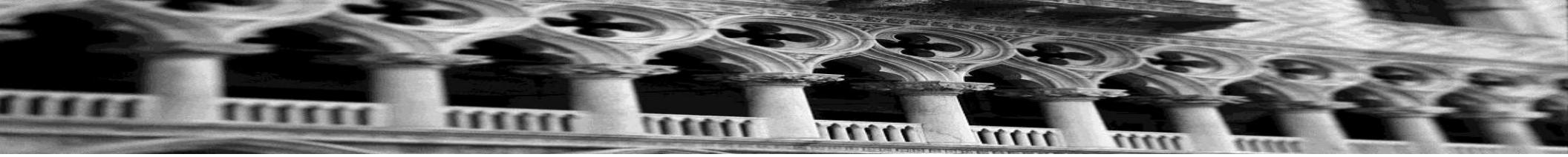
† School Selected for Site Visit (Classroom observations and interviews)

| District/Consortium | School† | AYD | IA | EOS | BtC English | BtC Math |
|---|---|---|---|---|---|---|
| Central Kitsap School District | Westside Alternative | | | | ● | |
| Central Valley School District | Central Valley High School | | | | | ● |
| Central Valley School District | University High School | | | | | ● |
| Chehalis School District | W.F. West High School† | | | | ● | ● |
| Cheney School District | Cheney High School | | | | | ● |
| Chimacum School District | Chimacum High School | | | | ● | ● |
| Columbia (Stevens) School District | Columbia High School | | | | ● | ● |
| Colville School District | Colville High School | | | | ● | ● |
| Colville School District | Panorama High School | | | | ● | |
| Davenport School District | Davenport High School | | | | ● | ● |
| Deer Park School District | Deer Park High School | | | | ● | |
| Eatonville School District | Eatonville High School | | | | ● | ● |
| Everett School District | Cascade High School | | | | | ● |
| Everett School District | Everett High School | | | | | ● |
| Everett School District | H.M. Jackson High School | | | | | ● |
| Everett School District | Sequoia High School | | | | | ● |
| Evergreen School District (Clark) | Evergreen High School | | | | ● | ● |
| Evergreen School District (Clark) | Heritage High School | | | | ● | ● |
| Evergreen School District (Clark) | Mountain View High School† | | | | ● | ● |
| Evergreen School District (Clark) | Union High School | | | | ● | ● |
| Federal Way School District | Decatur High School | | | | ● | ● |
| Federal Way School District | Todd Beamer High School | | | | ● | ● |
| Federal Way School District | Truman High School: Life Flex Prep | | | | ● | ● |
| Franklin Pierce School District | Franklin Pierce High School | | | | ● | ● |
| Franklin Pierce School District | Washington High School† | | | | ● | ● |
| Freeman School District | Freeman High School | | | | ● | |



| District/Consortium | School† | AYD | IA | EOS | BtC English | BtC Math |
|---|---|---|---|---|---|---|
| Grand Coulee Dam School District | Lake Roosevelt Jr/Sr High School | | | | | ● |
| Grandview School District | Compass High School | | | | ● | ● |
| Grandview School District | Grandview High School | | | | ● | ● |
| Granger School District | Granger High School† | | ● | | ● | |
| Granite Falls School District | Crossroads High School | | ● | | | |
| Granite Falls School District | Granite Falls High School† | | ● | | | |
| Granite Falls School District | Granite Falls Middle School† | ● | | | | |
| Highline School District | Health Sciences & Human Resources High School | | | | | ● |
| Highline School District | Westside Alternative | | | | | ● |
| Kelso School District | Kelso High School | | | | | ● |
| Kettle Falls School District | Kettle Falls High School | | | | ● | ● |
| Lake Stevens School District | Lake Stevens High School | | | | ● | ● |
| Lake Washington School District | Lake Washington High School | | | | ● | ● |
| Lopez School District | Lopez Island High School | | | | | ● |
| Mabton School District | Mabton Junior Senior High School | | | | ● | ● |
| Mansfield School District | Mansfield High School | | | | ● | ● |
| Manson School District | Manson Middle School† | ● | | | | |
| Manson School District | Manson High School† | | ● | | ● | ● |
| Mary Walker Consortium | Reardan High School | | ● | | | |
| Mary Walker Consortium | Wahluke High School† | | ● | | | |
| Marysville School District | BioMed Academy | | | | | ● |
| Marysville School District | Heritage High School | | | | ● | ● |
| Marysville School District | Marysville Mountain View High School | | | | ● | ● |
| Marysville School District | Marysville-Pilchuck High School | | | | | ● |
| Marysville School District | School for the Entrepreneur | | | | ● | ● |
| Mead School District | Mead Senior High School | | | | | ● |

| District/Consortium | School† | AYD | IA | EOS | BtC English | BtC Math |
|---|---|---|---|---|---|---|
| Mead School District | Mt. Spokane High School | | | | | ● |
| Meridian School District | Meridian High School | | | | ● | |
| Moses Lake School District | Moses Lake High School | | | | | ● |
| Mount Baker School District | Mount Baker High School† | | ● | | | |
| Mount Vernon School District | Mount Vernon High School | | | | ● | ● |
| Mukilteo School District | ACES High School | | | | ● | |
| Mukilteo School District | Kamiak High School | | | | ● | ● |
| Mukilteo School District | Mariner High School† | | | | ● | ● |
| Naches Valley School District | Naches Valley High School† | | | | ● | ● |
| Nine Mile Falls School District | Lakeside High School† | | | | | ● |
| North Kitsap School District | Kingston High School | | | | ● | |
| North Kitsap School District | North Kitsap High School | | | | ● | |
| North Mason School District | North Mason High School | | | | ● | ● |
| Northport School District | Northport High School | | | | ● | ● |
| Oak Harbor School District | Oak Harbor High School | | | | ● | ● |
| Ocean Beach School District | Ilwaco High School | | | | ● | ● |
| Ocosta School District | Ocosta Jr./Sr. High School | | | | ● | ● |
| Odessa School District | Odessa High School | | | | ● | ● |
| Oroville School District | Oroville High School† | ● | ● | | | |
| Pasco School District | Delta High School† | ● | | | | |
| Peninsula School District | Gig Harbor High School | | | | ● | ● |
| Peninsula School District | Peninsula High School | | | | ● | ● |
| Pomeroy School District | Pomeroy High School | | | | ● | ● |
| Port Angeles School District | Port Angeles High School† | | | | ● | ● |
| Port Townsend School District | Port Townsend High School | | | | ● | ● |
| Prescott School District | Prescott Junior/Senior High | | | | ● | ● |
| Puyallup School District | Chief Leschi High School | | | | ● | ● |



| District/Consortium | School† | AYD | IA | EOS | BtC English | BtC Math |
|---|---|---|---|---|---|---|
| Richland School District | River's Edge High School | | | | ● | |
| Rochester School District | Rochester High School | | | | ● | ● |
| Seattle Public Schools | Garfield High School | | | | | ● |
| Seattle Public Schools | Ingraham High School | | | | | ● |
| Seattle Public Schools | Interagency High School | | | | | ● |
| Seattle Public Schools | Middle College High School | | | | | ● |
| Seattle Public Schools | Roosevelt High School | | | | | ● |
| Sequim School District | Sequim Senior High School | | | | ● | |
| Shelton School District | CHOICE High School | | | | | ● |
| Shoreline School District | Shorecrest High School | | | | ● | ● |
| Shoreline School District | Shorewood High School | | | | ● | ● |
| Soap Lake School District | Soap Lake Middle and High School | | | | | ● |
| South Kitsap School District | Discovery Alternative High School | | | | ● | ● |
| South Kitsap School District | Explorer Academy | | | | ● | ● |
| South Kitsap School District | South Kitsap High School | | | | ● | ● |
| Spokane School District | Ferris High School | | | | ● | ● |
| Spokane School District | Lewis and Clark High School | | | | ● | ● |
| Spokane School District | North Central High School | | | | ● | ● |
| Spokane School District | Rogers High School† | | | | ● | ● |
| Spokane School District | Shadle Park High School† | | | | ● | ● |
| Steilacoom Hist. School District | Steilacoom High School | | | | ● | ● |
| Tahoma School District | Tahoma Senior High School | | | | ● | ● |
| Toppenish School District | Toppenish Middle School† | ● | | | | |
| Tukwila School District | Foster High School | | | | ● | ● |
| Tumwater School District | Tumwater High School† | | | | ● | |
| Vancouver School District | Columbia River High School | | | | ● | |

| District/Consortium | School† | AYD | IA | EOS | BtC English | BtC Math |
|---|---|---|---|---|---|---|
| Vancouver School District | Fort Vancouver High School | | | | ● | ● |
| Vancouver School District | iTech Preparatory | | | | ● | ● |
| Vancouver School District | Skyview High School† | | | | ● | ● |
| Vancouver School District | Vancouver Home Connection | | | | ● | |
| Wahkiakum School District | Wahkiakum High School | | | | ● | ● |
| Walla Walla Public Schools | Walla Walla High School† | | ● | | ● | ● |
| Wapato School District | Wapato High School† | | ● | | | |
| Warden School District | Warden High School | | | | ● | ● |
| Wellpinit School District | Wellpinit High School | | | | ● | ● |
| Wenatchee School District | Wenatchee High School† | | ● | ● | | |
| West Valley School District (Spokane) | Dishman Hills High School | | | | ● | ● |
| West Valley School District (Spokane) | Spokane Valley High School | | | | ● | ● |
| West Valley School District (Spokane) | West Valley High School | | | | ● | ● |
| Yakima School District | A.C. Davis High School | | | | | ● |
| Yakima School District | Eisenhower High School | | | | ● | ● |
| Yakima School District | Stanton Academy | | | | ● | ● |

## Data Sources

Researchers utilized the following measures to obtain qualitative and quantitative data to answer the research questions representing project implementation and impact.

***Student Transcripts and School Data Reports***

To provide a detailed understanding of the outcomes of the study, researchers gathered data from a central data source: Education Research and Data Center (ERDC). Student transcripts and school data reports were the primary artifacts for the analyses. College enrollment and persistence data was also gathered. This information was critical for determining if students enrolled in college. Furthermore, we assessed course taking patterns in Math and English to document when students took Math and English courses. Specific data points included:

- Early warning indicators including, school absence, course failure, suspension, and expulsion
- Standardized test scores
- Academic Mindset Measures
- College-level course taking while in HS (senior year courses, AP/IB , dual credit courses)
- College eligible transcripts
- 8$^{th}$ grade Algebra
- GPA
- College enrollment, remediation, and persistence
- College level Math and English course taking patterns

Whereas the ERDC data are collected for all grantee schools and comparison schools, a sample of schools were selected for additional data collection via site visit. Schools were identified using a stratified, random selection process that represented the total sample geographically, demographically, and programmatically. Schools included in site visit data collections are identified in Table 4. Site visit data collection included classroom observations, interviews and focus groups, program implementation surveys, and supporting document collection.

***Classroom Observations***

The research team conducted classroom observations in IA Classrooms and Bridge to College (Math & English), senior level transition courses. In addition, observations were conducted in other Algebra courses and other senior level Math and English courses within the same schools, using the STAR Classroom Observation Protocol. The purpose of these observations was to document the

extent to which Powerful Teaching and Learning‡ was occurring in the classrooms and to document differences in instructional strategies. These observations, interviews, and focus groups were conducted on the day of the site visits.

***Structured Focus Groups/Interviews***

Researchers conducted focus groups and interviews with administrators (district and school), teachers, and students participating in the initiative. In addition, researchers interviewed program leaders from the Dana Center, the State Board of Community and Technical Colleges, The Office of the Superintendent of Public Instruction (OSPI), and College Spark. The purpose of the interviews and focus groups was to learn more about the implementation of the initiatives.

***Implementation Survey***

An implementation survey was developed, in which grantees rated levels of implementation within their initiative. This survey was administered to the principal at each school participating in the IA and SY-AYD evaluation process.

***Student & Teacher Mindset Surveys***

The Dana Center conducted surveys among students and teachers participating in IA and SY-AYD to evaluate impact on learning mindsets. The Teacher Mindset and Practices survey was administered across the 15 IA and SY-AYD schools two times (at mid-year and end-of-year) in 2016-2017. The Student Learning Mindsets and Strategies Survey was administered to students three times (baseline, mid-year and end-of-year) in 2016-2017.

***Documentation review***

A thorough review of current available documents was conducted, including assessment reports, progress reports, project summaries, policies, goals, progress checks, survey data, promotional literature (to assess outreach efforts), recruitment and support activities, internal evaluation efforts, and previous evaluation work.

‡ For more information on Powerful Teaching and Learning™, visit www.bercgroup.com

## Evaluation Findings

Research findings are presented by program. Equal Opportunity Schools, followed by Agile Mind (IA / SY-AYD), and finally the Board for Community and Technical Colleges (Bridge to College Senior Transition Courses).

## Equal Opportunity Schools

During the 2015 – 2016 School Year (Year 1) of the College Readiness Initiative, four schools received funding to implement Equal Opportunity Schools (EOS): Bremerton High School, Enumclaw High School, South Kitsap High School, and Wenatchee High School. Researchers visited Bremerton High School and Wenatchee High School. However, Wenatchee High School experienced leadership turnover during the year and did not make significant progress implementing the program. School leaders explained that they would repeat the Year 1 implementation of the program during the 2016-17 school year. Therefore, the findings section, rather than addressing specific research questions, provides an overview of the implementation and lessons learned for future implementers.

# Program Overview

According to program reports, EOS is "transforming lives by ensuring all students have the opportunity to succeed in challenging high school courses." Specifically, the program's goal was to increase enrollment in Advanced Placement (AP) and International Baccalaureate (IB) classes for students of color. Over the course of a year, EOS coaches worked with school leaders to collect data on students and courses, develop strategies to increase enrollment for students of color, and then implement those strategies. EOS has worked in over 140 schools throughout the country, and incorporates an equity lens to all of their work.

For EOS, data collection began with an analysis of current school demographics and AP/IB course enrollment. The data collection resulted in "gaps charts" that compared participation of the "benchmark" groups (medium/high income white and Asian students) with underrepresented groups (low-income white and Asian, Hispanic/Latino, and Black/African American, and other students). These data were provided periodically throughout the course of the intervention to help school leaders monitor their progress. In addition, EOS analyzed student transcripts and other data to identify students that could be successful in an AP/IB class but were not enrolled, based on how well they matched students currently enrolled. The enrollment rates for the 2014-15 school year (currently the most recent data available) are presented in Table 3. It showed that, while White and Asian students (the "benchmark" group) made up 58.1% of the student body at Bremerton High School and 52.5% at Wenatchee High School, they made up 68.9% and 67.2% of the AP enrollments, respectively.

*Table 3. 2014-15 Advanced Placement Enrollment Rates by Race/Ethnicity*

| | Bremerton HS | | Wenatchee HS | |
|---|---|---|---|---|
| | % Total Students | % Enrolled in AP | % Total Students | % Enrolled in AP |
| **Total # Students** | 1239 | 245 | 2182 | 256 |
| **Asian** | 6.2% | 11.8% | 1.0% | 1.2% |
| **American Indian/Alaskan Native** | 1.6% | 0.4% | 0.2% | 0.0% |
| **Black** | 5.1% | 2.9% | 0.5% | 0.0% |
| **Hispanic** | 16.8% | 11.0% | 44.7% | 29.3% |
| **Pacific Islander** | 8.7% | 1.6% | 1.2% | 0.4% |
| **White** | 51.9% | 57.1% | 51.5% | 66.0% |

A major component of strategy development was based on staff and student surveys. The surveys measured student grit, growth mindset, academic integrity, focus, and other student skills. It also asked students to reflect on the AP/IB courses and share their thoughts about them. These surveys helped schools identify reasons students do not enroll in AP/IB classes and what classes they might be interested in. One EOS staff member reported, "Students may not enroll because they do not see other students like them in the class, they are not sure what the classes are about, or nobody encouraged them to enroll." Per EOS staff, another issue may be staff attitudes about how AP/IB classes should be taught and the level of support they should provide students to ensure they succeed. Based on the surveys and data analysis, school leaders created an outreach list of students to target and discussed why those students were not enrolled. The surveys also helped identify staff members who could serve as champions for the program; those who were interested in supporting students or teaching AP/IB classes. The survey analysis culminated in an Equity Pathways Report that summarized the findings and acted as a tool for school leaders to address the equity gap.

Using the Equity Pathways Report and in consultation with a partnership director, school leaders developed strategies to address the enrollment gap. Strategies included targeted outreach to underrepresented students, creating a cohort of students of color so students identified with their peers in the class, or addressing teacher attitudes about the AP/IB classes. The survey results included a list of "trusted adults" students identified. Those adults were used as an outreach tool to encourage more students to enroll in advanced classes.

The partnership directors worked with school and district leaders regularly during the first year. The model was for the director to visit the school once a month during the first year. The director met with the principal or leadership team to discuss how they could deliver the message of EOS or work with staff. Other times, the coach may have had the "hard conversations" with staff members. In addition, they looked at policies and practices with the leadership team to eliminate barriers to enrollment.

Most support came in the first year of implementing EOS. The first year ended with a report summarizing the work done and what the next steps were. While EOS offered some continuing support services, the bulk of the implementation fell on district and school leaders. In addition, College Spark offered a financial incentive to schools that "close the gap" in their advanced classes. For each additional student from the underrepresented group who enrolled in an advanced class, College Spark provided the school $175.

## Evaluation Findings

Bremerton High School fully implemented the program in Year 1. They worked with their coach to survey their students and identify the equity gap. The principal reported that they had a "compressed time frame" to conduct outreach based on the survey results. They registered students in February, but the typical EOS timeline called for outreach during the spring. While they were still able to do some outreach, the principal said, "I'm worried we might not have the impact that we would have had we gotten things going sooner and had time to interact more fully with kids that have aspirations but that are maybe nervous about AP classes."

The partnership director from EOS worked with the school's leadership team and according to EOS reports, the staff was very supportive of the initiative. Advanced Placement courses were already open enrollment and the school provided guidance. This policy helped support implementation. In addition, an advisory class gave teachers more opportunity to encourage students to enroll. As stated in the executive summary, the principal described EOS as a "great piece to what we've been doing at the high school." The principal went on to describe how EOS aligned with the Advancement via Individual Determination (AVID) program and an existing after school tutoring program.

At Wenatchee High School, the vice principal shared some thoughts on the program. Based on the surveys and data collection, the school learned that "there is not a big push" by staff members to encourage students to enroll in AP classes. As a result of those findings, school leaders made policy changes around student registration and counselors had individual conversations with students about their schedules. They increased the number of AP classes and sections they offered. The district supported their work by providing the necessary curriculum and materials for the sections. Further, the vice principal noted that EOS aligned well with their college-bound programs, such as AVID and Gear-Up (Gaining Early Awareness and Readiness for Undergraduate Programs). Data from the 2014-15 school year showed a disparity between the percentage of students in the "benchmark" group (White and Asian students) at both high schools.

## Summary/Recommendations

Overall, school leaders shared positive responses about the program. They made structural changes to the schools to ensure every student had the opportunity and encouragement to enroll in advanced classes. As Year 1 focused primarily on data collection and strategy development, it will take several years to determine if the program has an impact on student enrollment and success in AP/IB classes.

The main recommendation now is to ensure school leaders are aware of the timeline during Year 1. As the principal at Bremerton High School shared, they struggled with outreach before their registration deadline. At schools with early registrations, it is important the data collection and analysis happen early enough that counselors and other staff members can conduct a thorough outreach. Alternatively, school leaders can adjust the timing of registration if they have ample warning (at least a year).

## School Year Academic Youth Development

During Year 1, researchers visited all seven schools implementing the School-Year Academic Youth Development (SY-AYD). The following schools were part of Cohort 1 (Table 4).

*Table 4. Academic Youth Development Schools, Cohort 1*

| District/Consortium | School |
|---|---|
| **Bellingham** | Shuksan Middle School† |
| **Bremerton** | Bremerton High School† |
| **Granite Falls** | Granite Falls Middle School† |
| **Manson** | Manson Middle School† |
| **Oroville** | Oroville High School† |
| **Pasco** | Delta High School† |
| **Toppenish** | Toppenish Middle School† |

# Program Overview

The Agile Mind SY-AYD program was "based on research about how students' mindsets, motivation, and persistence affected their ability to be successful. According to the Agile Mind publications, "SY-AYD transform the way adolescents engage in school and helps educators create and manage a powerful learning culture." Ultimately, this program was designed to serve school communities. "Participating students develop knowledge and skills to share with and model for their peers, thus becoming change agents in improving the learning culture of classrooms and the outcomes of students. Teachers and administrators are equipped with powerful research, insights, and strategies to shape their practice with all of the students they serve." (Agile Mind, 2015)

Although they were all under the SY-AYD program, schools chose different delivery models to begin implementation. Designed for students in grades 8-10, SY-AYD may be taught during homeroom, advisory, or after-school, and was designed to provide students with strategies to be socially, emotionally, and academically successful in school. Lessons included in the SY-AYD curriculum focused on problem solving, collaboration, and perseverance, and encouraged teachers to build capacity in students and created a powerful learning culture in their classrooms, and across entire schools. SY-AYD highlighted several critical concepts explored through this program, including:

- *Learning mindsets*
- *Effective effort (grit)*
- *Self-management*
- *Communication and collaboration*

Additionally, program developers noted, "Research makes clear that what students think about their potential as learners—and what educators think about their students' potential—dramatically affects adolescents' learning trajectories" (Agile Mind, 2015). As part of the SY-AYD model, a specific program for educators (E-AYD) was offered to provide professional development and support these shifts in thinking and instructional practice.

## Contextual factors

Based on focus groups and interviews with school and program level stakeholders, researchers identified several contextual factors influencing the implementation of SY-AYD. School schedules, teacher interest and suitability, and availability of reliable technology impacted the delivery and fidelity of SY-AYD across schools. Additionally, the timing of the grant selection process was identified by several schools as a challenge to implementation.

***School Schedules***

Many focus group participants discussed the need to eliminate other content to accommodate the SY-AYD curriculum. Some schools felt they had competing initiatives, and needed to choose the most important aspects of each. Because of the difficulty of "fitting" SY-AYD into existing schedules, most schools chose to implement a modified version of SY-AYD. In doing this, some program fidelity was lost.

***Teacher Interest***

Comments in several of the focus groups demonstrated that implementation was associated with teacher interest and attitudes. For example, during focus groups one teacher shared, "I started out closed minded. Seeing the brain research and having a way those first lessons should be presented, it made the kids understand that they have the power over their level of intelligence. It's empowering for the students. But you have to have the right teachers to do it." An administrator also spoke to this issue, noting that the plan was to choose different teachers that were more aligned with the belief system underlying the framework for SY-AYD. He acknowledged that the implementation could have gone more smoothly with different staffing choices: "One of the keys is finding the right staff. It doesn't matter what curriculum you have if you don't have the right person to work with those kids."

***Reliable Technology***

The SY-AYD Implementation Guide specified the technology requirements for the delivery of the curriculum. It was an expectation that teachers and students engage in the electronic components of the program. Students, teachers, and administrators spoke to this issue during interviews and focus groups. In some schools, there was not enough technology for all students, while in other schools, the internet access was unreliable, causing students to spend most of their SY-AYD time trying to log on. During one observation, researchers observed 15 minutes devoted to logging in. After multiple unsuccessful attempts, the teacher decided to abandon the lesson plan, and allow the students to read until the end of advisory. An additional challenge was keeping track of unique passwords for each student.

***Grant Timeline***

According to the grant calendar from College Spark, grantees were notified in early January and the first webinar for the grantees was on January 23rd, 2015. However, several school level stakeholders expressed concerns that they learned of their award too late. They noted that by the time they were clear on the award, they had already created master schedules for the upcoming year. As a result, there was some frustration with scheduling the SY-AYD classes. One teacher noted, "(We were) unclear of how to fit the program into the current master schedule. Unless we were going to overhaul the master schedule…" Another shared that they wished the application process was more detailed and specific, so they could have made more informed choices early on in their decision to apply. However, comments did not make it clear whether January was too late to learn about the grant, or if the individuals in charge of the schedule did not learn until later in the school year.

## Evidence of Implementation

***To what extent was the initiative implemented as intended?***

The implementation guide published by Agile Mind stated that schools should put structures in place to prepare for the SY-AYD program, including identifying key personnel, generating awareness of the program, and choosing appropriate teachers. SY-AYD was intended to be delivered within established school and district level structures; for example, into advisory, extended homeroom, and after-school programs. Stakeholders were to carefully schedule and select students for SY-AYD. The implementation guide stated that "partners have found the greatest success when class meetings occur at least twice per week" (p.17).

Once structures were put into place, teachers should have been provided planning time to familiarize themselves and align instructional practices with the SY-AYD curriculum. Program leaders also suggested that teachers be given time to collaborate with peers and participate in appropriate, dedicated professional development throughout the year. Once actual implementation began, teachers were to focus on helping students with "application of their learning throughout the program to all of their classes" (p.17). Student learning, per the implementation guide, was intended to be reflective, active, and promote problem solving skills to enhance achievement.

One school administrator shared, "There is always a little bit of frustration with any implementation. Time is needed to look at the lessons, and add their (teacher's) own creativity to it. We expect implementation to improve as they (teachers) move through the learning." Other school level stakeholders agreed with this assessment, and discussed the need to provide teachers with time and resources to begin delivering the curriculum. Despite some challenges with the initial implementation, however, all schools visited in the spring were actively engaged in some version of the SY-AYD program. Researchers explored the varying delivery models, student selection processes, and fidelity delivery of curriculum across the seven schools visited.

***Principal Survey.*** Principals completed an implementation survey at the beginning and end of the school year. The survey was designed to quantify the five areas of implementation outlined in the

SY-AYD Implementation Guide. Each survey item was designed as a forced-choice, 4-point Likert-type scale. Overall, responses were more positive at the end of the school year (see Figure 1). A mean score response of 3.0 or higher on the factors would represent a high level of implementation. Four out of the five factors improved, but did not reach the 3.0 mark. *Infrastructure, Resources, and Materials* decreased slightly in the spring but remained above 3.0. Overall implementation responses were interpreted as positive for Year 1 implementation.

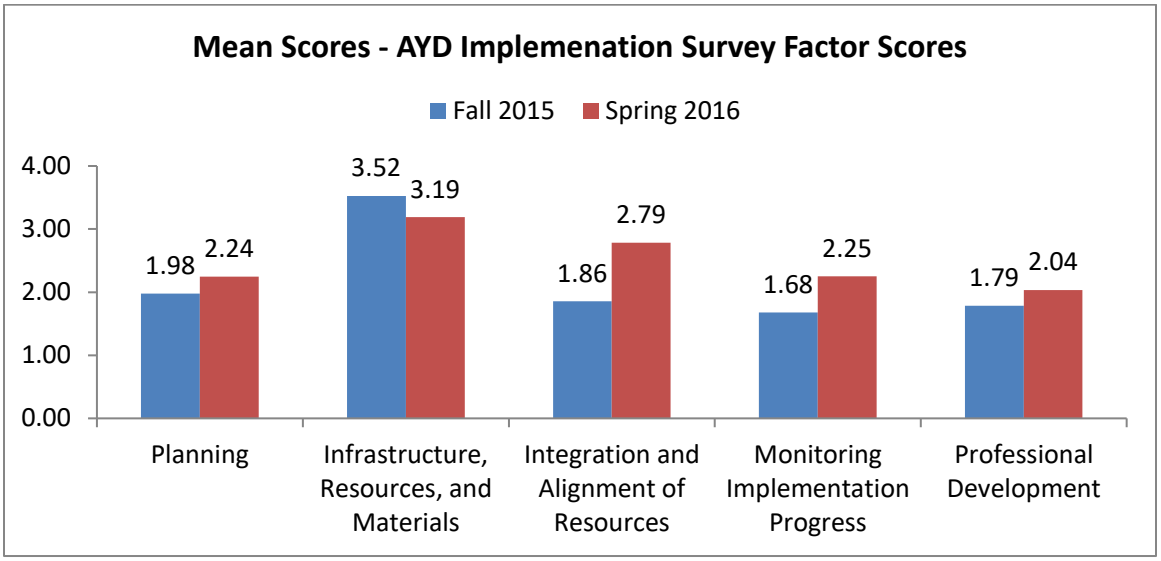



*Figure 1. SY-AYD Principal Implementation Survey*

***Class organization.*** Delivery of SY-AYD differed across the seven schools visited in spring 2016. Table 5 displays information provided by school administrators during the 2015-2016 school year. Of the seven schools visited, four provided SY-AYD courses daily. Total weekly minutes were significantly different across schools, with a range as low as 64 minutes per week at one school to as high as 225 minutes per week at another.

*Table 5. School-Year Academic Youth Development Program Format*

| School | In what format does the school deliver the SY-AYD curriculum? | How often does the SY-AYD class meet? | How long is each SY-AYD class? |
|---|---|---|---|
| School 1 | Advisory program | Twice per week | 45+ minutes |
| School 2 | Advisory program | Daily | 16-29 minutes |
| School 3 | Math and reading support classes | Daily[§] | 45+ minutes |
| School 4 | Advisory program | Daily | 16-29 minutes |
| School 5 | Advisory program | 4x per week | 16-29 minutes |
| School 6 | Advisory program | 3x per week | 30-45 minutes |
| School 7 | Embedded in other content areas | Daily | 45+ minutes |

[§] This school switched to delivering SY-AYD 4 days per week mid-year.

***Student selection.*** Students were placed into SY-AYD for a variety of reasons. At one school, all STEM classes were combined with SY-AYD, and ninth grade students not progressing to biology were placed into these classes. Similarly, at another school, students were placed into SY-AYD based on low test scores. Several schools incorporated SY-AYD into their existing advisory time, while others offered the course to an entire grade band. One administrator noted, "This year all 9th and 10th graders were participating in SY-AYD, but next year the school is moving to 9th only. The content seemed too immature for the 10th graders." Another shared, "Right now, it (SY-AYD) is being delivered 30 minutes a day for 4 days a week. Next year, it will be better. (We will be) teaching it in 68-minute blocks for a trimester. To maintain momentum, we feel it needs regularity."

***Program communication.*** In addition to selecting students to participate in SY-AYD, several school stakeholders discussed communication efforts regarding SY-AYD to families. For example, one administrator shared that their school included a discussion about SY-AYD in student-led conferences at the start of the year, and another reported that they included information in a family newsletter. Several other schools shared that parents and families would not have any knowledge of the SY-AYD program, although students were familiar with the language and overarching message of the program. Additionally, school personnel discussed the value of sharing the language and belief systems behind the program with families, in the hopes that parents might incorporate the SY-AYD concepts at home.

***Fidelity of curriculum delivery.*** Delivery of the SY-AYD curriculum differed across schools. One notable difference was the use of print or online resources. Focus group participants discussed the pencil and paper materials, as well as the on-line component of SY-AYD. One participant shared, "(There was) confusion about how much of the curriculum should be delivered in what way (print or online). The (Agile Mind) consultant was initially concerned about one of the teachers not having signed in on-line enough, so he thought she was not delivering the curriculum- she was using the resources in the binder instead." Some of these confusion points led to a lack of implementation fidelity, as several teachers identified being too busy, at times, to seek out answers, so they abandoned unfamiliar lessons for previously vetted plans.

Overall, school stakeholders felt extremely positive about the initial focus on brain research. One noted, "I love the beginning of this curriculum, when they talk about brain development, and how teenagers make poor decisions because their brains are not fully developed." Students shared this viewpoint, and felt that the opportunity to learn about growth mindset, fixed mindset, and unproductive thinking were critical components of the SY-AYD program. Additionally, one teacher shared that the curriculum was heavily academic, which was a shift from their typical advisory classes. Students contributed to this discussion as well, and provided researchers with a broad understanding of the variety of delivery methods, based on school and individual teacher style and capacity. One student shared, "Our SY-AYD is weird. We don't always do something.

Sometimes the teacher would put up a lesson. Sometimes I go up and teach the lessons. It is pretty laid back. Someone might make a comment, and we will have a discussion…and some of the comments spark really great discussions." Another student noted that they often try to use the on-line component, but have difficulty getting consistent access and end up just moving on to other advisory topics. Overall, students spoke most positively about the games and puzzles component of SY-AYD, and expressed the desire for more lessons involving these problem-solving activities.

A consistent message from teachers was that the curriculum was very "worksheet heavy." Overall, students agreed with this message, sharing that the worksheets were one of the least successful components of the program. Many teachers discussed the need to modify the curriculum, and add more diverse pedagogy to keep students engaged. One shared, "Lessons are not very engaging…my kids get really bogged down. If I don't make it accessible to them, they lose interest." In the words of one participant, "We have also discovered there is not a lot of variety in pedagogy in it- most of it is worksheet based- we add our own strategies. For the reading, we have added structured note taking; we build Cornell note sheets for the kids to use." Focus group participants noted the worksheets, in particular, as not engaging to students.

In addition to discussions about the content provided in the SY-AYD curriculum, school level stakeholders discussed the amount of time needed to successfully deliver lessons. Comments from teachers included, "SY-AYD needs a couple days for each lesson. We do a whole topic each time- like a mini unit- instead of just a single lesson. We take longer, since we add other things into the curriculum- maybe from AVID or NAV." Another teacher shared, "We have an advising period every morning, but this has not been successful. There is not enough time, and getting set up for each classroom takes too long. Next year it will be a 45-minute class, one semester long, and only 8$^{th}$ grade." This message was consistent across schools where SY-AYD times were less than 20 minutes per period. One school worked with Agile Mind to address this issue, and chose to deliver the curriculum during other content classes, instead of trying to squeeze time into an already tight schedule.

***What are the barriers/challenges to implementing the initiative?***

During an interview with program level stakeholders, participants spoke candidly about barriers and challenges to implementing the SY-AYD program. One leader shared, "We did not use best practice when choosing Cohort 1. For the next cohort, we want to make sure it's a clean process, and that Agile Mind understands what we need to do as a state agency." Leaders also shared, "SY-AYD as a stand-alone advisory program in our state is not as effective as it could be as when it is in a classroom or integrated into school-wide systems." An example of integrating SY-AYD into school-wide systems was a school that implemented the program within an existing STEM class. One state official said of the STEM class integration, "I was impressed."

The ability to deliver SY-AYD with flexibility was mentioned during several focus groups. One teacher said that knowing there was flexibility at the start of implementation would have increased teacher investment at her school.

In addition to the previously mentioned macro-level challenges, school level stakeholders identified several micro-level challenges. Specifically, the repetitive content and methods of the curricular materials, the teacher beliefs and mind-set needed to successfully teach SY-AYD, the age appropriateness of the materials, and problems with reliable access to the on-line content were themes identified by researchers.

***Repetition.*** Students at several schools, talked about the repetitive nature of SY-AYD. Comments included, "There are good concepts, but it is really repetitive and long," and "The reflection worksheets were too long, with too many questions." Teachers shared a similar viewpoint, noting that "The kids do the worksheets, but where is the processing time?" Even with the reflection component to each worksheet, teachers questioned the genuineness, citing the repetition in content and format.

***Teacher interest and investment.*** Another consistent theme identified during focus groups and observations was the need to staff SY-AYD classrooms with the "appropriate" teacher(s) who possess(es) an aligned belief system about how students learn. While some schools shared that they were already familiar with AVID strategies and growth mindset, other schools were not certain all the staff involved believed in the theory and intentions behind SY-AYD. One administrator shared, "For us, change in teachers will drive our success." Another noted, "We are choosing teachers more purposely for our next year of delivery." Similarly, students seemed to have an awareness of teacher interest and investment, and spoke to the varied delivery models, within the same school, depending heavily on the teacher.

***Age appropriate content.*** Overwhelmingly, students and teachers spoke to the need to provide more age appropriate content. Several students identified many of the cartoons and activities as "babyish." and admitted they were less likely to be motivated or invested if the content left them feeling insulted.

***To what extent did the technical assistance support implementation?***

School level stakeholders shared a variety of perspectives when asked about the technical assistance and support offered for SY-AYD. While some schools felt assistance was comprehensive and helpful, others expressed dissatisfaction and/or ambivalence. Qualitative responses related to the summer training and advisor provided insight into teacher and administrator experiences during this first year of implementation.

***Training.*** The AYD Implementation Guide states that teachers should participate in dedicated professional development throughout the year. Specifically, Agile Mind provides a 2.5-day training for all key school personnel, and advisors were sent to schools to work directly with teachers and administrators on structuring and delivering the curriculum.

Teachers and administrators shared a variety of responses when asked about the 2.5-day training opportunity in Bellingham. For example, one teacher told researchers, "At the training, they gave us some information; random information and no manual, but said it was everything you need to get onto the system." This teacher continued to express frustration with the lack of support once the training was over. Another teacher noted, "I've done a lot of trainings, (this is) one of the worst I've had in terms of lack of overview and components. They need to allow for different ways of thinking. They are preaching it, but not walking the talk." Conversely, several teachers expressed satisfaction with the training, sharing that the information clarified the purpose and theory behind SY-AYD. One shared, "We learned about implementation, worked through some of the topics, and did some useful planning for the year." Several others enjoyed learning the foundational and theoretical knowledge and research provided by program leaders.

Overall, administrators seemed more consistently positive about the content and organization of the training. One shared, "Anytime you do something new, the challenge is to make it feel familiar enough for staff members. That's what the training did; it provided positive messages about the results of the program, and made it exciting for staff." Another noted, "In terms of getting the teachers prepared, it was very beneficial." One area of administrative concern, however, was the cost to send teachers to the training. A school principal said, "The training costs a huge amount of money to send people. Maybe we need to do a train-the-trainers model, or a more regional training." Other representatives from remote districts and schools shared similar concerns. Moving forward with training and support, one leader said, "I don't want to sit in a classroom and look at the curriculum again. I almost wish we had more than 2 days with our advisor… For second year, we need one full day of additional content learning, and a second full day of planning the year… or, a day mid-year to talk to people and plan for next year that would be great."

***Dedicated advisor.*** Responses were overwhelmingly positive in response to questions about the support offered by school level SY-AYD advisors. One teacher described this level of support as "useful, palatable, enjoyable, and respectful." Another shared, "I love the advisor support visits- it is huge to have that connection and communication- it forces you to stop and look at the data, and (provides) a level of accountability. I hope that continues. Everyone on their team is kind, friendly, and supportive- very open to questions, and positive." Some teachers proposed "more hands on" opportunities with the advisors, and others suggested more check-ins throughout the year would be beneficial. A few teachers from one school agreed that the most successful part of their SY-AYD training was their advisor's dedicated time with them: "Our trainer… he was closer to the actual teaching protocol, so we could watch his pacing. Feedback from (our advisor) specific to our school was more beneficial than the full 3-day training."

***What organizational changes are required for, or correlate with, successful project implementation?***

Overall, school personnel were positive about the fit of the SY-AYD program into their existing school cultures. Some reinforced the need for full administrative and instructional support to successfully implement SY-AYD, and others addressed the need for flexibility in working with the master schedule, careful consideration in choosing the teachers to participate, and opportunities for collaborative planning time with teachers within the building, as well as with SY-AYD teachers from other programs. Additionally, teachers noted that administrative trust and flexibility in delivery of the curriculum was also necessary for successful implementation. Finally, adequate technology for all students and staff participating in SY-AYD was brought up during several focus groups across the state. One teacher shared, "We just need to continue working together to integrate the (SY-AYD) curriculum into our own curriculum. Now that we know we have some flexibility to make changes, we can include or exclude things we think are applicable to our kids." Another teacher shared that knowing what the plan was early into the scheduling process would be most helpful.

Early scheduling, with embedded peer collaboration time for teachers to meet and share ideas, was also noted as a needed organizational change to best support SY-AYD. One administrator acknowledged, after seeing the program in action, "All teachers teaching it need to have collaborative planning time, which is difficult to schedule during the day, but necessary." Another shared, "We have set aside one afternoon a month after school, and found money to pay for it. Initially, it was a complaint session, but it is improving. We invited another school to come see what we are doing, and we hope to go observe them next year."

***What role did leadership play in successful project implementation?***

School level personnel identified administrative support as a critical feature of successfully implementing SY-AYD. Many schools, especially small ones, required flexibility in scheduling to accommodate the program. School administrators were instrumental in finding both the time and the staff needed to be successful. For example, one teacher shared, "Our principal is very supportive, and familiar with 'mindset' work. The philosophy side is heavily supported, and they got us technology this year. The administration gives us time in our staff meetings to share what we do with the other teachers. One expectation is that we bring SY-AYD to the entire staff."

Agile Mind program leaders noted that school leadership had the potential to distinguish high-implementers from low-implementers. Schools with active and involved administrators were more likely to select appropriate staff, build in time for collaboration, and modify schedules for a best fit.

In summary, implementation in Year 1 was *experimental*. Schools tried many different strategies and made concerted efforts to implement. In most cases schools struggled due to scheduling and staffing related issues but remained optimistic.

## Evidence of Impact

***What are promising student outcomes?***

Currently, there are data available for the 2013-2014, 2014-2015, and 2015-2016 school years. To address research questions relevant to SY-AYD, researchers analyzed academic and behavioral data, including discipline referrals, attendance, failure rates, and grades. The University of Texas, Dana Center, will also provide analyses connecting student outcomes to teacher and student growth mindset.

To analyze grantee and comparison school outcomes, data were organized by school year cohort groups, with 8th, 9th, and 10th graders combined to represent each cohort. Additionally, students were included in the sample if they attended 90 or more days during the school year. The following figures and tables provide three years of data comparing SY-AYD grantee schools and comparison schools.

***Discipline.*** Researchers analyzed discipline data to identify how many students received discipline referrals during the school year in SY-AYD grantee and comparison schools. In 2013-2014 (cohort 2014), 4.9% of students in grantee schools, and 7.4% of students in comparison schools, received at least one discipline referral. In 2014-2015 (cohort 2015 - baseline year), the percentage of students receiving discipline referrals increased for comparison group schools, but remained constant for SY-AYD grantee schools. The inverse was true for 2015-2016 (cohort 2016 - grantee implementation year). Grantee schools experienced a significant increase, while comparison schools remained somewhat consistent with the prior year (Figure 2). Grantee discipline percentage increased from 4.9 to 12.2 (7.3 percentage point increase). Comparison school discipline percentage increased from 7.4 to 13.7 (6.3 percentage point increase). For each year, researchers used chi-squared tests of association to determine statistical significance between grantee Cohort I and comparison groups. Results for the 2014 and 2015 cohorts demonstrate a statistically significant difference between groups. The differences between Cohort 1 and comparison school discipline referrals was non-significant in 2016. Future analyses will continue to look at the rate of change between groups.

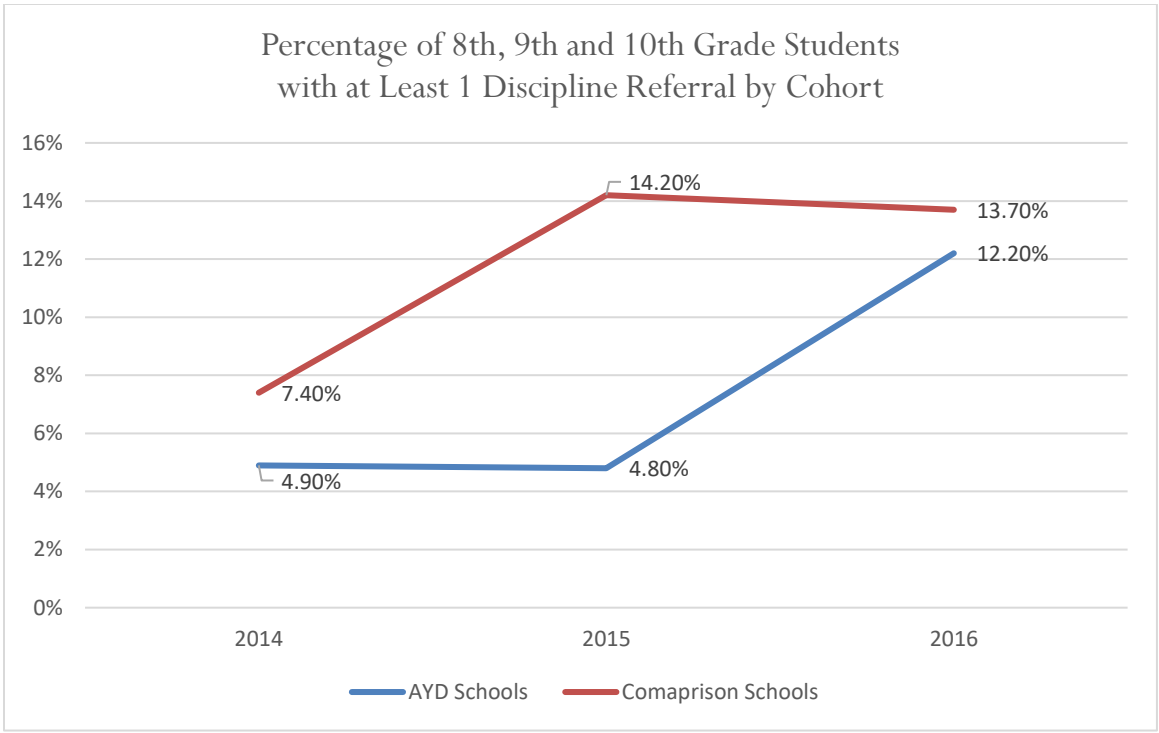



*Figure 2. Percentage of students with at least one discipline referral (Cohort 1 and Comparison Schools)*

***Failure Rates.*** Researchers analyzed failure rates for students in Grantee and comparison schools. For each school year cohort of 8th, 9th, and 10th graders, researchers calculated the number of students who failed at least 1 course during the year, as well as those who failed 2 or more courses during the year (Figures 3 and 4). For all three years, researchers found statistically significant differences between groups, with students in SY-AYD grantee schools failing at least one class at a higher rate than those students in the comparison schools in 2015 and 2016, with the most noticeable difference seen during the first year of SY-AYD implementation. For both groups, the number of students failing two or more courses decreased from 2015 to 2016.

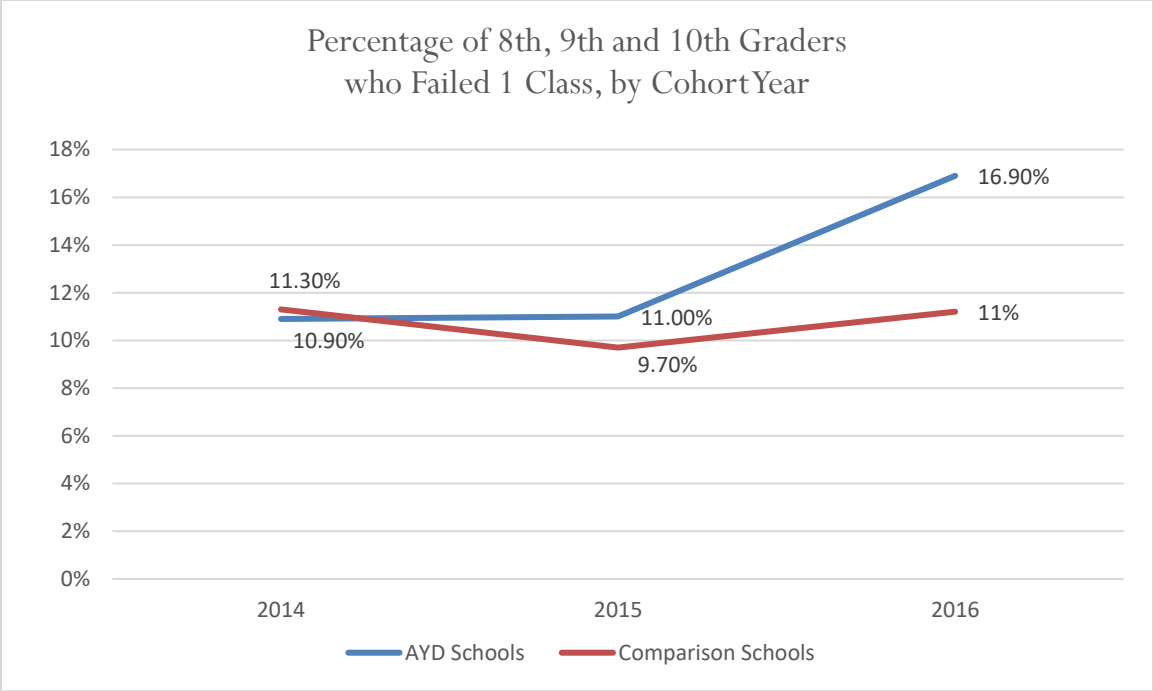



*Figure 3. Percentage of students with 1 failed course (Cohort 1 and Comparison Schools)*

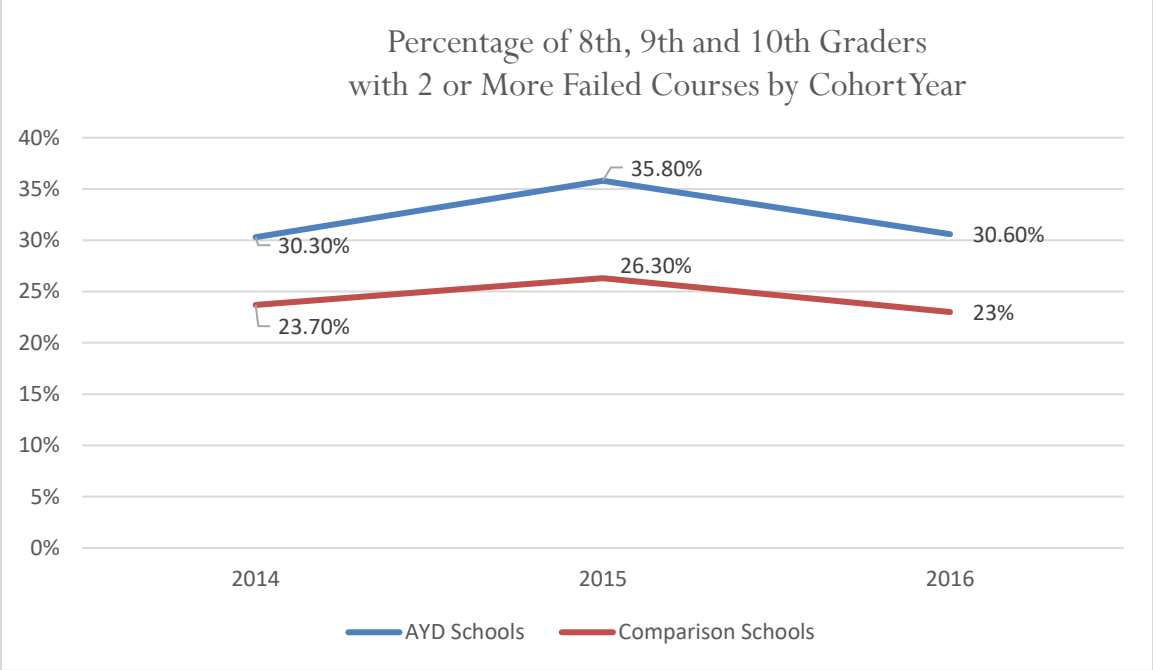



*Figure 4. Percentage of students with 2 or more failed courses (Cohort 1 and Comparison Schools*

**Attendance.** Student attendance was analyzed by considering "days attended school" for each year. The sample included students who had been present 90 days, or more, to determine if there was any relationship between the number of days students were present and academic outcomes,

for both Grantee and comparison schools. Figure 5 provides the mean days present, over cohort years, for each group.

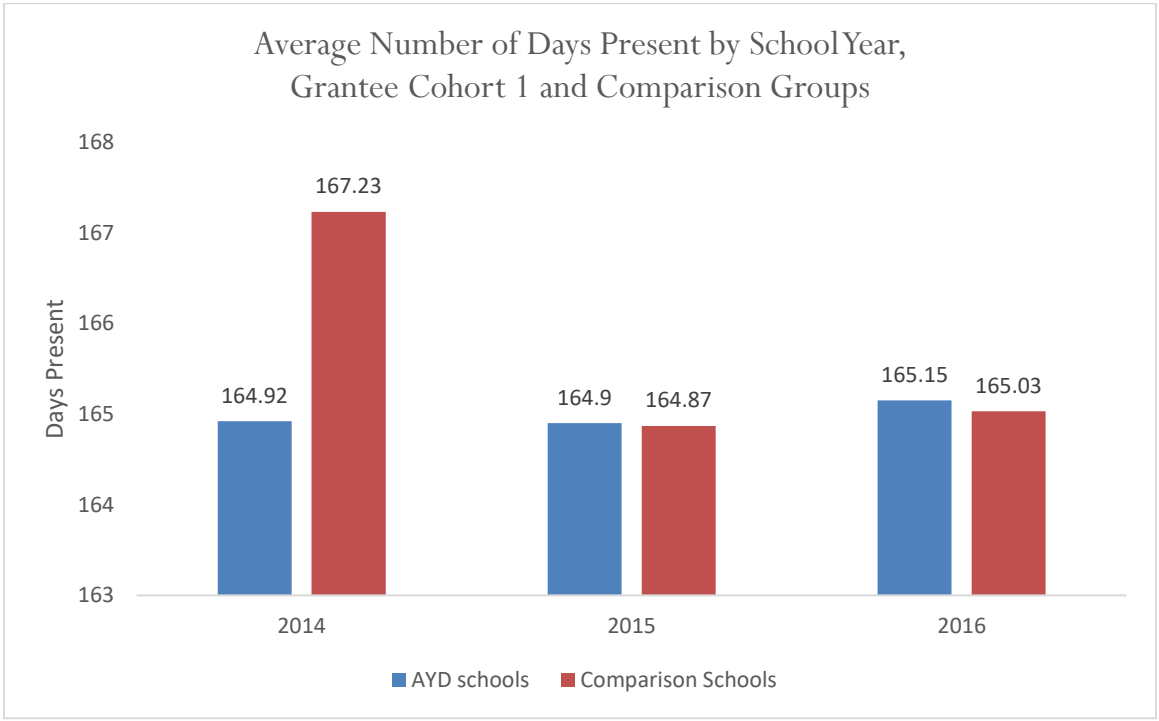



*Figure 5*

For both groups across all years, there were significant correlations between days in attendance, mean math grades (math GPA), and cumulative GPA. Table 6 provides the results for each outcome variable measured. There is a positive relationship between days attended and cumulative GPA, as well as days attended and mean math scores, while days attended and number of F's are negatively correlated. Specifically, there is a relationship between lower attendance and more classes failed per student, in both Grantee and comparison schools.

*Table 6. Correlation Coefficients for Outcome Variables and Days Present, by Year*

| Groups | Outcome Variables | 2014 | 2015 | 2016 |
|---|---|---|---|---|
| Cohort 1 Schools | Math GPA | 0.365 | 0.38 | 0.363 |
| Days Present | Cumulative GPA | 0.343 | 0.374 | 0.41 |
| | Number of F's in One Year | -0.315 | -0.374 | -0.377 |
| Comparison Schools | Mean Math Scores | 0.343 | 0.338 | 0.363 |
| Days Present | Cumulative GPA | 0.405 | 0.389 | 0.355 |
| | Number of F's in One Year | -0.347 | -0.358 | -0.376 |

Although quantitative results are not causal, qualitative data from interviews and focus groups highlighted several promising student outcomes related to the implementation of SY-AYD. For example, teachers reported that their students seemed more engaged and confident, and were more willing to attempt and persist with challenging tasks. One teacher shared, "The engagement level is amazing. It's positive. They are not complaining about going to class." Students also made several positive remarks about SY-AYD, including: "[I have] more confidence for high school;" "I now realize you have to be engaged in school to do well in school;" and "I can apply SY-AYD skills to help me to get to the answers. It helps me to get farther."

Additionally, several students shared that the SY-AYD curriculum helped them to focus on specific goals. One student told researchers, "One thing I like is that it helps you figure out where you should focus your goals, and how to get to that goal." Another noted, "It is good for people who are unsure or who think they can never be smart," and "We can always be learning. We never have to be at one level."

***To what extent do multiple initiatives support each other?***

As SY-AYD is designed to integrate into an advisory or similar class, there were few overlaps between initiatives discussed during focus groups and interviews. Several teachers and students did speak to the number of strategies for problem solving and persisting through challenges they were addressing through SY-AYD lessons. Students identified these as being generalizable to other subject-specific courses. Teachers also saw connections to AVID and other growth mindset program initiatives.

***What are the promising practices?***

Several strengths were identified during focus groups with administrators, teachers, and students. Two highlights included engaging activities and a change in school culture.

***Student engagement.*** Many participants felt the hands-on activities and games were successful, as were the lessons about brain development. Several teachers spoke to the value of the strategies and problem-solving opportunities embedded in SY-AYD lessons. For example, one shared, "The biggest thing has been introducing mindset into the classroom. It's opened the discussion that people are or are not born smart, but that they can change and grow. It's done a good job of opening the discussion so we can bring it into class and talk about it there."

***School culture.*** Several school personnel also discussed shifts in the culture of the school because of implementing SY-AYD. Teachers felt SY-AYD "reaches all of the students we have in our classrooms instead of just pockets of students, and gives them examples from everyday life. It is very reflective." One school leader shared, "The curriculum and teacher attitudes contribute to the successes. SY-AYD encourages perseverance. Overall, the environment is a little better, and students are willing to try more things."

***To what extent are the changes sustainable?***

Sustainability was not much of a consideration at the time of the report because few programs were yet solidified. Because Year 1 of implementation was largely experimental, there are likely to be many changes in scheduling strategies, staffing choices, and participant selection. The flexibility of the program delivery was critical during this first year of implementation, and will support sustainability moving forward. In many cases, schools talked about getting a fresh start, if they planned to continue the SY-AYD program.

## Recommendations

***Program Integration***

For schools that have a difficult time implementing SY-AYD effectively into an advisory-like schedule, we recommend exploring the possibilities of integrating the curriculum into core classes. For example, one participant stated, "We need to incorporate the SY-AYD curriculum into math courses." A student shared a similar sentiment, "It should be more relevant to the other subjects we are learning."

***Student Engagement***

Participants liked the hands-on and brain research portions of the curriculum. There was, however, almost universal concern about the number of "worksheets." For example, one teacher shared, "We want to vary the delivery of the curriculum- there were too many worksheets, and the kids need more variety to maintain their interest." Another said, "We need more activities and hands-on learning. We need to solve real life scenarios." Still another shared, "There are too many worksheets, and dry content. It does not feel genuine… too canned." We recommend addressing this issue by allowing teachers some autonomy over the delivery of the program. Teachers can determine if there is a need to revise the content, or delivery of the content, to meet the needs of their students.

***Time Allocation***

Participants were unclear about the expectations surrounding computer time vs. paper worksheets. One teacher asked, "Is there a requirement for time students should use the on-line component?" We recommend future training and onsite support to clarify expectations for online login time.

***Student Surveys***

Some participants were concerned about the number of surveys the students we being asked to complete during the year. On participant said, "We would like more communication about the surveys- we survey students to death- we were unclear about the dates/ purpose/ etc… also, too long, and not so applicable to our 9th graders." We recommend ongoing efforts to communicate survey deadlines, procedures, and purpose to program coordinators as early and as often as possible.

***Implementation Flexibility***

Participants were conscious about implementing the SY-AYD program with "fidelity." Several teachers shared that they would have liked to incorporate additional high-level content, including TED Talks and current event media clips, to enhance lessons, but did not feel they were allowed. It appears they did not have a clear understanding about the flexibility of program delivery. We recommend that future training and onsite support stress the flexible nature of the program to meet school-wide system needs.

***Advisor Touch-points***

The support that schools received from the advisors was received well. Many participants indicated it would be helpful to have less summer training if it meant more opportunities to work with their respective advisors during the year. We recommend considering more direct time with advisors, even if it means less large-scale training. Most participants felt the need for tailored support, and might also benefit from a train-the-trainer approach, learning from experts in their own buildings.

***All Staff***

In almost every case staff and principals talked about the importance of selecting the "right teachers" to teach the SY-AYD curriculum. The presupposition is that it would help if the teachers leading the program fit the philosophy of growth mindset. We recommend it not be limited to program teachers, but to all staff. As one participant stated: "Mindsets need to change with staff as well." "[They] need the language to be a (part of) the culture and keep repeating it through later grades, to remind them of what they learned about mindset."

***Collaborative Planning***

Teachers felt that they needed more collaborative planning time to implement the SY-AYD curriculum. We recommend building in time for SY-AYD teachers to meet and discuss the curriculum and instructional strategies needed to implement the program successfully.

***Communication Plan for Grantee Schools***

As noted in contextual factors, some staff members at grantee schools felt that they learned about the grant and the impact on their master schedule too late in the school year. However, grantees were notified in January of their grant status. We recommend College Spark have grantees create a communication plan as a part of their application process or as a later addendum that specifies how the school administrator or grant writer will inform staff members of their grant status and what changes need to take place. Further, having key staff members, such as school counselors, involved in grant planning meetings will help them be more informed about changes and timelines for the grant.

## Intensified Algebra

In Year 1 of the Initiative, 18 schools in 10 districts/consortiums implemented the Agile Mind Intensified Algebra (IA) program.**

*Table 7. Intensified Algebra Cohort 1 Schools*

| District/**Consortium** | School |
|---|---|
| Bellingham | Bellingham High School† |
| Bellingham | Sehome High School |
| Bellingham | Squalicum High School |
| ~~Franklin Pierce~~ | ~~Franklin Pierce High School~~ |
| ~~Franklin Pierce~~ | ~~GATES High School~~ |
| ~~Franklin Pierce~~ | ~~Washington High School~~† |
| Granite Falls | Crossroads High School |
| Granite Falls | Granite Falls High School† |
| Manson | Manson High School† |
| Mary Walker Consortium | Granger High School† |
| ~~Mary Walker Consortium~~ | ~~Mary Walker High School~~ |
| Mary Walker Consortium | Reardan High School |
| Mary Walker Consortium | Wahluke High School† |
| Mount Baker | Mount Baker High School† |
| Oroville | Oroville High School† |
| Walla Walla | Walla Walla High School† |
| Wapato | Wapato High School† |
| ~~Wenatchee~~ | ~~Wenatchee High School~~† |

## Program Overview

Intensified Algebra (IA) is a "comprehensive, extended-period course that is designed to help students who are one to two years behind in mathematics re-engage as motivated learners and succeed in Algebra I within a single academic year."†† IA was designed to take the place of a traditional math class during 80-85-minute block classes five days a week. The curriculum was organized into 8 instructional units with approximately four weeks of instruction per unit (for a total of 32 weeks of instruction). In addition to addressing algebra standards and the necessary

** Franklin Pierce schools, Mary Walker High School, and Wenatchee High School did not continue with the grant after Year 1 and were eliminated from the longitudinal study.

†† *Intensified Algebra* I: Program and research update. *(2014). Retrieved from Agile Mind, Inc. website: http://www.utdanacenter.org/wp-content/uploads/RB_IA_0214_WEB.pdf*

academic background learning, the curriculum used an "assets-based approach" focusing on student strengths.

The IA curriculum taught effective effort, persistence, and growth mindset. As the website describes, "Intensified Algebra I melds best practices in algebra instruction with advances in developmental and social psychology to support learners with special needs, to shape students' engagement, confidence, and commitment to challenging academics."[‡‡] In addition, the curriculum encouraged teaching strategies aligned with brain research; students were presented with problems focused on real-world application, discussed the purpose of the lesson, reflected on their learning, and collaborated with peers.

Agile Mind supported schools through "triad teams" that provided technical assistance, product support, and professional development. The technical support person at Agile Mind provided district leaders, administrators, and teachers support with online tools such as assessments and assignments, and analyzing data and generating reports. The professional development was provided through both a summer institute and school-based coaching. For Cohort 1, Agile Mind provided a two-and-a-half-day Summer Institute that introduced teachers and administrators to the program, the philosophy behind it, and the teaching practices and mindset needed to be successful. Throughout the year, an advisor from Agile Mind talked with teachers and administrators and conducted at least two visits per site to observe lessons and discuss program implementation. Specifics of the site visits are discussed in the findings sections of the report.

## Contextual Factors

Based on interviews with teachers, administrators, and students, researchers identified several contextual factors that influenced the implementation and effectiveness of the IA program. The biggest factors that impacted schools were their size and location. Small schools had a more difficult time implementing the program, in general, than larger high schools. Small schools had only one or two math teachers. It was clear from interviews that teacher mindset has a large impact on the outcomes of the program. When an administrator only has one or two teachers to choose from, they might not be able to find one with the right attitude about the program. As an example, one administrator explained, "The mindset needs to change with staff as well. [I] have staff that think kids don't care [about learning] … It's changing that idea for everyone."

Another factor that influenced program implementation and support was school location. More remote schools had fewer opportunities for professional development. They were farther from

[‡‡] Agile Mind. (2010, December). Intensified algebra I. Retrieved from http://www.utdanacenter.org/wp-content/uploads/ia-presentation-dec2010.pdf

other schools implementing Intensified Algebra and so the cost of traveling to visit other sites was increased.

Finally, at some schools the teacher teaching the class was not the same teacher that participated in the grant application process or that attended the summer institute. There was turnover at some schools. The new teachers were not aware of the philosophy, had missed professional development, and were not as invested in the program. One school had turnover at the administrative level.

## Evidence of Implementation

***To what extent was the initiative implemented as intended?***

According to the implementation guide published by Agile Mind, there were five areas to successfully implementing the IA program. First, schools and districts needed to identify a team and team leads, create and communicate a plan for implementing the program, and set long term goals with transparent data. Second, districts were to identify existing technology infrastructure and resources and address any barriers to technology use (e.g., student online access, teacher knowledge). Third, school and district leaders were to align existing initiatives and programs with the IA program. Once the program had begun, school administrators and leaders were to monitor the program through classroom visits, reviewing participation data, and assessment data. Finally, program leaders should have constructed a professional development plan and ensured teachers had access to support and training throughout the implementation process.

Based on this implementation guide, researchers constructed a survey that asked school principals to self-assess their own implementation level. They scored themselves on a 0-4 scale for 21 questions under the five constructs where a mean score of 3.0 or higher would reflect a high level of implementation. A score of zero indicated they did not plan to implement that element of the implementation guide, and a four indicated they were aligned with the best practices from the report (high implementers). The survey provided a rubric for each question. Researchers administered the survey in the fall and spring of the 2015-16 school year. The following chart provides the mean scores for each of the five constructs (see Figure 6).

From the fall to the spring, schools, on average, became more aligned with the implementation guide. A common comment during the fall survey was that a lack of familiarity with the program and understanding of the components made it difficult for administrators to score their implementation level accurately. Only one construct, *Infrastructure, Resources, and Materials*, scored above a three, which implies a high level of implementation for that construct. Most schools ensured teachers and students had access to and training to use the online components of the program. This included student online access outside of class time, professional development for teachers on the use of the online curriculum, and the necessary technology in the classroom

(projectors, smartboards, laptops) in the classroom. The remaining four constructs scored between 2.24 and 2.82 in the spring of 2016.

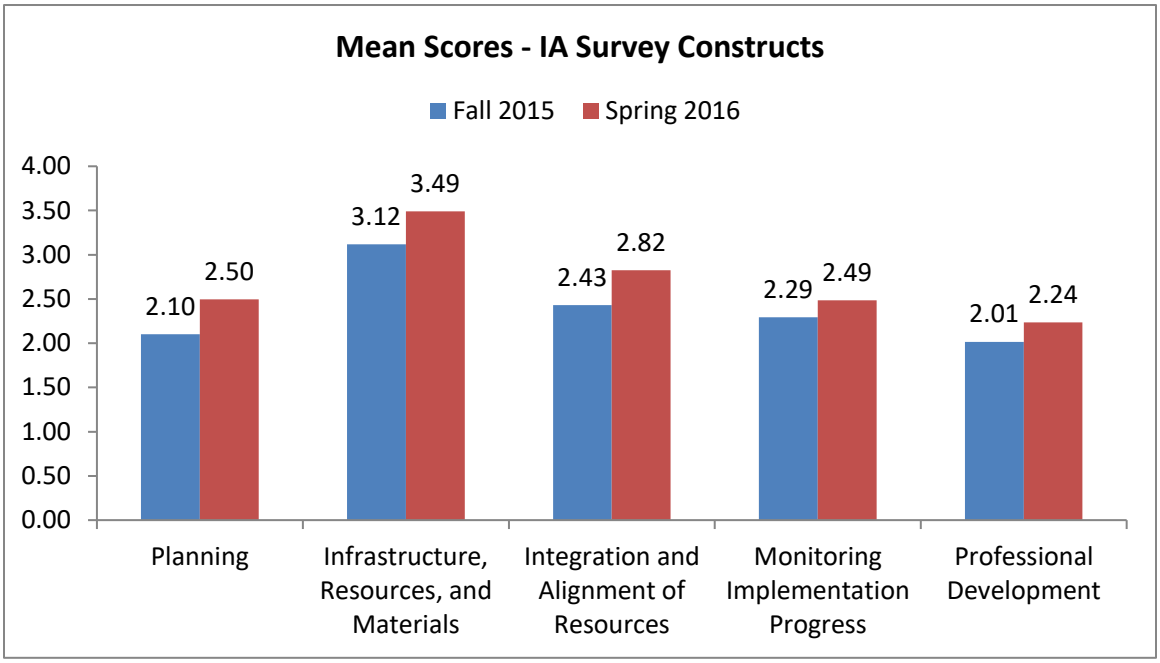



*Figure 6. IA Implementation Survey Results, Cohort 1*

Implementation of IA varied significantly between sites. There were several components to implementing the program in a school. Those components included how students were selected and placed into the class, how the class was organized, and how closely teachers followed the curriculum. The results of this section are from the implementation survey all sites completed, as well as anecdotal evidence from interviews.

Figure 7 presents the self-reported survey results by site. Cells coded in dark green represent a score of 3.0 or higher, light green a score of 2.0 or higher, and yellow a score below 2.0. It is clear from these results that there are several sites that have aligned their implementation of IA closely with the Agile Mind guide. Wapato High School scored above a three for all five factors in the survey. In addition, Bellingham High School, Mount Baker High School, and Wenatchee High School scored four factors above a three and the fifth above a two. Implementation of *Monitoring Implementation Progress* had the lowest overall scores, with only five schools scoring above a 3.0. *Planning* also scored relatively low for many schools, with only six scoring above a 3.0.

| School | Infrastructure, Resources, and Materials | Integration and Alignment of Resources | Monitoring Implementation Progress | Planning | Professional Development |
|---|---|---|---|---|---|
| Bellingham High School | 3.3 | 3.7 | 2.8 | 3.3 | 3.0 |
| Crossroads High School | 2.7 | 3.7 | 1.8 | 2.9 | 1.8 |
| Franklin Pierce High School | 3.3 | 3.7 | 2.3 | 2.0 | 3.0 |
| gates high school | 3.7 | 3.0 | 1.5 | 1.9 | 1.5 |
| Granger High School | 3.0 | 1.3 | 1.5 | 1.1 | 2.5 |
| Granite Falls High School | 4.0 | 1.0 | 3.8 | 2.4 | 3.0 |
| Manson High School | 3.3 | 3.7 | 2.5 | 2.4 | 3.8 |
| Mary Walker High School | 3.0 | 1.0 | 2.3 | 1.6 | 1.0 |
| Mount Baker HIgh School | 3.3 | 2.7 | 3.3 | 3.4 | 3.5 |
| Oroville high School | 3.7 | 1.7 | 1.5 | 2.3 | 2.0 |
| Reardan High School | 3.7 | 3.7 | 2.5 | 3.4 | 1.0 |
| Sehome High School | 3.7 | 3.7 | 2.8 | 3.1 | 2.8 |
| Tonasket Middle School | 3.7 | 3.7 | 2.5 | 2.9 | 2.8 |
| Wahluke High School | 2.7 | 1.3 | 1.5 | 1.3 | 2.5 |
| Walla Walla High School | 4.0 | 4.0 | 3.8 | 2.9 | 2.0 |
| Wapato High School | 3.7 | 4.0 | 3.8 | 4.0 | 3.3 |
| Washington | 3.7 | 3.7 | 2.5 | 2.0 | 3.8 |
| Wenatchee High School | 3.7 | 2.3 | 3.0 | 3.1 | 3.0 |

*Figure 7. Intensified Algebra Spring Implementation Survey Factor Scores, by School*

***Student selection.*** Most schools surveyed used the Smarter Balanced Assessment (SBA) to place students into the class (Table 8). This was the intention of Agile Mind in developing the program. It is designed for students one to three years behind in math. Some school used additional assessments, including the Measurement of Academic Progress (MAP) test and the Washington English Language Proficiency Assessment (WELPA). For example, one interviewee explained that their team looked at 5th and 7th grade assessments and identified students that were a "two" and teachers made recommendations for them. These were students that would normally take algebra along with a support class. Other data, such as attendance, were used in a few sites as well. Three schools reported that they only used teacher recommendations to place students. At one school, an interviewee explained that every student took IA. The school was too small to offer two sections of Algebra. Another school said they placed their lowest level students in the class but they felt this was hindering their success, as these students were too far behind and lacked important basic math skills to be successful in the program. Finally, one school explained they already had registered students for a remedial math class for the following year and so simply renamed the class with those students in it.

When selecting students, most schools told the students and the families about the program. No schools reported any initial protest or reluctance from the families or students. According to one principal, they told students and parents about it but did not "make a big deal out of it" and found they had little resistance. However, as the year progressed, some schools faced opposition. One

administrator said they were working to overcome the perception that the class was "math for dummies." Another interviewee said parents were upset that there were not more practice problems for the students.

*Table 8. Implementation Survey Results about Student Placement in Intensified Algebra*

| Student Placement is based on… | # of Schools |
|---|---|
| Only Smarter-Balanced Assessment data | 0 |
| Only non-SBA data (MAP, AIMS, district assessment) | 2 |
| Only teacher or counselor recommendations | 3 |
| Smarter Balanced scores and other measures (including teacher recommendations) | 12 |
| Teacher recommendations and non-SBA data | 2 |

***Class organization.*** Most schools implemented the class during a block schedule that allowed them to hold the class for the recommended time (80-85 minutes) every day. Most schools found the timing adequate to cover the material in curriculum. However, one school implemented the class for only 70 minutes (with an exemption from College Spark) and reported that it was not enough time to cover all the material. Another class had a block schedule that allowed for a normal block most days, but one day a week the class lasted for three hours, according to an interviewee. This person said that the time was much too long and students were tired of math by the end of it.

While some schools already had block schedules to accommodate the longer period, others modified their schedules. In one school, students in Intensified Algebra lost their advisory time so they could meet the time requirements without changing the school's schedule. Another school eliminated a math support class and gave students a double period of Intensified Algebra. In general, most schools found a way to accommodate the extended period. Per interviews, most classes had about twenty students in them. From classroom observations, the average class had 17 students, with a minimum of 13 and a maximum of 24.[§§]

***Fidelity and professional judgment.*** When discussing how they implemented the curriculum in their classrooms, teachers shared that they at first tried to follow the curriculum pacing exactly as indicated in the textbook. However, they also noted that the pacing was often too fast for students. A typical comment was, "Sometimes they get frustrated when I'm trying to get through a lesson. Some of them shut down if I follow the pacing guide, which I did strictly the first semester. But now if a lesson has to take me two days, it has to take me two days." As teachers felt more comfortable with the program and, with coaching from Agile Mind, realized they could modify the pacing to meet the needs of their students, they were happier. Several teachers noted that, after a few months, they were more comfortable with the program and modified the pacing at times to

[§§] This does not include any students that might have been absent on the day of the observation.

meet the needs of their students. In addition to modifying the pacing, other teachers found the need to supplement the material. For example, one teacher worried about the rigor of the program and said she supplemented with extra practice from the general algebra class. "I give them challenging problems, and they will do as well or better than I expect."

For some teachers, the amount of homework in the program led to issues in the classroom. For example, a few teachers said they felt their students could not complete their homework. These teachers chose to modify the assigned work; assigning only a few problems or giving time during the class for them to complete it. A representative comment was, "It was really, really stressed during the training that the kids had to do it (homework) to be successful. That does not work with our demographics… our kids live in poverty, have to work, take care of siblings. Instead of assigning 3 pages of homework, I assign one question from one page or do assignments in class." Other teachers say there is enough practice if students do their homework, but that does not often happen. The teacher tried to give time during the class to do homework, but that took away from other activities.

Most teachers noted that the way the curriculum was taught, with an emphasis on students collaborating and explaining their thinking, as well as problems that focus on real-world application over theoretical knowledge, took some adjustment and trust. Several teachers described an initial trepidation but that, over time, they become more comfortable with the teaching style. However, a minority of teachers explained they chose to change how they taught the curriculum. According to one teacher, "They [Agile Mind] gave a script for what should be taught… I feel more comfortable making up my own instead of following the script… I went away from saying the script after the first week."

Another issue that caused early concern among teachers was the "spiraling" nature of the program/content. The program is designed for students to develop mastery of a concept over time. The first time a student is introduced to a concept, they might not reach mastery. However, throughout the school year the curriculum will return to that concept and, over time, the student will reach standard. According to interviews, teachers found it difficult to let students struggle initially and move on even knowing they would reintroduce the topic later. Regardless of opinions, teachers followed the pacing guides.

***What are the barriers/challenges to implementing the initiative?***

***Teacher attitude.*** It was evident from interviews that teacher attitude about the program was one of the single most important factors to its (and students') success. In schools where teacher comments suggested they did not believe in growth mindset or did not think the program was well designed, student attitudes about the program were also negative. These teachers described students with "bad attitudes" or made statements like, "These kids don't care. They say they are failing their other classes and school does not matter to them."

***Student attitude.*** In most student focus groups, students expressed their pleasure with the program. Many felt they were more successful in the intensified algebra class than any math class before. These attitudes reflected teacher attitudes about the program. However, in the few schools where teachers and administrators described the class as ineffective, interviewees pointed to student attitude and parental support as major barriers. "Students have better things to care about than math," one teacher declared. The program was designed to build on relationships between the teacher and students. When a teacher was not able to make connections with the students, the program was less likely to succeed. One teacher said he assumed all the students had taken algebra the year before but did not actually know for sure if that was true. Others saw the program and goal setting as a "waste of time." For example, one teacher described the program as not like teaching, but simply presenting. The teacher said, "I can't teach it, I just present… [It is a] struggle for me because I know what works and does not work." While it is not clear if students' attitudes were simply reflecting teacher attitudes, there seemed to be a connection between students' opinion of the program and its success in a school.

***Teacher availability.*** At a small number of schools, administrators had to choose among the available teachers and often could not choose a teacher with the right attitude (according to interviewees). This was particularly common at smaller high schools with only two or three teachers in the math department. In addition, teachers at small schools did not have the opportunity to collaborate with a peer about the program. Some teachers talked with their colleagues at other schools via email, but "more opportunities to discuss the program with teachers would be useful," according to one IA teacher.

***Reading levels.*** Students that struggle to read, struggle in math. Several schools had a high population of English language learners. The program did not provide material in Spanish and translating the material was time consuming, according to reports. One school offered a Spanish language section of the class. When asked what additional support they needed, one teacher commented, "Offer a Spanish version [textbook] or Spanish support. A lot of kids would benefit from that." Beyond ELL students, the program has a lot of reading that teachers said was "very dense" and, according to teachers, their students are struggling in math because they cannot comprehend the reading.

***Insufficient time.*** Schools that were not able to implement the class for the recommended 80-85 minutes found it difficult to balance the pacing of the program. "It's a combination of too much rigor and boredom. At first, the rigor level was too high because we were moving so quickly… I decided to take over and slow things down. Then it was not the rigor but we were moving too slow. I'm trying to find that perfect balance between the two (pacing and rigor)."

***Technology support.*** Finally, there needed to be proper technology support for the classroom. Teachers at schools noted various issues, including laptops that were not compatible with the program, bad internet, or no dedicated computers for the class. One teacher commented, "Making

sure we have the right technology in place [has been a] bit of a struggle." This school purchased ten laptops mid-way through the school year so students could share as they went through daily lessons and they used the computer lab for the assessments. Although a concern in the fall, by spring most principals reported good support.

Per the Principal Implementation survey, in the fall 59% and in the spring 82% of responders agreed teachers implementing the program had the technology they needed to implement IA (computer, projector, and internet) and that there was a long-term plan for supporting technology needs.

***To what extent did the technical assistance support implementation?***

Most interviewees spoke favorably about the technical assistance they received from Agile Mind and OSPI, which included a three-day summer institute in Bellingham and site-based coaching throughout the year. For example, one teacher said, "The summer institute was really good. They [Agile Mind] were organized and it was well presented." However, some interviewees said they would have liked more information on how to implement the program and less on the philosophy of the program. For example, one interviewee commented, "The three-day training was okay. I would have liked more on how to go through the computer and set up the assignments…" Some interviewees described the training as a "firehose" of information that they have had to process, but after a couple months with the program they feel more comfortable implementing it.

Even more helpful than the summer training, per reports, was the site-based coaching from Agile Mind advisors. In fact, teachers wanted more opportunities to discuss the program with Agile Mind advisors. One teacher said,

> "The short August training wasn't enough. They come out three times during the year, but teachers have questions more often than that. It's Agile Mind's program. Being able to have more conversations with them, directly from the source, would be most beneficial."

Teachers said they wanted more interaction with a person who is familiar with the curriculum "on the ground," that could observe lessons and provide the teacher regular feedback. At the time of the interviews, the technical advisors from Agile Mind had visited each school twice. The in-person visits were, in general, perceived as more helpful than phone calls and other supports (although not every interviewee even mentioned them). One teacher commented, "I don't find the phone calls as helpful. [They are] more at an intellectual level than at the practical level." Another teacher described how their advisor gave them a book on how to facilitate group work and some online resources the teacher could use to ensure everybody participates in group work. That teacher said the support helped them understand how to better teach the curriculum.

According to interviews, the biggest help the Agile Mind Advisor provided was talking with teachers about how they taught the lessons and assuring them they could use professional judgment in some areas. One interviewee summed up most teacher's attitudes, saying the meetings helped the teacher understand "…you can cut corners, teach with integrity but not every single second." Teachers also liked expressing their concerns about the program to the advisor and getting feedback about their implementation. For example, one interviewee stated, "It was good. [I was] able to voice my concerns and success, provide my feedback and get honest feedback from [the advisor] as well." In describing their experience implementing the program, one teacher said, "I felt overwhelmed [and] unhappy with it because it was not my style of teaching. I was told I could tweak it [and I] felt better about that. [I] would benefit from another meeting. I still have questions."

The advisor also helped by organizing opportunities for teachers to visit other schools that Agile Mind had identified as "high implementers" to see the curriculum in practice. Visiting another school and seeing the program implemented helped teachers realize there was room for professional judgment. One teacher described the experience:

> "It was nice to see how other people were implementing it. I think I was having a little bit of trouble of focus with the kids. I had a certain mental set of what instruction looked like in class and trying to be true to the class. I didn't' know the freedom I had. That visit was a real eye opener to realize I could mix it up and it could fit some of my teaching style. Keep them focused."

However, not every teacher at the time of the interviews had an opportunity to visit another school and to see the program implemented. As noted above, schools in more remote locations found it difficult to travel to observe another school. One teacher, when asking for more training and the opportunity to observe other teachers was directed to a webinar which the teacher described as "a waste of time" and "a sales pitch." Other teachers also commented that more training opportunities throughout the year would be helpful. One teacher suggested regular opportunities to meet with other grantees and Agile Mind advisors so they could "compare notes as a whole."

***What organizational changes are required for, or correlate with, successful project implementation?***

Schools made several scheduling decisions that they believed helped them implement the program more successfully. Most schools had or created block schedules to accommodate the 80-minute class. Examples included:

- Staring the day with Intensified Algebra because "students are more alert. Some of the kids have learning barriers like poverty. There haven't been any negative experiences in their day yet [because it is first period]."

- Combining the class with their advisory period so student would not miss an elective or other class. However, students in that class complained that they missed a lot of activities in advisory, such as class meetings.

Another interviewee explained that based on their block schedule, one day a week they have a three-hour period of IA. The teacher noted that it was too much time at once for the curriculum.

At schools where more than one teacher implemented the program, the schedule was designed so those teachers had the same planning period so they could meet and discuss the IA program. According to the principal, the expectation was that they meet at least one a week.

One school discussed how they offered a Response to Intervention (RTI) time where students came to complete their homework during school hours. The goal was to ensure students had access to the support and technology they needed for the program. Another school noted that they struggled with students completing homework because most their students did not have internet access at home, and they did not stay at school to complete their homework. There was no mandatory afterschool program or other opportunity for students to complete homework at the school.

***What role did leadership play in successful project implementation?***

Administrators and project leaders supported project implementation by working with Agile Mind to organize trips to other schools. As noted above, teachers could observe their peers, which helped them understand how to successfully teach the curriculum and apply their own professional judgment. Teachers shared that they wanted more opportunities to observe and discuss the curriculum with other teachers implementing IA. For example, one teacher said, "I would love to sit down with another teacher and say what does your classroom look like? How have you adapted this classroom to fit your routines or what are things you do that you've found are helpful that aren't necessarily in the curriculum."

Many principals described providing the IA teacher the freedom and support to implement the program. For one principal, that meant letting the teacher choose her schedule and creating an additional prep period for her. At a different school, the administration "worked with us [teachers] to give us the same planning period to bounce ideas off each other. On a daily basis, we plan for both classes." A third school administrator provided release days to teachers so they could meet and collaborate about the program.

In addition, principals made sure they had the right teachers in place. One principal moved a teacher to a different math class to ensure they had a teacher with the right "mindset" teaching IA. Another principal was looking to recruit a teacher with experience in the program. Most administrators also described visiting the class and observing the teacher so they could provide

feedback and support. However, administrators also shared there was a learning curve. In the words of one administrator. "We didn't know what we didn't know; so, I couldn't support them until we were aware of the program aspects." One administrator commented how a lack of "regional leadership" to do check-ins and provide support was a difficulty.

It is evident from these examples that grantee schools need an administrator that is flexible and understands that teachers will need support to implement Intensified Algebra. For many teachers, the curriculum is a different way to teach that requires teachers to adjust their practices. Having scheduled support, an administrator that can observe and provide feedback, and regular opportunities to meet and discuss the curriculum with other teachers implementing the program was helpful.

## Evidence of Impact

***What are promising student outcomes?***

Evidence of the effect of the IA program on student outcomes is both qualitative and quantitative. Anecdotally, several administrators and teachers shared evidence that student outcomes were improving. For example, some teachers reported increased attendance. One teacher said, "Even students that are failing are still happy to come to the room." A student remarked, "Last year I plain hated math. I didn't want to go to math. Now I'm always looking forward to waking up in the morning and going to school and learning math." An administrator shared that a teacher had to have fewer conversations about student apathy and that students were demonstrating growth mindset. For teachers, the difference in the class was not the extra time in the classroom, but the opportunity to build relationships with students and help them develop growth mindsets.

Students also shared their thoughts about their growth. Many reported an improved attitude about math. One student shared, "I like math better this year. I have a way better grade this year than last year." Another student said, "It's fun. We all know each other. They [teachers] make sure we have fun when we're learning." One student said she would help her mother with her college math homework, something she had never been able to do before. Teachers described their students as "more disciplined" and "more confident." One teacher said,

> The difference between the beginning of the year conversations and participation, there's huge growth. Kids used to sit there… now they're talking to each other and asking questions and participating. Some kids really struggled with attendance in middle school that we're not seeing the same amount of absences.

Most interviewees, when asked if the students would be ready for geometry, agreed that they would be. One school believed the students in IA would be more prepared than students in the regular algebra class. One teacher described the level of growth, saying,

> In winter, a lot of the students hit benchmark in assessment data. They all started the program well behind. A few kids didn't show remarkable growth, but everybody else was amazing. When you start the year not at grade level and at mid-year you are at grade level, that's pretty amazing.

While not every school reported improved student outcomes, the majority did. In those few schools that reported the class was not helping their students improve their outcomes, interviews made it was clear the teachers did not implement the curriculum as intended. Some expressed negative attitudes about student growth or the student population in the program.

Classroom observations revealed a striking difference between IA classroom and standard algebra classrooms. During the spring of 2016, researchers observed ten IA classrooms. In addition, researchers observed five comparison algebra classrooms in schools that had more than one algebra section. Observations were scored on a 4-point scale using the STAR Classroom Observation Protocol. The score represents the extent to which the teaching and learning in the classroom are aligned with effective teaching practices called for in IA and aligned with CCSS, SBA, and TPEP[***]. Scores range from "not at all "to "very "aligned. "Somewhat" and "very" aligned are considered positive results.

None of the comparison classrooms received an overall positive rating (no 3s or 4s). Eighty percent scored at a level "2" (Very Little). On the other hand, 50% of the IA classrooms observed received a positive rating "3" (Somewhat). Instructional practices in the IA classrooms were significantly more aligned than in the study control group or the existing high school math STAR average (see Figure 8). However, researchers could not attribute any differences between treatment and control to the IA curriculum, as teacher assignment was not random. Quite the opposite, as administrators explained that they deliberately chose teachers they thought would succeed in the class. For future cohorts of grantees, researchers will observe all algebra teachers prior to implementation of IA to create a true baseline.

[***] CCSS-Common Core State Standards; SBA-Smarter Balanced Assessment; TPEP-Teacher and Professional Education Program

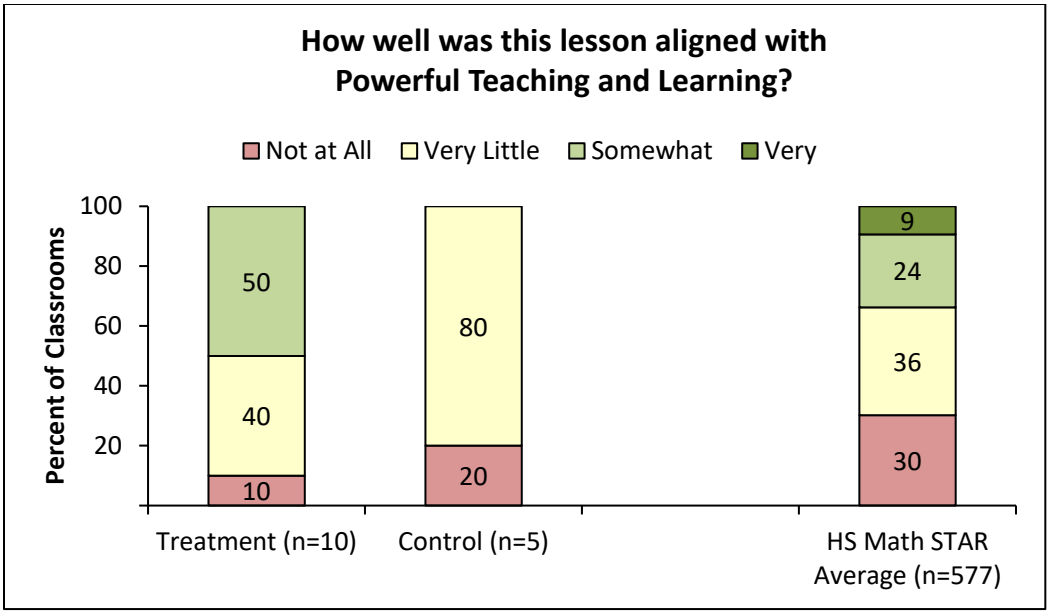



*Figure 8. IA and Control Classrooms: Percent Aligned with Powerful Teaching and Learning*

Researchers also analyzed student outcomes to determine differences between standard Algebra and IA. The research sample included ninth-grade students in the 2015-2016 school year (expected graduation year, 2019) who attended at least 90 days of school. Analyses were conducted within IA grantee schools, as well as between grantee schools and comparison schools. Researchers explored several outcomes, including math achievement, overall academic success, and discipline. Researchers will continue to track students longitudinally to understand if there is a relationship between Intensified Algebra and long-term student outcomes, such as the highest level of math attained, achievement on standardized tests (SBA), and college attendance, persistence, and completion.

### *Within Grantee Schools*

***Demographics.*** Within the IA grantee schools, the research sample included a total of 2,073 students. Of those students, 409 were enrolled in IA, while 704 students were enrolled in a general algebra course. In addition, 28 students did not take any math class during their ninth-grade year; 57 students enrolled in a math course below algebra; and 875 enrolled in a geometry or higher course (Table 9).

*Table 9. Math Enrollment by Course for Grantee Schools*

| Enrolled Math | # of students | % of students |
|---|---|---|
| Did not take math | 28 | 1.4% |
| Below Algebra | 57 | 2.7% |
| Intensified Algebra | 409 | 19.7% |
| Algebra | 704 | 33.9% |
| Geometry | 688 | 33.2% |
| Algebra 2 | 179 | 8.6% |
| Pre-Calculus or Above | 8 | 0.4% |

When compared to the demographics of all 9th grade students in IA grantee schools, IA classes had a disproportionately higher percentage of Latino/Hispanic students and a disproportionately lower percentage of White students. A chi-squared test of independence was performed to examine the relationship between race and membership in IA. The relationship between these variables was significant, $X^2(6, N = 2073) = 80.532$, $p<.001$. Latino/Hispanic students were more likely to be placed into IA than any other racial/ethnic group.

*Table 10. Demographics of IA Grantee Schools*

| | Whole School | | Intensified Algebra | |
|---|---|---|---|---|
| Race/Ethnicity | # of students | % of students | # of students | % of students |
| American Indian/Alaskan Native | 83 | 4.0% | 16 | 3.9% |
| Asian | 64 | 3.1% | 6 | 1.5% |
| Black/African American | 18 | 0.9% | 6 | 1.5% |
| Latino/Hispanic | 737 | 35.6% | 220 | 53.8% |
| White | 1080 | 52.1% | 147 | 35.9% |
| Native Hawaiian/Pacific Islander | 3 | 0.1% | 0 | 0.0% |
| Two or More Races | 88 | 4.2% | 14 | 3.4% |

The following analyses look at outcomes for students in IA compared to their peers in general algebra courses *within grantee schools*. Student placement into IA was not random. Students were selected based on prior academic performance and according to predetermined program criteria: The IA course was designed to address the needs of struggling students. Because students were not randomly assigned, causality between variables cannot be assumed. However, analyses could reveal patterns and relationships between program variables and student outcomes that could help provide formative feedback for program development as well as summative data to determine program effectiveness over time.

***Math Success.*** Researchers analyzed failure rates of students within the grantee schools. Students were considered to have failed math if they received at least one "F" in a math course during the year. Table 11 presents failure rates disaggregated by course identification. Total 9th grade sample results include students in algebra, IA, and other math classes.

*Table 11. Math Failure Rates in Grantee Schools*

| Students Failing Math | **# of students** | **% of students** |
|---|---|---|
| Algebra (n = 704) | 118 | 16.7% |
| Intensified Algebra (n = 409) | 93 | 22.7% |
| Other Math (n = 932) | 35 | 3.8% |
| Total 9th Grade Math Students (n = 2045) | 246 | 11.9% |

A chi-squared test of independence was performed to examine the relationship between taking a general algebra class and failing math. The relationship between these categories was significant, $X^2(1, N = 2045) = 22.717$, $p<.001$. Ninth grade students taking algebra were more likely to fail math than their peers taking other math courses.

A chi-square test of independence was also performed to examine the relationship between taking IA and failing math. The relationship between these categories was also significant, $X^2(1, N = 2045) = 55.406$, $p<.001$. Ninth grade students taking IA were more likely to fail math than their peers taking other math courses.

Finally, a chi-square test of independence was performed to examine the relationship between IA and general algebra students and their odds of failing math. The relationship between these categories was significant, $X^2(1, N = 1113) = 6.016$, $p<.014$. A post hoc odds ratio and relative risk value was calculated. Ninth grade students taking IA were 1.46 times more likely to fail math than students taking algebra.

***Math Grades.*** In addition to analyzing the number of students who failed a math class in 9th grade, researchers analyzed the average math grades of students in Algebra, IA, and "other math courses" (math grade-point averages are displayed in Table 12). Math grade point averages were calculated by assigning numeric values to (transcript) letter grades (i.e., A = 4.0, B = 3.0, C = 2.0, D = 1.0, F = 0) based on the Washington State Standardized High School Transcript. Students in IA had a mean math GPA of 2.06. The IA mean GPA was almost half a point lower than Algebra students (GPA=2.40) and was a full point lower than students in other math classes (GPA=3.10). An independent samples t-test was conducted to determine whether mean math scores were significantly different between IA ($M = 2.06$, $SD = 1.14$) and algebra ($M = 2.40$, $SD$ 1.23) students. Results were significant; $t(905.818) = -4.714$, $p < .001$. Because there was a violation of equal variances when conducting the t-test, results from the adjusted t-test were used. Mean math

GPA for students taking algebra ($M = 2.40$) was significantly higher than the mean math GPA for students taking Intensified Algebra ($M = 2.06$). Additionally, researchers calculated a practical effect size ($\eta = .023$) for the difference between groups. Approximately 2.3% of the variance in math GPA was due to course affiliation.

*Table 62. Average Math Grades Within IA Grantee Schools*

| | **Mean Math Grade** |
|---|---|
| Algebra | 2.40 |
| Intensified Algebra | 2.06 |
| Other Math | 3.10 |

***Discipline.*** Researchers also analyzed discipline for 9th grade algebra-level students in IA schools. IA students received a greater percentage of discipline referrals compared to students taking general algebra. The relationship between these variables was significant, $X^2(1, N = 1113) = 5.639$, $p=.018$. Ninth grade students taking algebra were less likely to receive discipline referrals than were IA students.

*Table 13. Ninth grade students receiving at least 1 discipline referral by math course taken*

| | **# of students** | **% of students** |
|---|---|---|
| Algebra | 84 | 12.6% |
| Intensified Algebra | 73 | 17.8% |
| Other Math/No Math | 83 | 8.2% |
| Whole School | 240 | 11.6% |

***Grantee Schools and Matched Comparison Schools Over Time***

In addition to comparing the Class of 2019 (9th graders in the 2015-2016 School Year) *within* grantee schools, researchers also explored outcomes for 9th graders *between* grantee and comparison schools. Table 14 provides information on the number of students in each school group, and Table 15 provides the demographic makeup of the comparison and grantee schools. The only statistically significant associations were between comparison and grantee school ELL populations $X^2(1, N = 4086) = 18.010$, $p<.001$. Differences remained consistent for each year of data analyzed (graduation years 2017-2019).

*Table 14. IA Grantee and Comparison Schools Ninth Grade Enrollment*

| | Ninth Grade Year | Comparison Schools | Grantee Schools |
|---|---|---|---|
| Class of 2017 | 2013-2014 | 2234 | 2253 |
| Class of 2018 | 2014-2015 | 2189 | 2188 |
| Class of 2019 | 2015-2016 | 2013 | 2073 |

*Table 15. IA Grantee and Comparison Schools Demographics*

| | Class of 2017 | | Class of 2018 | | Class of 2019 | |
|---|---|---|---|---|---|---|
| | Comp. Schools | Grantee Schools | Comp. Schools | Grantee Schools | Comp. Schools | Grantee Schools |
| Amer. Ind./Alaska Nat. | 2.2% | 2.8% | 2.4% | 3.6% | 2.8% | 4.0% |
| Asian | 2.1% | 2.8% | 2.2% | 3.1% | 2.5% | 3.1% |
| Black/Afr. Amer. | 2.1% | 0.7% | 2.0% | 0.6% | 1.4% | 0.9% |
| Hispanic/Latino | 31.5% | 31.8% | 31.3% | 32.8% | 32.4% | 35.6% |
| Nat. Haw/PI | 0.6% | 0.1% | 0.7% | 0.2% | 1.2% | 0.1% |
| Two or More Races | 6.4% | 4.8% | 5.9% | 4.4% | 6.3% | 4.2% |
| White | 55.1% | 56.9% | 55.4% | 55.2% | 53.4% | 52.1% |
| Free or Reduced Lunch | 54.9% | 55.4% | 53.9% | 55.9% | 54.5% | 55.6% |
| English Lang. Learners | 20.3% | 25.7% | 21.5% | 26.6% | 21.7% | 27.5% |
| Special Education | 11.5% | 11.8% | 11.4% | 10.4% | 10.7% | 10.2% |

Researchers analyzed 9th grade, math, course-taking patterns for grantee and comparison schools (Table 16). Most students in comparison and IA grantee schools enrolled in an algebra (or IA) course in their ninth-grade year (60.3% and 53.7% respectively for the Class of 2019). A large percentage of students also enrolled in math higher than algebra (27.6% and 42.2% respectively for the Class of 2019).

*Table 16. IA Grantee and Comparison Schools Math Enrollment*

| | Class of 2017 | | Class of 2018 | | Class of 2019 | |
|---|---|---|---|---|---|---|
| Math Course-taking Patterns for 9th Graders | Comp. School | Grantee School | Comp. School | Grantee School | Comp. School | Grantee School |
| Did not take math | 3.7% | 1.5% | 1.9% | 1.4% | 2.4% | 1.4% |
| Lower than algebra | 11.5% | 5.0% | 9.7% | 2.6% | 9.7% | 2.7% |
| Algebra | 53.2% | 52.1% | 60.1% | 52.4% | 60.3% | 53.7% |
| Geometry | 26.5% | 33.8% | 24.4% | 34.5% | 23.5% | 33.2% |
| Algebra 2 | 4.5% | 7.7% | 3.5% | 9.0% | 4.0% | 8.6% |
| Pre-Calculus or Higher | 0.7% | 0.0% | 0.5% | 0.1% | 0.1% | 0.4% |

Researchers also analyzed the difference between groups in the percentage of students who failed algebra in 9th grade. This sample included students enrolled in a course equivalent to algebra. Figure 9 shows the percent of students who passed algebra in 9th grade over a 3-year timeframe. These data represent unique sets of 9th grade students for each graduation class and not cohort data. During the two years, prior to the grant, the grantee schools had a lower percentage of students passing an algebra-based class in 9th grade. However, in the 2015-16 school year (the first year of grant implementation), the percentage of students passing algebra (or IA) in grantee schools increased by more than six percentage points, while the comparison schools remained relatively stable in 2015-2016, relative to the prior year.

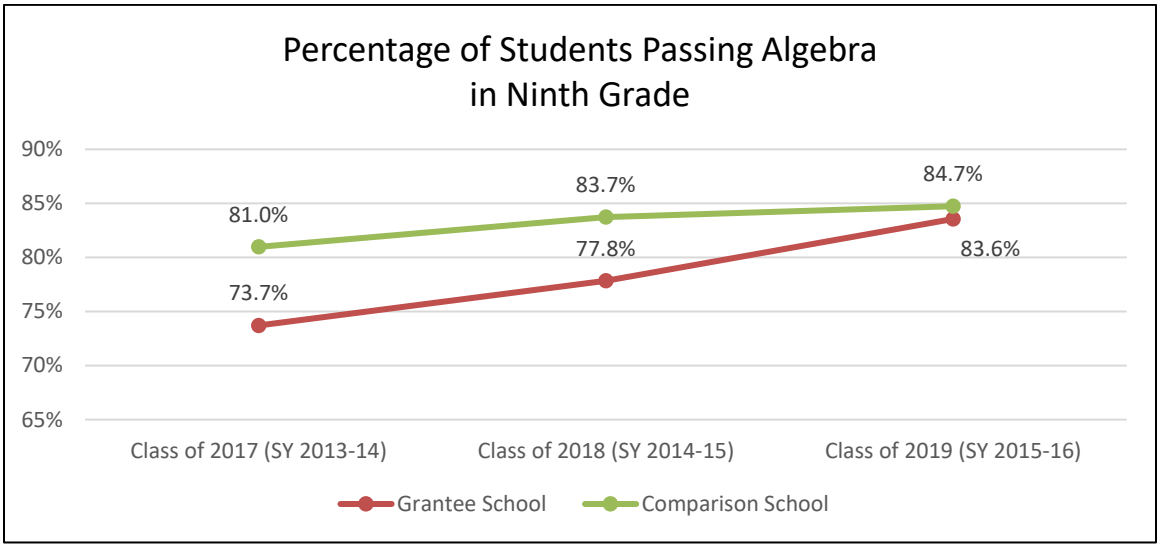



*Figure 9. Percentage of Students Passing Algebra in Ninth Grade*

Figure 10 shows the average math grade for students in IA grantee and comparison schools. Math grade point averages were calculated by assigning numeric values to (transcript) letter grades (i.e., A = 4.0, B = 3.0, C = 2.0, D = 1.0, F = 0) based on the Washington State Standardized High School Transcript. For the two years prior to the grant, the difference between groups was similar, with both increasing from SY2013-14 to SY 2014-15. In SY2015-16, however, the comparison schools showed very little change in algebra GPA from the prior year (increased .01GPA points), while the IA grantee schools continued to increase from the prior year (increase .19 GPA points). Results were significant.

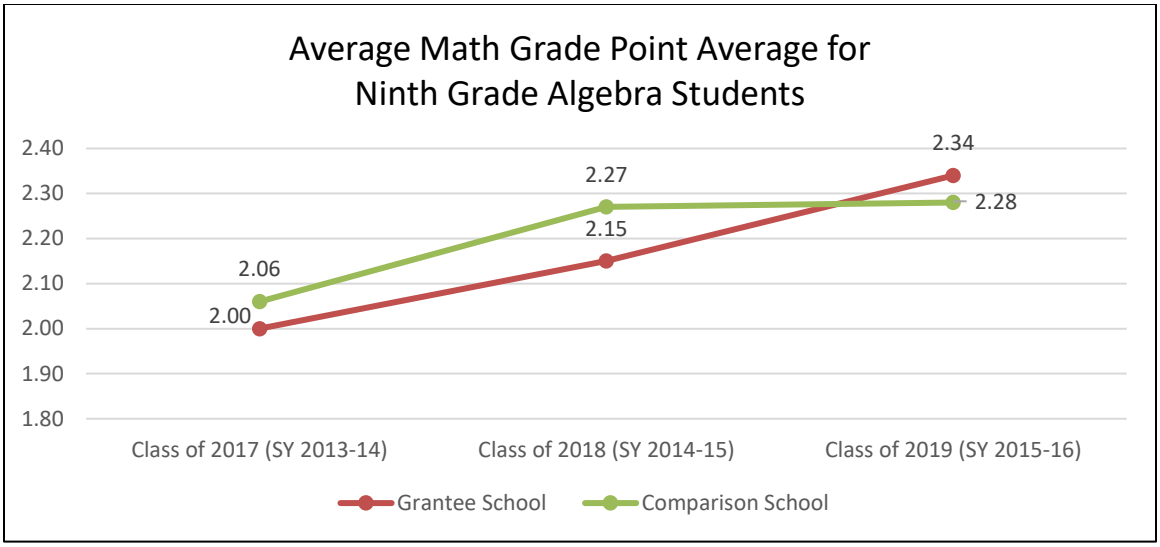



*Figure 10. Average Math Grade Point Average, Grantee and Comparison Schools*

Finally, researchers analyzed the number of students with discipline referrals over time (Figure 11). There was a general upward trend for discipline referrals in IA grantee schools, while the comparison schools did not show a clear pattern.

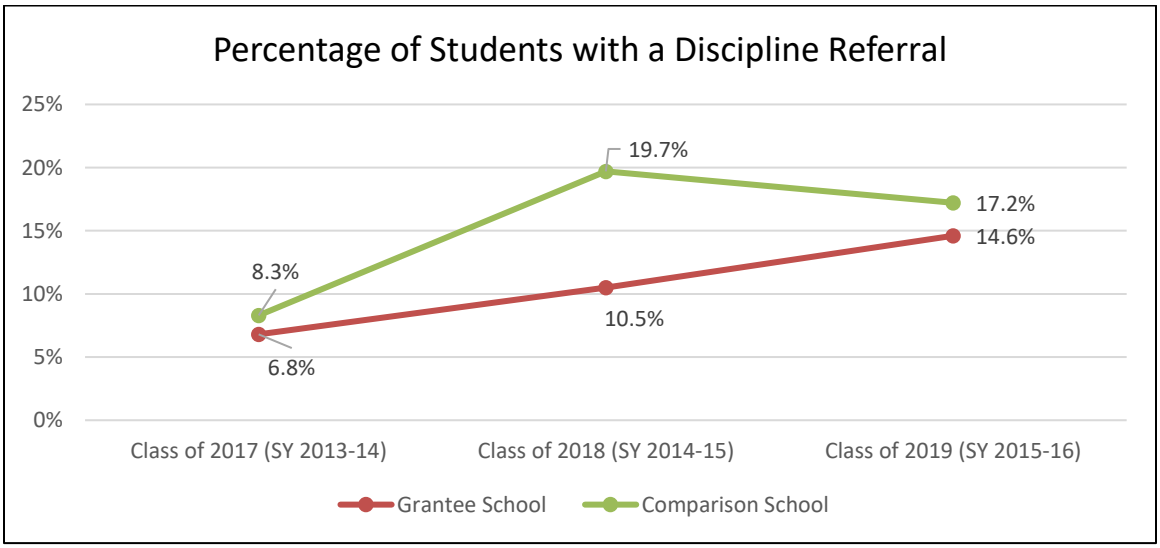



*Figure 11. Discipline Referrals for IA Grantee and Comparison Schools*

***To what extent do multiple initiatives support each other?***

Data are limited at this time, but researchers will continue to explore options.

In addition to The BERC Group evaluation activities, the Dana Center also contributed to the evaluation. Dana Center Annual Evaluation Data for CRMI Cohort Schools 1 Year 1 (2015 – 2016) and Cohort 1 Schools Year 2 (2016-2017) are provided in Appendixes A and B, respectively (results were not verified by The BERC Group). The Dana Center focused on measuring multiple factors of student agency—the learning mindsets and behaviors that contribute to success and positive academic outcomes for students. The survey asked students to reflect on their beliefs about learning mindsets and strategies prior to their AYD/IA experience and indicate their current (midyear) rating on six aspects of learning related to better academic success:

- **Growth Mindset**: The belief that intelligence is changeable with effective effort
- **Persistence**: The degree to which students feel they can persevere in a course of action despite challenges or difficulty
- **Self-Efficacy**: The belief about one's capacity to succeed in a particular situation
- **Metacognition**: The extent to which students can plan, monitor, and evaluate their learning, adjusting strategies when necessary
- **Help-Seeking**: Seeking help from others in pursuit of one's goals
- **Belonging**: An individual's sense of his/her acceptance, value, and being a legitimate group member

AYD was implemented in 7 schools representing 7 districts, while IA was implemented in 18 schools representing 11 districts. For both programs across these schools, all six aspects of learning on the Learning Mindsets and Strategies Survey improved between students' retrospective ratings at the beginning of the year to their current ratings at the end of the school year. This indicates a positive shift in mindsets and strategies.

Across the 18 schools implementing IA, 28 teachers completed the midyear survey and 28 the end-of-year survey. IA teachers showed significant increases on all of three scale scores from their initial survey to their midyear and end-of-year enactment surveys. These increases indicate that teachers' self-reported beliefs and teaching practices improved over that period. The strongest impact was for Teacher Efficacy.

Across the seven schools implementing AYD, 45 teachers completed the midyear survey and 34 the end-of-year survey. AYD teachers showed significant increases on all of three scale scores from their initial survey to their midyear and end-of-year enactment surveys. These increases indicated that teachers' self-reported beliefs and teaching practices improved over that period, with strong effects for all scale scores

Results from the Dana Center fall 2017 report (see Appendix B: College Spark Washington's College-Ready Math Initiative-Annual Report Fall 2017) indicate that the impact of IA and SY-AYD was strongest for students in terms of their perceptions of engagement, metacognition, and belonging. (p 4) There was a small, not significant, negative impact on students' growth mindset. (p 4) Additionally, according to the report, "Teaching IA or SY-AYD had a significant positive

impact on teachers' beliefs about their self-efficacy, growth mindset, and teaching practices that promote persistence and self-regulation." (p 3 2016-2017 school year yea 2 cohort 1 schools)

The Dana Center fall 2017 report (see Appendix B) also looked at changes in student and teacher mindset as a result of IA and reported significant positive improvement in several measures of teacher mindset (see SY-AYD above). Additionally, the Data Center conducted an analysis of student achievement data for the 2015-2016 (Year 1; Cohort 1) which indicated two significant non-cognitive predictors of scores on the Smarter Balanced Assessment (Math): self-efficacy and belonging. (p 14, Appendix B).

***What are the promising practices?***

Participants benefited from visiting other schools to learn about implementation strategies. At every school, interviewees with an opportunity to visit other schools implementing IA described how the experience helped them understand how to implement it in their own classrooms. They realized the program was not as rigid as they had originally thought and they could use more professional judgment in pacing and supplementing the material. Visits from Agile Mind Advisors also helped teachers realize this. For example, one teacher said, "[The curriculum] felt very lock step. I have to do this on this day. It feels like the curriculum is written that way. [My advisor] told me I don't have to do everything or just things from the curriculum. [You can] have your voice and your teaching style."

***To what extent are the changes sustainable?***

At schools that are already successfully implementing the program, sustaining the success depends on retaining the teachers and providing ongoing training and support. As noted, teachers discussed the benefits of being able to observe and meet with peers implementing IA. Currently, College Spark is providing professional development funds. At the end of the grant period, schools must provide their own professional development funds to sustain that level of support. While the expectation is that the schools will not need the same level of professional development support to maintain the program, small schools with significant turnover may find it difficult to sustain expertise in the program with limited professional development budgets.

An additional cost to the schools is purchasing new materials every school year. The workbooks are used up at the end of the school year and new books need to be purchased. This will be an additional cost to the schools that the grant currently covers.

Further, at schools where the teachers do not support the program, it will be difficult to sustain the program. As noted above, teacher attitude is one of the most important factors in determining the success of the program. To create a successful program, schools need to be able to identify and place teachers with the right mindset about the program and the students it serves. Again, smaller schools are limited in their ability to staff the class with an appropriate teacher.

## Recommendations

***Professional Development Touch-points***

The support that schools received from the Advisors was well received. Many participants indicated it would be helpful to have less summer training if it meant more opportunities to work with their respective advisors during the year. We recommend considering more direct time with academic advisors even if it means less large-scale training. Most participants felt the need for tailored support.

***Teacher Instructional Practice***

One of the strongest themes from the evaluation had to do with assigning the "right" teacher(s) to the IA classroom(s). Almost universally, interview and focus group participants stressed the need to have a teacher who believed in growth mindset and believed in the way the IA math was to be taught. For example, one principal moved a teacher to a different math class to ensure they had a teacher with the right "mindset" teaching IA. Likewise, a teacher commented, "I felt overwhelmed [and] unhappy with it because it was not my style of teaching."

This was an interesting theme given the two main issues seemed to be (1) believing in students and (2) teaching effectively. It is a valid concern that it is so difficult to find the few teachers that are aligned with believing in students and effective pedagogy. We recommend a school-wide focus on growth mindset and effective instructional practices. As one administrator explained, "The mindset needs to change with staff as well. [I] have staff that think kids don't care [about learning] … It's changing that idea for everyone."

## Bridge to College

A list of Bridge to College schools is included in Table 17. Fifteen schools were selected for site visitations. Researchers divided all participating schools into groups geographically; (Eastern and Western Washington, urban and rural communities). Once schools were stratified, researchers randomly selected schools from each group. In spring 2016, researchers interviewed school administrators, teachers, and students. Additionally, researchers conducted observations of Bridge to College English Language Arts and Math classrooms.

*Table 17. Bridge to College Cohort 1 Schools*

| District/Consortium | School | Program |
|---|---|---|
| **Aberdeen** | Harbor High School | English |
| **Aberdeen** | J M Weatherwax HS (Aberdeen HS) | English/Math |
| **Anacortes** | Anacortes High School | English/Math |
| **Anacortes** | Anacortes High School | Math |
| **Arlington** | Arlington High School | English/Math |
| **Arlington** | Weston High School | English/Math |
| **Bainbridge Island** | Bainbridge High School | English/Math |
| **Battle Ground** | Battle Ground High School | Math |
| **Battle Ground** | Prairie High School | English/Math |
| **Bethel** | Bethel High School | English/Math |
| **Bethel** | Challenger High School | English/Math |
| **Bethel** | Graham-Kapowsin High School | English/Math |
| **Bethel** | Spanaway Lake High School | English/Math |
| **Burlington-Edison** | Burlington Edison High School | English/Math |
| **Camas** | Camas High School | English/Math |
| **Camas** | Hayes Freedom High School | English/Math |
| **Cape Flattery** | Clallam Bay High School† | English/Math |
| **Castle Rock** | Castle Rock High School | English |
| **Central Kitsap** | Klahowya Secondary School | Math |
| **Central Kitsap** | Olympic High School | Math |
| **Central Kitsap** | Westside Alternative | English |
| **Central Valley** | Central Valley High School | Math |
| **Central Valley** | University High School | Math |
| **Chehalis** | W.F. West High School† | English/Math |
| **Cheney** | Cheney High School | Math |
| **Chimacum** | Chimacum High School | English/Math |
| **Columbia (Stevens)** | Columbia High School | English/Math |
| **Colville** | Colville High School | English/Math |

| District/Consortium | School | Program |
|---|---|---|
| **Colville** | Panorama High School | English |
| **Davenport** | Davenport High School | English/Math |
| **Deer Park** | Deer Park High School | English |
| **Eatonville** | Eatonville High School | English/Math |
| **Everett** | Cascade High School | Math |
| **Everett** | Everett High School | Math |
| **Everett** | H.M. Jackson High School | Math |
| **Everett** | Sequoia High School | Math |
| **Evergreen (Clark)** | Evergreen High School | English/Math |
| **Evergreen (Clark)** | Heritage High School | English/Math |
| **Evergreen (Clark)** | Mountain View High School† | English/Math |
| **Evergreen (Clark)** | Union High School | English/Math |
| **Federal Way** | Decatur High School | English/Math |
| **Federal Way** | Todd Beamer High School | English/Math |
| **Federal Way** | Truman High School: Life Flex Prep | English/Math |
| **Franklin Pierce** | Franklin Pierce High School | English/Math |
| **Franklin Pierce** | Washington High School† | English/Math |
| **Freeman** | Freeman High School | English |
| **Grand Coulee Dam** | Lake Roosevelt Jr/Sr High School | Math |
| **Grandview** | Compass High School | English/Math |
| **Grandview** | Grandview High School | English/Math |
| **Granger** | Granger High School† | English |
| **Highline** | Health Sciences and Human Resources High School | Math |
| **Highline** | Westside Alternative | Math |
| **Kelso** | Kelso High School | Math |
| **Kettle Falls** | Kettle Falls High School | English/Math |
| **Lake Stevens** | Lake Stevens High School | English/Math |
| **Lake Washington** | Lake Washington High School | English/Math |
| **Lopez** | Lopez Island High School | Math |
| **Mabton** | Mabton Junior Senior High School | English/Math |
| **Mansfield** | Mansfield High School | English/Math |
| **Manson** | Manson High School | English/Math |
| **Marysville** | BioMed Academy | Math |
| **Marysville** | Heritage High School | English/Math |
| **Marysville** | Marysville Mountain View High School | English/Math |
| **Marysville** | Marysville-Pilchuck High School | Math |
| **Marysville** | School for the Entrepreneur | English/Math |

| District/Consortium | School | Program |
|---|---|---|
| **Mead** | Mead Senior High School | Math |
| **Mead** | Mt. Spokane High School | Math |
| **Meridian** | Meridian High School | English |
| **Moses Lake** | Moses Lake High School | Math |
| **Mount Vernon** | Mount Vernon High School | English/Math |
| **Mukilteo** | ACES High School | English |
| **Mukilteo** | Kamiak High School | English/Math |
| **Mukilteo** | Mariner High School | English/Math |
| **Naches Valley** | Naches Valley High School† | English/Math |
| **Nine Mile Falls** | Lakeside High School† | Math |
| **North Kitsap** | Kingston High School | English |
| **North Kitsap** | North Kitsap High School | English |
| **North Mason** | North Mason High School | English/Math |
| **Northport** | Northport High School | English/Math |
| **Oak Harbor** | Oak Harbor High School | English/Math |
| **Ocean Beach** | Ilwaco High School | English/Math |
| **Ocosta** | Ocosta Jr./Sr. High School | English/Math |
| **Odessa** | Odessa High School | English/Math |
| **Peninsula** | Gig Harbor High School | English/Math |
| **Peninsula** | Peninsula High School | English/Math |
| **Pomeroy** | Pomeroy High School | English/Math |
| **Port Angeles** | Port Angeles High School | English/Math |
| **Port Townsend** | Port Townsend High School | English/Math |
| **Prescott** | Prescott Junior/Senior High | English/Math |
| **Puyallup** | Chief Leschi High School | English/Math |
| **Richland** | River's Edge High School | English |
| **Rochester** | Rochester High School | English/Math |
| **Seattle** | Garfield High School | Math |
| **Seattle** | Ingraham High School | Math |
| **Seattle** | Interagency High School | Math |
| **Seattle** | Middle College High School | Math |
| **Seattle** | Roosevelt High School | Math |
| **Sequim** | Sequim Senior High School | English |
| **Shelton** | CHOICE High School | Math |
| **Shoreline** | Shorecrest High School | English/Math |
| **Shoreline** | Shorewood High School | English/Math |
| **Soap Lake** | Soap Lake Middle and High School | Math |

| District/Consortium | School | Program |
|---|---|---|
| **South Kitsap** | Discovery Alternative High School | English/Math |
| **South Kitsap** | Explorer Academy | English/Math |
| **South Kitsap** | South Kitsap High School | English/Math |
| **Spokane** | Ferris High School | English/Math |
| **Spokane** | Lewis and Clark High School | English/Math |
| **Spokane** | North Central High School | English/Math |
| **Spokane** | Rogers High School† | English/Math |
| **Spokane** | Shadle Park High School† | English/Math |
| **Steilacoom Hist.** | Steilacoom High School | English/Math |
| **Tahoma** | Tahoma Senior High School | English/Math |
| **Tukwila** | Foster High School | English/Math |
| **Tumwater** | Tumwater High School† | English |
| **Vancouver** | Columbia River High School | English |
| **Vancouver** | Fort Vancouver High School | English/Math |
| **Vancouver** | iTech Preparatory | English/Math |
| **Vancouver** | Skyview High School† | English/Math |
| **Vancouver** | Vancouver Home Connection | English |
| **Wahkiakum** | Wahkiakum High School | English/Math |
| **Walla Walla** | Walla Walla High School† | English/Math |
| **Warden** | Warden High School | English/Math |
| **Wellpinit** | Wellpinit High School | English/Math |
| **West Valley (Spokane)** | Dishman Hills High School | English/Math |
| **West Valley (Spokane)** | Spokane Valley High School | English/Math |
| **West Valley (Spokane)** | West Valley High School | English/Math |
| **Yakima** | A.C. Davis High School †† | Math |
| **Yakima** | Eisenhower High School | English/Math |
| **Yakima** | Stanton Academy | English/Math |

## Program Overview

The Bridge to College courses in mathematics and English language arts addressed key learning standards from Washington State's new K-12 learning standards (CCSS) as well as essential college-and-career readiness standards agreed upon by both higher education faculty and K-12 educators. The courses also developed students' essential habits of mind necessary to be successful in college. The goal was that students completing these courses would be equipped to engage in college-level work in English or mathematics (www.bridgetocollege.org).

† Researchers conducted site visits at these schools during Year 1 of the Evaluation

The Bridge to College courses for English language arts (ELA) and Mathematics were fourth-year (senior-level) courses designed for students scoring a Level 2 on the SBA (11th grade). Students who earned a "B" or better in the Bridge Course were eligible to enter credit-bearing coursework in any of the State of Washington Colleges without taking additional placement tests or college entrance exams.

The courses were grounded in essential career and college readiness expectations as reflected in the Washington State K-12 Learning Standards for English Language Arts and Mathematics (Common Core State Standards) to ensure that students passing the course were fully prepared for college-level coursework. The courses were developed by higher education faculty, high school teachers, and curriculum specialists from multiple colleges and were intended to,

- Increase student engagement in Math and ELA.
- Save money in college by not having to enroll in remedial courses.
- Deepen student understanding of crucial knowledge and skills needed to be successful in college.

## Contextual Factors

Through focus groups and interviews, school size came up as influencing the implementation of the Bridge to College course, as did opportunities for professional development and availability of student-level data. Smaller schools had less flexibility in assigning teachers to teach the class. Further, limited staff and budget meant small schools could only offer one senior-level English class. Finally, opportunities for training and collaborating with peers in person were more limited at small schools. These factors are explored in detail in later sections.

## Evidence of Implementation

***To what extent was the initiative implemented as intended?***

The Bridge to College implementation guide describes the courses as year-long, senior level courses, that "must be taught using the Bridge to College Mathematics and English Language Arts curricular materials, the appropriate course name, and course code. All teachers teaching the courses must participate in the year-long professional learning program …" BERC researchers asked participants about their implementation processes; specifically, student selection, curricular content, and participation in professional development opportunities.

***Student selection.*** The Bridge to College implementation guides suggested that students enrolled in these courses should:

- Have successfully completed junior core courses (English 11 or Algebra 2)
- Have identified an interest in postsecondary education in their beyond high school plan
- Seek to strengthen their literacy skills to successfully engage in college-level coursework but have enough skills that it was feasible to become college-ready in one year of instruction
- Be on track to graduate on time

In addition, the implementation guide explained that students who scored in the Level 2 range on the SBA (11th grade), and who got a "B" in the course, would qualify for automatic placement into a college composition course in participating Washington higher education institutions (including all public colleges and universities). School personnel interpreted these suggestions differently based on school size, student population, and the needs of the communities they serve. Teachers, administrators, and school counselors collaboratively shared the responsibility for selecting students in several schools, although a few of the smaller schools placed all seniors in Bridge to College courses, as these courses were the only senior level courses offered.

Student selection was influenced by the availability of student level data, as well as the size of the school implementing the Bridge to College courses. Many focus group participants mentioned scheduling and staffing needs, noting they had to replace existing courses with the Bridge courses, or choose students that did not fit the recommended profile. For example, one interviewee shared,

> I don't think we placed kids properly. The kids we placed in the class, their math skill might be lower than what the curriculum intended. We took kids that we thought were higher level 2 on SBAC and previous EOC scores, kids we thought might not be at quite pre-calculus level. The concern is that the level of students is a little bit lower than what the curriculum calls for.

Another teacher noted, "Since we only have limited numbers, we have to consider if we can sustain the class. If it can be broader… it doesn't have to be a class of 30 but should be targeted. As a small school, we need that."

Several schools had difficulty accessing SBA scores in time to make decisions about placement, and had to use other student performance indicators and personal knowledge. One teacher said it was "very problematic that we didn't get SBAC scores until August. Since we didn't have the scores, students were placed into the course subjectively… which resulted in a little bit of push back from students." An administrator noted that their school relied on "teachers, who had a good sense of what the class would be about. They helped to select who would be in [Bridge to College]. Specifically, they chose higher SBAC level 2 kids, and kids we see that will be moving onto college but struggling with SBAC or EOC." Additional comments included,

> [We chose] students scoring a Level 2 on SBAC, but who "aspire to go to college." Junior year teachers referred students who "do not have the skill set for college but are motivated, and have the work ethic to go to college.
>
> Many students at [our high school] boycotted the SBAC so counselors and teachers did our best to sort the kids we thought would be good candidates. We wanted to put in kids who had failed, but had to explain that it's for kids who are on track to graduate and who are college bound.
>
> For math, it was based on SBAC- these students are struggling- this is an opportunity to get the basics that they were missing. [There was] an 80% overlap on students in both courses.

A few schools were less clear about how students were chosen, or suggested that the process was less structured than the implementation guide recommended. One teacher shared, "I was given a list of kids. I knew which ones would succeed, [so I] hand selected them." Another school team noted that students chose the course for themselves, while a third school placed "whoever didn't choose another English class" into their Bridge to College course. Similarly, one participant told evaluators, "The school just sent me a list. There are different levels in this class; some passed pre-calculus and some are always struggling." Overall, most schools deviated from the recommended selection process to meet the unique needs of their communities.

***Program communication to families.*** Communication with students and parents was discussed during focus groups and interviews with program stakeholders. While many of the schools visited demonstrated clear paths of communication with students and families, a few schools identified this as a challenge to implementation.

Bridge to College marketing materials state:

> "Your student is entering a world that requires more skills and knowledge than ever before. Bridge to College transition courses can help your student get on the path to succeed in college and career… Students who enroll in college-level math immediately upon entering college are far more likely to earn a college degree than students who need to take pre-college courses first."

Many schools used existing communication platforms to reach out to families, including e-mails, course catalogues, and information nights. Teachers at one school shared, "We communicated through back to school night, and parent conferences. Also, I added an explanation in my syllabus, and the kids took it home and had it signed." Another school team noted,

> [We] communicated with a letter to all parents, and put information in our newsletter, [including] the purpose and the benefits. A couple of parents did have questions. Many parents were curious why the students needed a 4th credit in math. They weren't sure why their students had to take another class they weren't very good at.

The timing of the grant was another challenge to communication. One administrator told researchers there was confusion around NCAA eligibility, and that the roll-out was "A little clunky in the beginning, making communication a little rough." The course was implemented before there was official NCAA approval for it as a college-eligible course, meaning that students passing the class could still need to take remedial college courses. Several others noted that parents did not seem interested in the program, despite efforts to engage and educate them on the benefits.

***Curricular content.*** Program developers wrote, "Bridge to College Mathematics is an engaging course that emphasizes modeling with mathematics and the Standards for Mathematical Practice found within the Washington K-12 Mathematics Learning Standards" (the Common Core State Standards, CCSS-M). Similarly, descriptions of the English curriculum stated, "the Bridge to College English Language Arts course uses timely and interesting topics to engage students in rigorous reading and writing tasks that allow them to develop essential college readiness skills.

During spring focus groups, school personnel communicated different levels of implementation fidelity for both the Math and English Language Arts curriculums. The following sections discuss the findings for each curriculum.

***Math.*** Teachers and administrators spoke to the engaging, student-centered materials, and high-level problem-solving activities. Several teachers noted the use of "multiple strategies for solving problems," citing this as both a strength and weakness of the program. Overall, teachers shared that they were using the worksheets and pacing guides provided with moderate fidelity, noting there were units that required additional materials, or the elimination of content. A few teachers shared that they were altering the flow of the lessons, and described the curriculum as "clunky," "chunked into ideas, but not linear," or "lacking flow." One administrator felt that there was "too big of a jump" between concepts. These comments suggest teachers wanted more continuity between units and lessons.

Students acknowledged the engaging nature of the curriculum as well. Several felt the repetition helped them to "remember how to do things," while others felt they "had to do too much just to solve one problem." Several students also felt that the lessons were so juvenile they "made us feel like we are in the dumb math class." Teachers shared this perspective, noting that "the activities built in are good, but often the students perceive them as too young for them…" and "… it seems like a year-long enrichment class, not necessarily preparing them for college level math."

***English Language Arts.*** Teachers shared, during interviews, initial trepidation with the new curriculum and selecting their materials for the class. For example, during discussions about the Bridge to College English Language Arts curriculum, one teacher shared,

> I was very married to my curriculum of the past 10 years, so for me it was hard to start over. As a teacher, we don't like to be novices at anything. To get it in August was very tricky. [Program developers] have you select the resources…. That was the hardest part. I feel 100% better coming in now (with all my resources) approved by the curriculum specialists. I was able to implement some pieces of my old curriculum because there is so much choice. Don't be married to the content; it is about the process and learning the skills. That has been very helpful to let go of some of the things I liked so much, and has been a growth opportunity for me as well.

Several teachers expressed similar perspectives on the adoption of new materials, and agreed that flexibility in delivery was critical to the success of these classes. Program administrators granted permission to replace one novel with another written about a topic extremely relevant to the student population for one school. This adjustment provided the opportunity for students to meet a local author, and helped to increase investment from both teachers and students participating in the Bridge to College program. The teacher from this class noted, "The kids asked him questions, shared stories, and talked about crossing borders. They all want me to send him their papers. The real-world connection really connects to what they have gone through." In another school, the teacher supplemented outdated texts with more current literature on comparable topics, noting that "appropriate modifications" were very helpful for her students.

Teachers also expressed the need to spend additional time with the pacing of the curriculum. Several felt that the timing suggested in the binder was inaccurate, noting that different students require different levels of support. One shared, "I could hear rich discussions among partners about the cloning topic. They said they needed more class time in the process of writing the paper. I'm giving them more partner time to think and process before writing the paper." Another teacher noted that many of her students did most of their work in school, since the environment outside of school was less conducive to completing work. For that teacher, providing more time to write, and read, in class was essential.

***Professional development.*** As described on the OSPI website, "OSPI, in partnership with State Board for Community and Technical Colleges (SBCTC) with funding from College Spark Washington, supports implementation of the Bridge to College Mathematics and English courses through a formal structure of professional learning and networking. All new teachers participate in a three-day summer workshop in order to be eligible to teach the course. Each school also sends a principal or building leader to one day of the summer workshop to help support the course implementation. All Bridge to College teachers collaborate and learn together in "Communities of Practice," which meet regionally five times during the course of the school year."

Program stakeholders identified these communities of practice and trainings as a relative strength of the Bridge to College initiative. It provided teachers an opportunity to discuss where they struggled with the curriculum, successes they had, and to share resources. This was especially useful, as teachers implemented different units at different times, so they could provide each other insight. For example, one shared, "The overall structure and how it is implemented has been done really well. I have put a lot of energy into it. It has been great to work with the state. One of the best professional developments I have had in 30 years." Similar quotes from teachers and administrators included,

> It is definitely helpful to collaborate with other teachers. I was able to get a heads-up of where they had struggles. A lot of the struggles we shared were similar.

> The meetings have been very productive. It's a shame that not all teachers have release time to talk about what is working and what is not [working].
>
> It has been beneficial to meet with my cohort. We are similar enough with student demographics. It is helpful to talk with them as we go through the process. It is interesting to see the struggles and successes. We did units at a different time. It is helpful to be able to ask questions, figure out pacing.
>
> Having the same group of people [helps]; we now have a relationship and email each other questions.
>
> We have 5 [PLC's] throughout the year, we had a trainer from the partnering ESD that modeled some lessons. We did a book study, we spent a lot of time planning and utilizing resources, shared what went well, what to do for future, and debrief the modules. We didn't do well at communicating between meetings, but at the meetings it is highly beneficial.

Administrators and teachers acknowledged participating in both the required trainings and collaborative team meetings, and shared that the support structure provided (funding for substitutes) was critical in attending these valuable opportunities.

***What are the barriers/challenges to implementing the initiative?***

Researchers asked school personnel about challenges to implementing the Bridge to College courses. For Math, participants shared that the roll-out process was disorganized, the content was often too childish for high school students, there were mistakes in the curricular materials, and there may not have been enough direct instruction embedded into the program. Regarding English Language Arts (ELA), teachers shared that some content was outdated, or not relevant to their population. Additionally, there were some concerns with the pacing, amount of content to be covered, and worksheets embedded in the ELA curriculum.

***Math.*** The predominant concerns regarding the math curriculum focused on the vetting of the course materials. Several teachers mentioned a lack of clarity with directions, missing or incorrect information, and nonsensical ordering of content. One teacher shared frustrations with specific lessons, noting these errors might make it "hard for new teachers to grasp and teach." However, another noted that although there were several mistakes, her team would go to the on-line forum and report the errors, and program administrators were extremely responsive. Similarly, one teacher felt that despite some "unclear lessons lacking a defined purpose" the curriculum was "pretty fabulous" and would hopefully "continue getting better and better each year."

Teachers and administrators also addressed concerns about the style of learning and lack of direct instruction, worrying that "students will most likely be back to direct instruction in college and not learn this way" and "[it] feels like less math, and the students get tired of just thinking and talking about math… there isn't a lot to do." While some teachers liked the engaged, student driven lessons, others felt that this style of instruction might not align well with college level courses. Additionally, one teacher shared that there was, "too much material with the idea of letting kids have productive struggle…I am inclined to add when there is not enough practice, and I don't know what to take out…." Another was concerned that, "when these kids go to college they will not be taught this way. They will be taught direct instruction again in college, and they won't be successful…. We are asking students who are not good at math to talk about their thinking and it is uncomfortable for them." Finally, one teacher noted, "This is a really different way of teaching. This is pretty tough to change as a teacher after 17 years of teaching."

Student responses to the curriculum were varied, with some curious about "why they were asking so many questions in math," and others noting that "Some things seemed pointless, some were so easy the whole class got it. At the very beginning of the year we were coloring… it didn't feel like it was high school level. As it progressed it has gotten harder and harder. When we started at a K level, I was dying to go into equations and something more challenging." Students also shared some discomfort with the course description and labeling, suggesting it carried some stigma that was embarrassing. One shared, "When I tell people about the class, they think I'm stupid. I was told it is for people that don't pass the SBAC but we didn't even take the SBAC. I don't like to tell people that I'm in the class."

***English Language Arts***. During discussions about the ELA curriculum, school level stakeholders shared very few challenges. Several teachers spoke to the timing of the implementation processes, suggesting more time would support their ability to familiarize themselves and plan more successfully. For example, some teachers noted there were missing rubrics and examples of student work when they began implementing. Others identified the choices in literature as a potential barrier for students, noting that the materials were either outdated, not relevant to their student population, or missing critical literature they felt all high school students should be introduced to. For example, one teacher shared,

> If I did it again, I would do things better and different. I think kids missed out on some things. We didn't ever read Shakespeare, and that may be a shortcoming…. I wish there were some of those traditional options mixed in there. I would expect that they would expand their module to include some of these things- more options. There was a lot to choose from but more is more.

Another teacher shared that the curriculum felt "a bit scripted…without room for many exploration questions" and a few noted they would like more direct instruction time built into the curriculum.

Program leaders also spoke to the need to have NCAA approval for the Bridge to College English courses to move forward, and noted that they have created "a clear set of expectations for the course, with the goal to get it out to district and school contacts. When they choose to pursue the program, they will have resources for how to do that (get the course approved)."

Finally, program leaders shared another potential barrier related to the communities of practice. Although these opportunities to meet were identified as a strength of the Bridge to College program, stakeholders acknowledged that these meetings removed teachers from their classrooms, and were often composed of a diverse group of people with very different needs and levels of experience. While there was programmatic support to help schools provide substitutes for teachers, this process was identified as disruptive by some program participants. Additionally, in several small schools where there was only one Bridge to College teacher, these communities of practice were not enough for those who felt isolated. One teacher shared, "I am the only Bridge to College English teacher in the building. It would make a big difference if I had another teacher here who taught it. We have PLCs, but they do not know anything about it."

***To what extent did the technical assistance support implementation?***

The Bridge to College website offered comprehensive support materials for all stakeholders. Specifically, program developers noted,

> Additional resources such as curriculum guides, practice sets and assessment banks were also developed to support teachers in implementing the course. While a great deal of work has been done to develop this course and its supporting documents, there is no question that the most important work of this project begins and ends with teachers and students in the classroom… Teachers will not be alone in their work with this course, however. The Bridge to College project contains the structure for a powerful learning community support system. The BTCM Communities of Practice will connect high school teachers, college faculty, and instructional experts in an ongoing, regional partnership to foster authentic learning for all participants… Additionally, the materials contained in the binder provide the foundation for teachers and students to engage in complex, meaningful learning that will prepare all students for the college and career challenges they face immediately after high school.

School level stakeholders identified the supports offered by The State Board of Community and Technical Colleges (SBCTC) as a strength of the program. One teacher shared that the "state level personnel are accessible," and another noted that "problems are fixed quickly, and program leaders are responsive to questions and issues." A school administrator noted, "I feel like I could email anyone [at the State level]. As an example, some of my new people didn't have a portal password, and we got that back quickly, so I think we were invested quickly. "

Teachers also felt positive about the organization of the communities of practice, suggesting that they liked the trainings for team leaders to learn to facilitate meetings, and felt the time together was useful for developing and implementing the curriculum. For those Communities of Practice that had access to a regional higher education partner, the support from a college-level professor was extremely beneficial. Additional technical supports identified during focus groups and interviews included an online forum and lesson plans for specific units, money for substitute teachers and materials, and a dedicated trainer to answer questions. Several teachers agreed that the grant materials were thorough, and established clear guidelines for the program. They also were positive about the embedded support for teacher collaboration and planning time. One shared, "I like that we have the ability to have subs so that we can go and meet. We are always in dire need of subs- it was never a 'no.' They made [training] a priority." Another said,

> Trainings are really good. From an admin standpoint, I felt it was valuable to be included… so I knew what to expect. It helped me know where everybody was going. On site, I am really excited about what's going on it math. Kids are having real conversations about math. It is not fake or pushed.

***What organizational changes are required for, or correlate with, successful project implementation?***

Several teachers shared that release time to collaborate with teachers from other schools was critical to the successful implementation of the Bridge to College curriculum. They also suggested that they benefitted from having several collaborative meetings with other Bridge to College teachers before the school year to brainstorm ideas about the pacing, lessons plans, and assessments. Finally, a few teachers suggested building these planning times into their regular schedules.

***What role did leadership play in successful project implementation?***

Teachers explained that the best form of leadership support was providing teachers the time and freedom to collaborate and develop an understanding of the program. For example, teachers were grateful to administrators who provided release time to meet with their Community of Practice. As one teacher noted, school leaders contributed to the success of the program by giving teachers "free rein" and trust to "do what we need to do." For example, one teacher said the administration provided funding for substitutes, so the teacher could attend professional development and found money for books for Bridge to College English.

## Evidence of Impact

***Instructional Practices***

Classroom observations revealed a difference between BtC classrooms and comparison Math and English classrooms. Observations were scored on a 4-point scale using the STAR Classroom Observation Protocol (see Appendix B for more details regarding the STAR Protocol). The scores represent the extent to which teaching and learning in the classroom were aligned with the effective instructional practices called for in the BtC programs. Scores ranged from *Not at All* (1) to Very aligned (4). *Somewhat* and *Very* aligned are considered positive results and are represented by light and dark green respectively on the bar charts (Figures 12 and 13).

Bridge to College Math classrooms scored a 3 or 4 in 75% of the classrooms observed, compared to 40% of the comparison classrooms (*Somewhat* or *Very* aligned). Bridge to College English Language Arts classrooms were aligned in 83% of the classrooms observed compared to 40% of the comparison classrooms. Instructional practices in the BtC Math and English Language Arts classrooms were significantly more aligned than in the comparison group or the existing high school STAR averages.

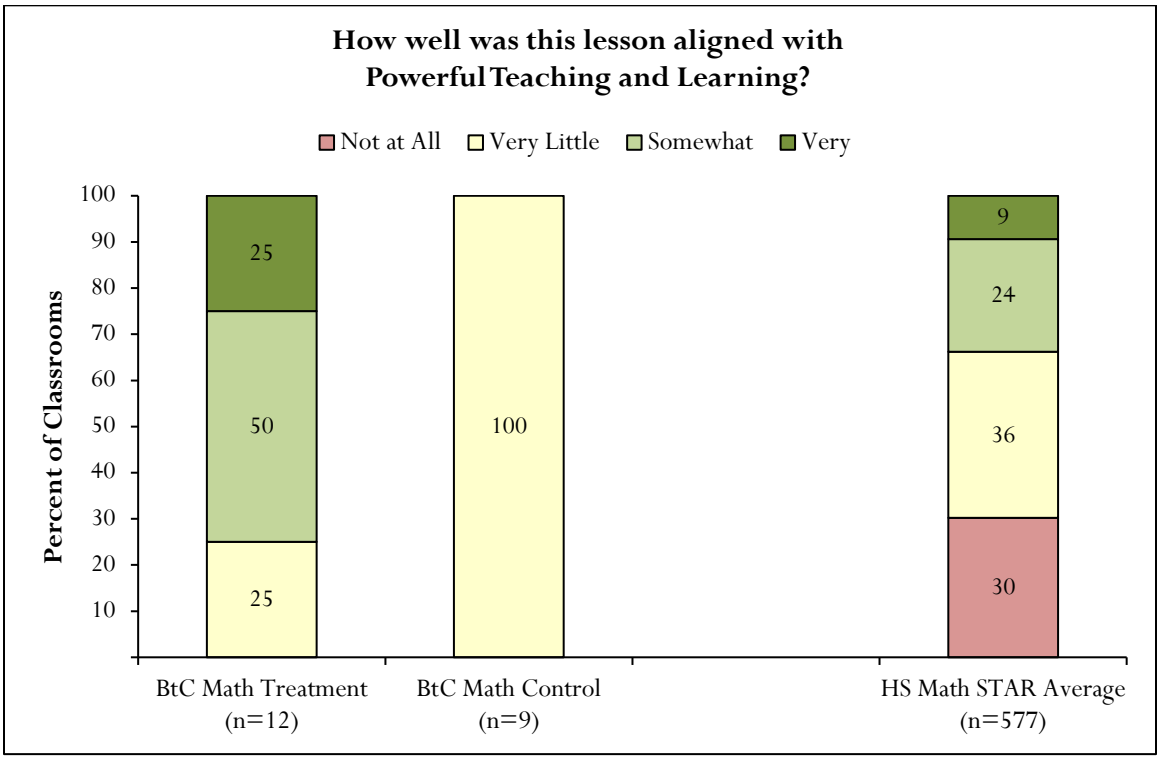



*Figure 12. Bridge to College Math Effective Instructional Practice*

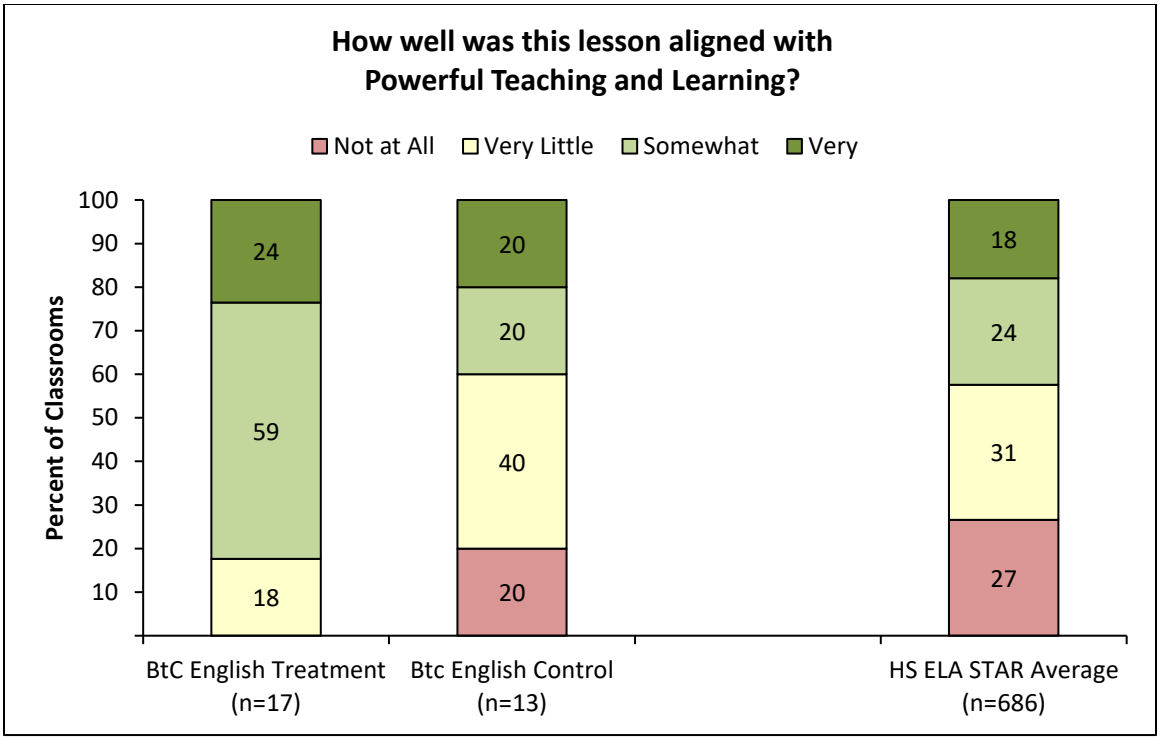



*Figure 13. Bridge to College English Language Arts Effective Instructional Practice*

### *What are promising student outcomes?*

Additionally, researchers gathered data from the ERDC High School Outcomes report to present baseline data for the Bridge to College Cohort 1 schools. Table 18 (pages 76-80) provides the college-going rates for all Bridge to College schools, as well as enrollment in remedial/developmental Math and English by college type (2-year and 4-year). For most schools, ERDC reported a percentage range of students. The table provides the low end of that range, when applicable. In addition, when there were less than 10 students in the sample, no data was reported. In future years, as researchers gather student level data, more accurate post-secondary outcomes will be available and these numbers will be updated.

### *Within Grantee Schools*

***Demographics.*** Within the Bridge to College grantee schools, researchers defined the Cohort 1 population as 12th grade students with an expected graduation year of 2016. There were 1,263 students enrolled in Bridge to College Math, and 1,379 students enrolled in Bridge to College English Language Arts that met these criteria, and were included in the analysis. Students enrolled in school for less than 90 days were removed, and researchers accounted for missing student data when running all analyses. Table 19 displays ethnicity data for Cohort 1 students enrolled in Bridge to College Math, and Bridge to College English Language Arts. Figure 14 displays gender percentages for Bridge courses.

*Table 19. Demographics of Grantee Schools, Bridge to College*

| | Bridge Math | | Bridge English | |
|---|---|---|---|---|
| **Race/Ethnicity** | **# of students** | **% of students** | **# of students** | **% of students** |
| American Indian/Alaskan Native | 31 | 2.5% | 38 | 2.8% |
| Asian | 58 | 4.6% | 67 | 4.9% |
| Black/African American | 72 | 5.7% | 78 | 5.7% |
| Latino/Hispanic | 304 | 24.2% | 278 | 20.5% |
| White | 690 | 54.9% | 786 | 57.7% |
| Native Hawaiian/Pacific Islander | 19 | 1.5% | 26 | 1.9% |
| Two or More Races | 83 | 6.6% | 83 | 6.5% |

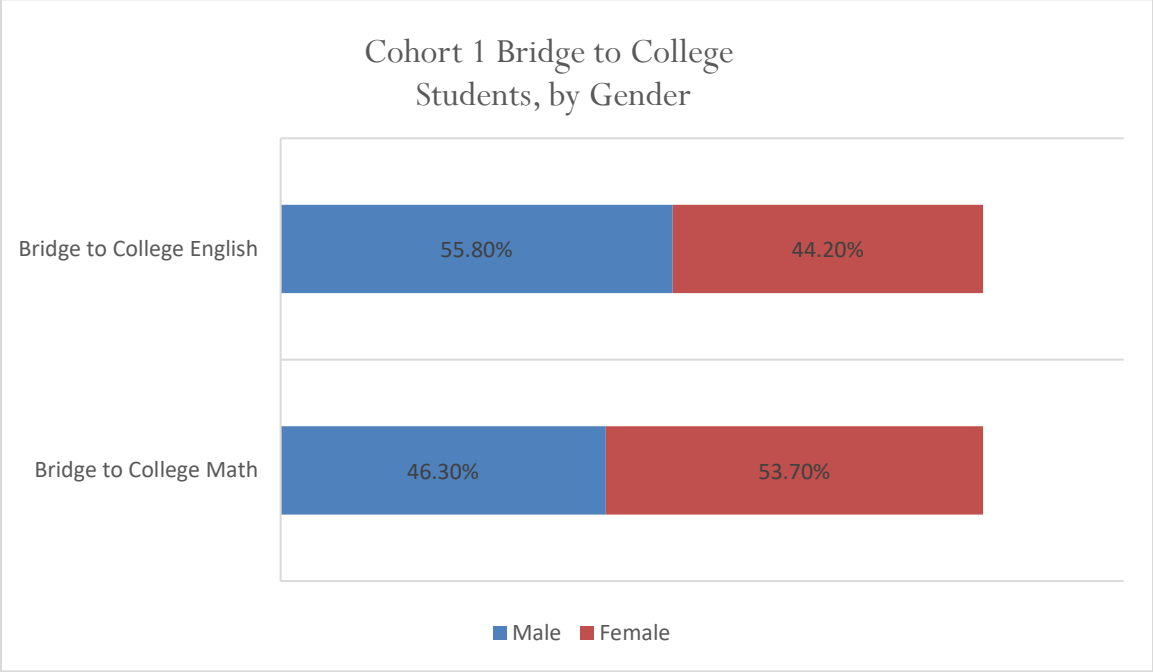



*Figure 14. Cohort 1 Bridge to College participants, by gender.*

***Outcome Data.*** The following analyses look at descriptive and inferential statistics for students in Bridge to College courses compared to their peers *within grantee schools*. Student placement into Bridge to College was not random. Student selection was intended to be based on prior academic performance, and according to predetermined program criteria: The Bridge to College courses were designed to replace placement tests for college level English and math. Students who scored a level 2 on their SBAC exam in 11$^{th}$ grade, and received a "B" or better in a Bridge to College Course, were eligible to place into a college level course without remediation. Because students were not randomly assigned, causality between variables cannot be assumed. However, analyses revealed patterns and relationships between program variables and student outcomes that helps

provide formative feedback for program development as well as summative data to determine program effectiveness over time.

***Selection into Bridge to College Courses.*** Researchers analyzed 11th grade SBA scores to determine the placement criteria for Cohort 1 students who took the SBA in 11th grade and their outcomes in either of the Bridge to College classes. For Bridge to College English Language Arts, 40% of students scored at level 2 on their SBA ELA exam in 11th grade (table 20). Similarly, 43% of students placed into Bridge to College Math scored at Level 2 on the SBA math, while a greater percentage (45%) of students scored at Level 1 on their Math SBA exam.

*Table 20. Students selected for Bridge to College Courses by SBA Level*

| Bridge Class | SBA Performance Level | Total Students |
|---|---|---|
| **English** | L1 | 230 |
| | L2 | 444 |
| | L3 | 343 |
| | L4 | 93 |
| **Math** | L1 | 422 |
| | L2 | 406 |
| | L3 | 109 |
| | L4 | 6 |

***Course Failure Rates.*** Researchers analyzed course failure rates of students participating in Bridge to College courses. Tables 21 and 22 present the percentage of student failures for Bridge and other popular courses, in English and Math, respectively. Students who earned Level 1 or 2 on the SBA ELA and were enrolled in Bridge to English Language Arts classes failed at lower rate than peers who took ELA I-III. Students who earned Level 1 or 2 on the SBA Math and were enrolled in Bridge to College Math failed at a lower rate than their peers who took Geometry, Algebra I, or Algebra II.

*Table 21. Percentage of classes failed in English Classes by 2016 seniors*

| SBA ELA Performance Level | Bridge to College English | English/Language Arts I | English/Language Arts II | English/Language Arts III | English/Language Arts IV |
|---|---|---|---|---|---|
| **L1** | 7.6% | 17.0% | 17.0% | 16.0% | 7.9% |
| **L2** | 7.0% | 12.1% | 12.7% | 11.3% | 4.9% |
| **L3** | 5.6% | 5.4% | 5.8% | 6.2% | 2.6% |
| **L4** | 7.0% | 1.5% | 1.9% | 3.8% | 1.5% |

*Table 22. Percentage of classes failed in Math Classes by 2016 seniors*

| SBA Performance Level | Bridge to College Math | Geometry | Algebra I | Algebra II | Pre-Calculus |
|---|---|---|---|---|---|
| **L1** | 7% | 10.8% | 11.8% | 11.9% | 6.6% |
| **L2** | 3.9% | 5.1% | 5.5% | 5.9% | 3.6% |
| **L3** | 2.5% | 2.7% | 2.9% | 4.0% | 2.4% |
| **L4** | 0.0% | 0.9% | 1.1% | 2.1% | 0.5% |

***Bridge to College B or Better.*** In addition to analyzing the number of students who failed courses, researchers analyzed the number of students receiving a B or better in Bridge to College English Language Arts and Bridge to College Math. Table 23 shows the overall number and percentage of Cohort 1 students receiving a B or better. Overall, approximately one third of Cohort 1 students participating in Bridge to College courses received a B or Better during the 2015-2016 school year. Table 24 includes only the Bridge to College students who took the SBA in 11th grade, totaling 1,110 Bridge to College English Language Arts students and 943 Bridge to College Math students. Students who scored Level 1 of Level 2 on their SBA in English earned a B or better in Bridge to College English at a rate of 22.6% and 31.1%, respectively. Bridge to College Math students who scored Level 1 or 2 earned a B or better at a rate of 24.4% and 42.9%, respectively. These outcomes are also presented in Figures 15 and 16 as the total number of students.

*Table 23. Number of students passing Bridge to College classes with a B or better*

| Student Group | Number Passing with a B or Better | Percent Passing with a B or Better |
|---|---|---|
| **12th Grade Bridge to College English (n=1301)** | 467 | 35.7% |
| **12th Grade bridge to College Math (n=1211)** | 432 | 36.6% |

*Table 24. Number of students who took the SBA and passed Bridge to College classes with a B or better*

| Bridge Class | SBA Performance Level | B or Better | % B or Better |
|---|---|---|---|
| **English** | L1 | 52 | 22.6 |
| | L2 | 138 | 31.1 |
| | L3 | 152 | 44.3 |
| | L4 | 54 | 58.1 |
| | All | 396 | 35.7 |
| **Math** | L1 | 103 | 24.4 |
| | L2 | 174 | 42.9 |
| | L3 | 63 | 57.8 |
| | L4 | 5 | 83.3 |
| | All | 345 | 36.6 |

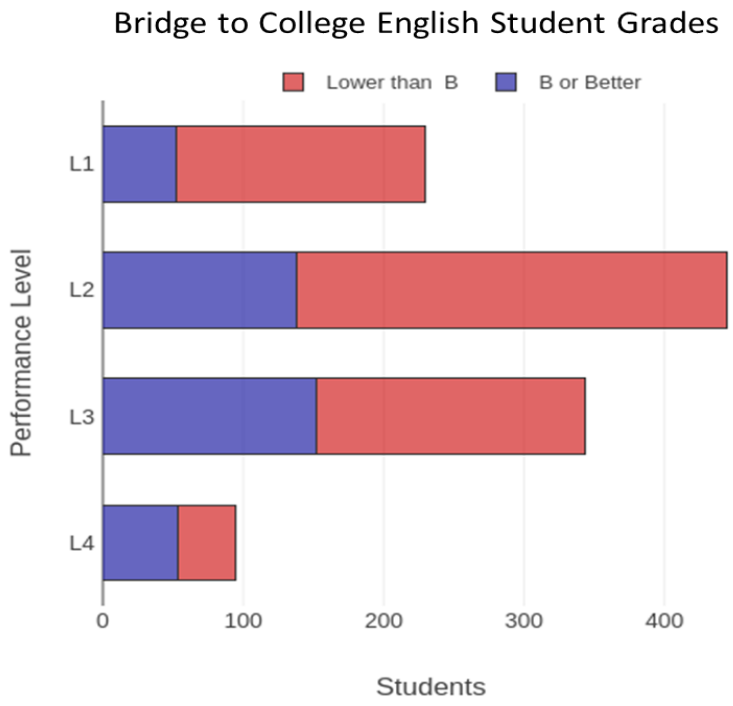



*Figure 15. Number of students receiving a B or better or below a B in Bridge to College English.*

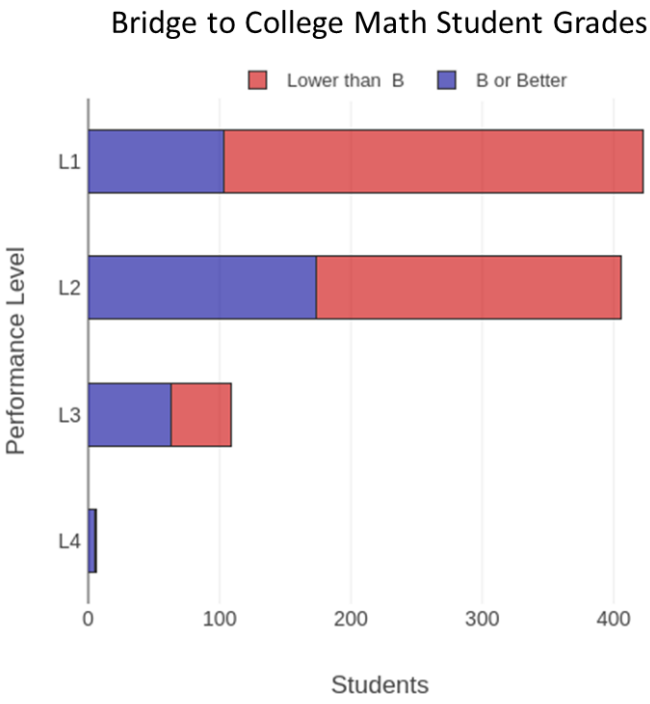



*Figure 16. Number of students receiving a B or better or below a B in Bridge to College Math.*

When disaggregating the Cohort 1 data by ethnicity, researchers found that Hispanic, Hawaiian Native and Black/African American students were passing Bridge courses with a B or Better at lower rates than their peers (Table 25). A chi square analysis of independence was conducted, and found a statistically significant difference between groups, suggesting that there was a realtionship between ethnicity and success in Bridge to College courses: ($X^2$ (6, N=1301) =19.872, p=.003, for Bridge to College English) ($X^2$ (6, N=1211) =19.278, p=.004, for Bridge to College Math). Additionally, researchers found that when disaggregated by gender, that the majority of students taking Bridge to College English were male (55.8%), however, these students made up only 27.5% of the students passing with a B or Better (Figures 17 & 18). This is also statistically significant; $X^2$(1, N=1362)=15.997, p<.001.

*Table 25. Percentage of students receiving a B or Better disaggregated by ethnicity*

| Ethnicity | Bridge to College English, B or Better | Bridge to College Math, B or Better |
|---|---|---|
| **American Indian** | 48.50% | 32.30% |
| **Asian** | 46% | 38.60% |
| **Black/ African American** | 28.20% | 20.30% |
| **Hispanic** | 28.80% | 31.40% |
| **White** | 38% | 40.30% |
| **Hawaiian Native** | 15.40% | 21.10% |
| **2 or More Races** | 40.70% | 29.30% |

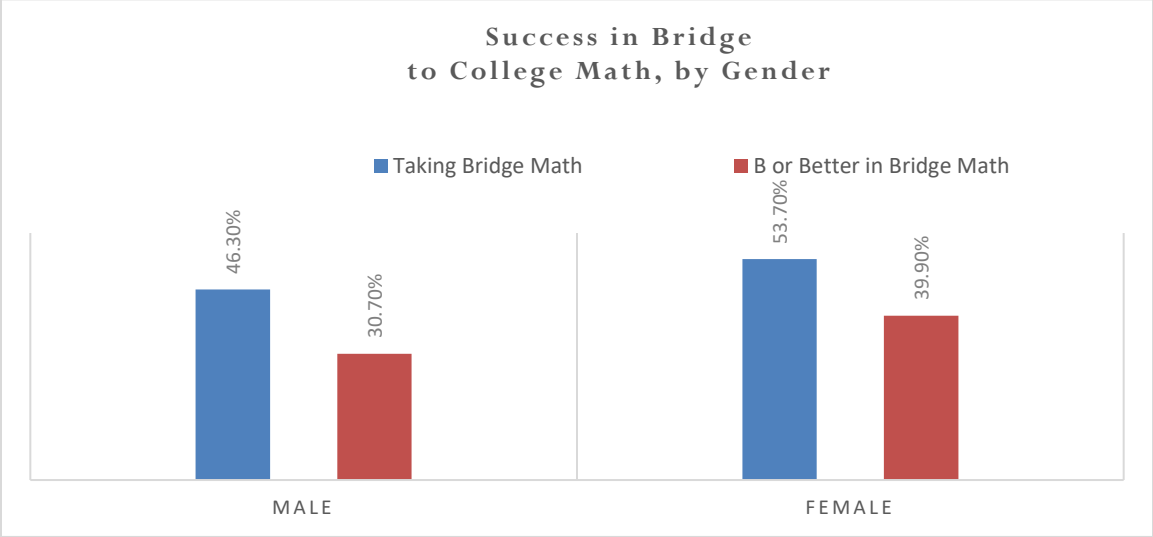



*Figure 17. Percentage of students receivng a B or Better, disaggregated by gender*

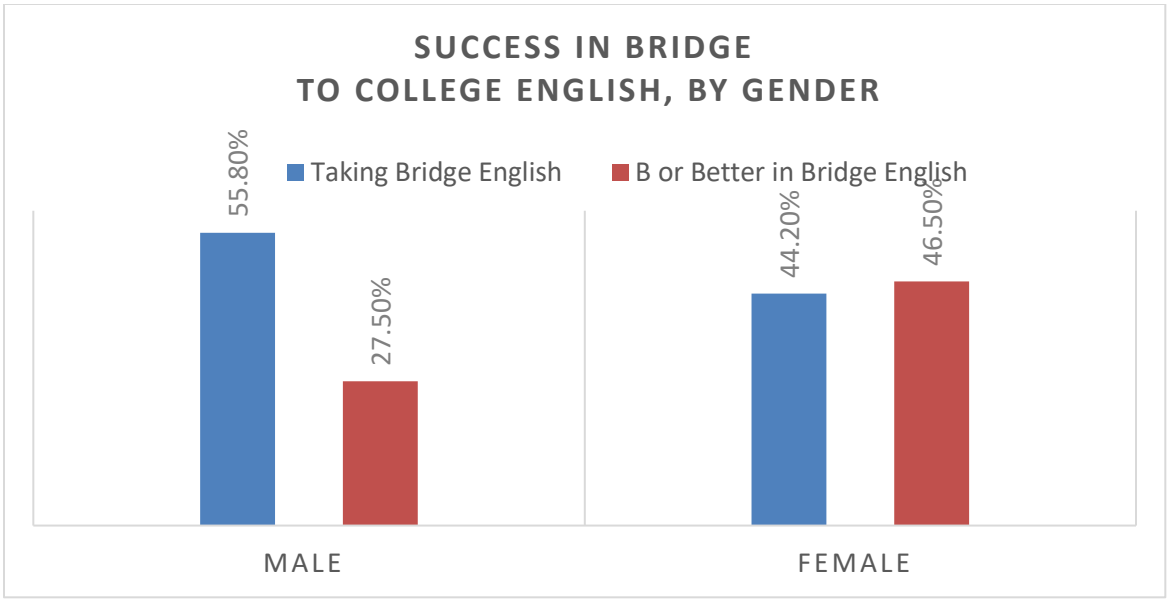



*Figure 18. Percentage of students receivng a B or Better, disaggregated by gender*

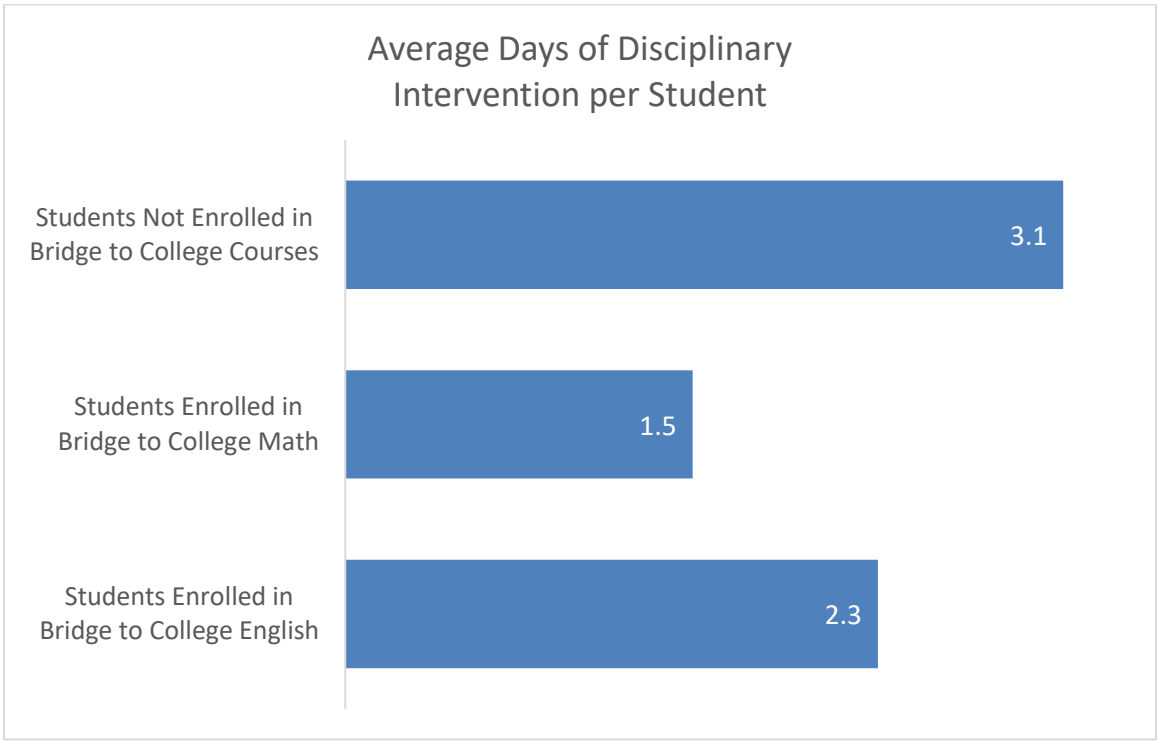
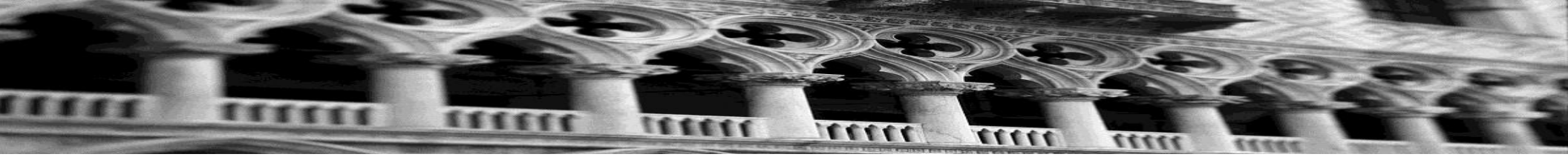



*Figure 19. Average days of discipline among Bridge to College English, Math, and students not enrolled in either class.*

***Discipline.*** Finally, researchers analyzed discipline data for 12th grade Bridge to College students, and non-Bridge to College students (Figure 19). Overall, Bridge to College students had fewer days of disciplinary intervention than their non-Bridge to College peers.

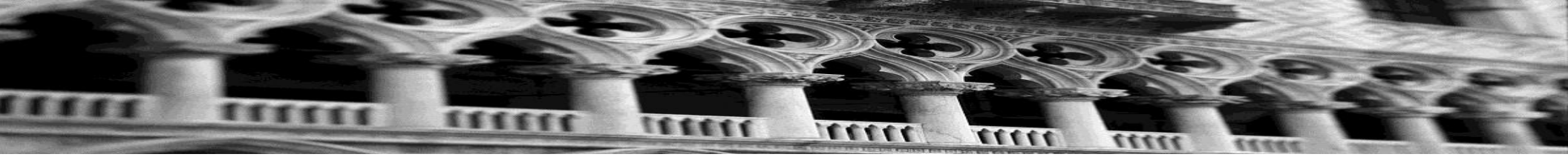
*Table 18. Enrollment in remedial/developmental math and English by college type (2-year and 4-year)*

| District | School | % Enrolled in College | % in Dev. Eng. (2-yr) | % in Dev. Math (2-yr) | % in Dev. Eng. (4-yr) | % in Dev. Math (4-yr) |
|---|---|---|---|---|---|---|
| **Aberdeen** | Harbor High School | 15% | n<10 | n<10 | n<10 | n<10 |
| **Aberdeen** | J M Weatherwax High School | 60% | 50% | 35% | 0% | 0% |
| **Anacortes** | Anacortes High School | 70% | 60% | 15% | 6% | 0% |
| **Anacortes** | Anacortes High School | 70% | 60% | 15% | 6% | 0% |
| **Arlington** | Arlington High School | 58% | 35% | 15% | 6% | 0% |
| **Arlington** | Weston High School | 0% | n<10 | n<10 | n<10 | n<10 |
| **Bainbridge Island** | Bainbridge High School | 84% | 40% | 11% | 0% | 0% |
| **Battle Ground** | Battle Ground High School | 47% | 35% | 15% | 0% | 0% |
| **Battle Ground** | Prairie High School | 52% | 45% | 15% | 0% | 0% |
| **Bethel** | Bethel High School | 50% | 35% | 25% | 15% | 0% |
| **Bethel** | Challenger Secondary School | 15% | 40% | 21% | n<10 | n<10 |
| **Bethel** | Graham Kapowsin High School | 51% | 35% | 30% | 10% | 0% |
| **Bethel** | Spanaway Lake High School | 52% | 40% | 30% | 0% | 0% |
| **Burlington-Edison** | Burlington Edison High School | 66% | 50% | 25% | 0% | 0% |
| **Camas** | Camas High School | 73% | 35% | 15% | 10% | 0% |
| **Camas** | Hayes Freedom High School | 25% | n<10 | n<10 | n<10 | n<10 |
| **Cape Flattery** | Clallam Bay High† & Elementary | 40% | n<10 | n<10 | n<10 | n<10 |
| **Castle Rock** | Castle Rock High School | 40% | 40% | 0% | n<10 | n<10 |
| **Central Kitsap** | Klahowya Secondary | 70% | 45% | 15% | 0% | 0% |
| **Central Kitsap** | Olympic High School | 49% | 50% | 35% | 0% | 0% |
| **Central Kitsap** | Westside High School | 35% | 60% | 30% | n<10 | n<10 |
| **Central Valley** | Central Valley High School | 64% | 55% | 25% | 10% | 0% |
| **Central Valley** | University High School | 53% | 40% | 20% | 15% | 0% |
| **Chehalis** | W F West High School† | 60% | 30% | 25% | 0% | 0% |
| **Cheney** | Cheney High School | 56% | 25% | 15% | 10% | 0% |



| District | School | % Enrolled in College | % in Dev. Eng. (2-yr) | % in Dev. Math (2-yr) | % in Dev. Eng. (4-yr) | % in Dev. Math (4-yr) |
|---|---|---|---|---|---|---|
| **Chimacum** | Chimacum High School | 45% | 40% | 21% | n<10 | n<10 |
| **Columbia (Stevens)** | Columbia High School | 120% | n<10 | n<10 | 42% | 0% |
| **Colville** | Colville Senior High School | 55% | 30% | 20% | 0% | 0% |
| **Colville** | Panorama School | 40% | n<10 | n<10 | n<10 | n<10 |
| **Davenport** | Davenport Senior High School | 50% | n<10 | n<10 | 0% | 0% |
| **Deer Park** | Deer Park High School | 30% | 20% | 40% | 20% | 0% |
| **Eatonville** | Eatonville High School | 50% | 40% | 11% | 0% | 0% |
| **Everett** | Cascade High School | 121% | 110% | 35% | 0% | 0% |
| **Everett** | Everett High School | 60% | 45% | 20% | 0% | 0% |
| **Everett** | Henry M. Jackson High School | 79% | 55% | 20% | 5% | 0% |
| **Everett** | Sequoia High School | 20% | 40% | 0% | n<10 | n<10 |
| **Evergreen (Clark)** | Evergreen High School | 52% | 40% | 25% | 0% | 0% |
| **Evergreen (Clark)** | Heritage High School | 49% | 40% | 25% | 0% | 0% |
| **Evergreen (Clark)** | Mountain View High School† | 62% | 40% | 25% | 0% | 0% |
| **Evergreen (Clark)** | Union High School | 64% | 35% | 25% | 0% | 0% |
| **Federal Way** | Decatur High School | 57% | 45% | 6% | 0% | 0% |
| **Federal Way** | Todd Beamer High School | 60% | 30% | 5% | 6% | 0% |
| **Federal Way** | Career Academy at Truman High School | 30% | 40% | 0% | n<10 | n<10 |
| **Franklin Pierce** | Franklin Pierce High School | 51% | 40% | 30% | 0% | 0% |
| **Franklin Pierce** | Washington High School† | 55% | 45% | 25% | 0% | 0% |
| **Freeman** | Freeman High School | 60% | 21% | 21% | 0% | 0% |
| **Grand Coulee Dam** | Lake Roosevelt High School | 40% | n<10 | n<10 | n<10 | n<10 |
| **Grandview** | Compass High School | 11% | n<10 | n<10 | n<10 | n<10 |
| **Grandview** | Grandview High School | 50% | 60% | 50% | 20% | 11% |
| **Granger** | Granger High School† | 45% | 60% | 40% | 30% | 11% |
| **Highline** | Health Sciences & Human Services | 65% | 40% | 11% | 0% | 0% |

| District | School | % Enrolled in College | % in Dev. Eng. (2-yr) | % in Dev. Math (2-yr) | % in Dev. Eng. (4-yr) | % in Dev. Math (4-yr) |
|---|---|---|---|---|---|---|
| **Highline** | Westside Alternative | n<10 | 0% | 0% | 0% | 0% |
| **Kelso** | Kelso High School | 50% | 60% | 25% | 20% | 0% |
| **Kettle Falls** | Kettle Falls High School | 50% | 21% | 21% | n<10 | n<10 |
| **Lake Stevens** | Lake Stevens Sr High School | 59% | 35% | 20% | 0% | 0% |
| **Lake Washington** | Lake Washington High | 78% | 30% | 20% | 0% | 0% |
| **Lopez** | Lopez Middle High School | 70% | n<10 | n<10 | n<10 | n<10 |
| **Mabton** | Mabton Jr. Sr. High | 35% | 21% | 21% | n<10 | n<10 |
| **Mansfield** | Mansfield High School | 0% | 0% | 0% | 0% | 0% |
| **Manson** | Manson High School | 60% | 40% | 40% | n<10 | n<10 |
| **Marysville** | Bio Med Academy | 60% | 20% | 20% | 0% | 0% |
| **Marysville** | Heritage High School | 49% | 40% | 25% | 0% | 0% |
| **Marysville** | Marysville Mountain View High School | 15% | n<10 | n<10 | n<10 | n<10 |
| **Marysville** | Marysville - Pilchuck High School | 0% | 0% | 0% | 0% | 0% |
| **Marysville** | School for the Entrepreneur | 60% | 60% | 21% | 0% | 0% |
| **Mead** | Mead Senior High School | 72% | 15% | 15% | 5% | 0% |
| **Mead** | Mt Spokane High School | 64% | 15% | 15% | 6% | 0% |
| **Meridian** | Meridian High School | 60% | 60% | 11% | 0% | 0% |
| **Moses Lake** | Moses Lake High School | 53% | 50% | 25% | 10% | 0% |
| **Mount Vernon** | Mount Vernon High School | 66% | 60% | 35% | 6% | 0% |
| **Mukilteo** | ACES High School | 20% | n<10 | n<10 | n<10 | n<10 |
| **Mukilteo** | Kamiak High School | 82% | 50% | 15% | 0% | 0% |
| **Mukilteo** | Mariner High School† | 57% | 50% | 25% | 0% | 0% |
| **Naches Valley** | Naches Valley High School† | 60% | 60% | 30% | 0% | 0% |
| **Nine Mile Falls** | Lakeside High School† | 65% | 20% | 10% | 0% | 0% |
| **North Kitsap** | Kingston High School | 65% | 75% | 35% | 0% | 0% |
| **North Kitsap** | North Kitsap High School | 61% | 60% | 25% | 11% | 0% |



| District | School | % Enrolled in College | % in Dev. Eng. (2-yr) | % in Dev. Math (2-yr) | % in Dev. Eng. (4-yr) | % in Dev. Math (4-yr) |
|---|---|---|---|---|---|---|
| **North Mason** | North Mason Senior High School | 45% | 40% | 20% | 0% | 0% |
| **Northport** | Northport High School | n<10 | n<10 | n<10 | n<10 | n<10 |
| **Oak Harbor** | Oak Harbor High School | 59% | 50% | 15% | 0% | 0% |
| **Ocean Beach** | Ilwaco Middle/High School | 45% | n<10 | n<10 | n<10 | n<10 |
| **Ocosta** | Ocosta Junior - Senior High | 40% | 60% | 40% | n<10 | n<10 |
| **Odessa** | Odessa High School | 40% | n<10 | n<10 | n<10 | n<10 |
| **Peninsula** | Gig Harbor High | 77% | 50% | 10% | 5% | 3% |
| **Peninsula** | Peninsula High School | 61% | 40% | 25% | 6% | 0% |
| **Pomeroy** | Pomeroy Jr Sr High School | 80% | 0% | 21% | n<10 | n<10 |
| **Port Angeles** | Port Angeles High School | 63% | 50% | 15% | 0% | 0% |
| **Port Townsend** | Port Townsend High School | 65% | 60% | 0% | 0% | 0% |
| **Prescott** | Prescott Jr Sr High | 40% | n<10 | n<10 | n<10 | n<10 |
| **Puyallup** | Chief Leschi High School | 0% | 0% | 0% | 0% | 0% |
| **Richland** | Rivers Edge High School | 30% | 40% | 21% | n<10 | n<10 |
| **Rochester** | Rochester High School | 40% | 40% | 30% | n<10 | n<10 |
| **Seattle** | Garfield High School | 78% | 30% | 25% | 5% | 3% |
| **Seattle** | Ingraham High School | 70% | 45% | 10% | 0% | 0% |
| **Seattle** | Interagency Programs | 20% | n<10 | n<10 | n<10 | n<10 |
| **Seattle** | Middle College High School | 45% | 50% | 11% | n<10 | n<10 |
| **Seattle** | Roosevelt High School | 84% | 30% | 15% | 5% | 0% |
| **Sequim** | Sequim Senior High | 65% | 60% | 10% | 0% | 0% |
| **Shelton** | CHOICE Academy | n<10 | n<10 | n<10 | n<10 | n<10 |
| **Shoreline** | Shorecrest High School | 84% | 50% | 20% | 0% | 0% |
| **Shoreline** | Shorewood High School | 77% | 30% | 0% | 0% | 0% |
| **Soap Lake** | Soap Lake High School | 0% | 0% | 0% | 0% | 0% |
| **South Kitsap** | Discovery | 6% | n<10 | n<10 | n<10 | n<10 |

| District | School | % Enrolled in College | % in Dev. Eng. (2-yr) | % in Dev. Math (2-yr) | % in Dev. Eng. (4-yr) | % in Dev. Math (4-yr) |
|---|---|---|---|---|---|---|
| **South Kitsap** | Explorer Academy | 40% | n<10 | n<10 | n<10 | n<10 |
| **South Kitsap** | South Kitsap High School | 57% | 45% | 25% | 10% | 0% |
| **Spokane** | Ferris High School | 62% | 30% | 25% | 10% | 10% |
| **Spokane** | Lewis and Clark High School | 21% | n<10 | n<10 | n<10 | n<10 |
| **Spokane** | North Central High School | 66% | 15% | 20% | 6% | 0% |
| **Spokane** | Rogers High School† | 113% | 55% | 55% | 20% | 11% |
| **Spokane** | Shadle Park High School† | 61% | 20% | 20% | 30% | 6% |
| **Steilacoom Hist.** | Steilacoom High | 75% | 25% | 15% | 10% | 0% |
| **Tahoma** | Tahoma Senior High School | 71% | 40% | 5% | 0% | 0% |
| **Tukwila** | Foster Senior High School | 65% | 45% | 20% | 0% | 0% |
| **Tumwater** | Tumwater High School | 61% | 25% | 20% | 11% | 11% |
| **Vancouver** | Columbia River High | 65% | 50% | 20% | 0% | 0% |
| **Vancouver** | Fort Vancouver High School | 47% | 45% | 40% | 0% | 0% |
| **Vancouver** | iTech Preparatory | 0% | 0% | 0% | 0% | 0% |
| **Vancouver** | Skyview High School† | 66% | 35% | 20% | 10% | 0% |
| **Vancouver** | Home Connection | 0% | 0% | 0% | 0% | 0% |
| **Wahkiakum** | Wahkiakum High School | 80% | 21% | 40% | n<10 | n<10 |
| **Walla Walla** | Walla Walla High School† | 71% | 60% | 25% | 15% | 6% |
| **Warden** | Warden High School | 50% | 70% | 40% | n<10 | n<10 |
| **Wellpinit** | Wellpinit High School | 60% | n<10 | n<10 | n<10 | n<10 |
| **West Valley (Spokane)** | Dishman Hills High School | 0% | 0% | 0% | 0% | 0% |
| **West Valley (Spokane)** | Spokane Valley High School | 40% | n<10 | n<10 | n<10 | n<10 |
| **West Valley (Spokane)** | West Valley High School | 121% | 100% | 65% | 17% | 0% |
| **Yakima** | Davis High School | 59% | 70% | 55% | 20% | 6% |
| **Yakima** | Eisenhower High School | 54% | 75% | 45% | 6% | 10% |
| **Yakima** | Stanton Alternative School | 15% | 40% | 40% | n<10 | n<10 |

***To what extent do multiple initiatives support each other?***

Researchers will address this question in detail as quantitative data become available for analysis. Anecdotally, however, for schools that implemented both Intensified Algebra and BtC Math, teachers felt that the programs were similar in philosophy and blended well with each other.

***Promising Practices and Lessons Learned***

Program stakeholders identified several strengths and promising practices resulting from the implementation of the Bridge to College courses. Overall, increased student engagement, motivation, and confidence were noted for Math and English Language Arts (ELA) programs. For example, one teacher said, "I believe students will be ready for college level work. That is one thing we talk about a lot. It is not meant to replace the 101 level but they will be able to enter and have confidence to do what they need to do at a 101 level." Students, teachers, and administrators' comments are included below, and provide a picture of the impact on students during this first year of implementation.

> I think some of these kids will like math more after they graduate. Instead of bad memories, with this it has been fairly exciting for them. It has given them some confidence.
>
> Tenacity has improved. [Kids are] more willing to try, look at the program, and approach something they don't understand. They now know that asking questions is a good thing, [and are] willing to put their answers out there…
>
> Now there is some desire to understand what is going on. They realize they can access the math.
>
> They are thinking more and engaging in a different way. And they are getting the math. (administrator)
>
> They are having success in math and they are talking about math in a way I believe they will continue to talk about mathematics. (administrator)

Students, too, spoke about the benefits of the class. Some of their comments included:

> It isn't like other math classes. There are only 12 kids, you don't have to keep up, and students and the teacher help you. It is slower, and you get one on one time with the teacher. She doesn't tell you the math problem and she explains everything and gives it relevance. Not just a robot doing math, you understand why.
>
> I enjoy math more. If I am confused on something I feel like I have a way to understand it.
>
> Bridge to College Math takes the skills you already know and builds on it and shows you different ways to solve a problem.

One teacher described how the mindset of students had changed because of the Bridge curriculum. The curriculum encouraged students to have productive failure, learn from their mistakes, and persevere. According to this teacher, it was teaching them the skills that they need to have when they go to college.

> It is not about this level of perfection. It is about coming in and working. [The material] is really serving the population of kids in the class. It is very clear and specific… I hope as they learn the curriculum and those soft skills of showing up and finishing what you started, and having achievable end goals, it will help them feel successful and see the connections. It is not about college going it is about college ready. If you decide to go back in 5 years you have the skills. That is the biggest difference.

One teacher spoke to the value of the Bridge to College materials being aligned to college work. He shared,

> I had a professor with [Yakima Valley College] who teaches English 101 and 135 come in. He has said that, based on samples we've brought in and he's brought in, they are comparable. It aligns the students for success. It takes out the student factor, and is about the motivation and organization. . . I think the writing has been more prominent, and helpful because I think that is what our students would struggle with; that level of writing.

Discussions also focused on the generous amount of collaborative time for student learning, the hands-on opportunities embedded in lessons, the application of knowledge to real-life, the small class size and direct intervention with teachers, the slower, more relaxed pace, and the depth and breadth of the content explored. Teachers shared that their students were developing "stronger problem-solving skills with multiple strategies," and "just seem more confident."

In addition to the impact on students, teachers also identified programmatic components beneficial to their learning and professional growth. Specifically, the attention to professional development and peer collaboration, the focused trainings and dedicated support, and the thorough curriculum materials were the most frequently cited strengths for teachers. One teacher shared, "The binder has been useful, everyone at OSPI has been very useful in communicating. It feels very important. I never feel like I am bothering them. They are very helpful and take pride in this work." Another remarked, "Having the curriculum. I love it already made. I am used to creating my own thing. Having something well-made and prepared, and a community of other people doing it and others in the same place as me…is an asset." Teachers also spoke to the value of Canvas, an on-line learning portal with links and modules dedicated to sharing materials and communicating with peers.

## Recommendations

Researchers gathered qualitative data from program stakeholders, and identified several recommendations offered to improve the overall implementation of the Bridge to College Initiative. Additionally, several suggestions specific to the Math and English Language Arts courses were offered, and are included in the discussion below.

### Bridge to College Overall.

***Provide regular progress reports.*** Teachers and administrators said that, for both programs, it would be helpful to have regular updates from OSPI or SBCTC about what was happening with the program in other schools. For example, providing a Frequently Asked Questions email or website to help teachers understand modules, rubrics, and other material, or to help administrators understand how the program was being implemented and how to support their teachers. One interviewee suggested providing more training throughout the year with the entire cohort so they could see "how it's going overall." Providing teachers regular updates with anecdotes about successes and challenges, as well as tips for overcoming the challenges, would meet that need.

***Provide support on student placement.*** Administrators and counselors identified student placement as a particular challenge. Not all of them were aware the class was designed for students who scored a Level 2 on the SBA, while others did not have the data available to place students. We recommend SBCTC provide timely guidance to grantees about how to place students and, if the data is not available, other methods for placing students in the courses.

### Bridge to College Math

***Review curricular material for accuracy and age-appropriateness.*** Teachers expressed some concerns about errors in the math materials, and suggested a complete vetting of each lesson to identify mistakes, fully explain activities, and create more continuity between lessons. BERC recommends SBCTC review the material to correct errors. In addition, as teachers identify errors during the school year, the state board should update and publish changes to all teachers using the program. Additionally, both teacher and students suggested taking out materials that come across as childish. Utilizing the PLCs, we recommend SBCTC let teachers make recommendations about material to remove or update.

***Expand higher education partnerships.*** Those higher education partners that engage with their communities of practice and are highly motivated to participate in the program have been effective in supporting high school teachers. However, there is only approximately one partner for every four communities of practice. BERC recommends College Spark and SBCTC recruit additional higher education partners. Using the current Higher Ed Partners to identify new potential partners or providing an incentive to the partners to participate fully may be beneficial.

***Continue the PLCs/Year 2 training.*** For many, the PLCs and having an opportunity to collaborate with peers around teaching and how to make students "college ready" was the most valuable piece of professional development they received during Year 1. We recommend continued support for PLCs throughout Year 2.

**Bridge to College English Language Arts**

***Provide more rubrics with examples of student work.*** Teachers noted that, at the beginning of the year, not all the rubrics for grading student work were available. In addition, teachers asked for more examples of student work to understand how to score using the rubric. We recommend SBCTC provide all the rubrics at the beginning of the year and provide several examples of student work for teachers to review. In addition, providing some training support on how to use the rubrics may be helpful for teachers that are interested.

***Provide a pacing guide for every module.*** For modules with pacing guides, teachers found them very useful. However, teachers noted that they were not available for all modules. According to one teacher, "With the Shallows module, there is a pacing guide but there is not that sort of thing with the other modules. They are kind of all over the map. It all needs to be in one place, the activities, the journal prompts. It's almost like it was written by a committee instead of by one person." We recommend SBCTC develop and distribute pacing guides for every module.

***Provide materials in Spanish.*** For many schools, a large portion of their students are English Language Learners and struggled to access the material provided or could not enroll in the class. To ensure every student can succeed in the course, we recommend SBCTC provide English, and Math materials in Spanish. It may be appropriate to identify other languages to translate the material into as well, depending on the needs of the student population

## Appendix A

THE CHARLES A. DANA CENTER
THE UNIVERSITY OF TEXAS AT AUSTIN

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To: Heather Gingerich, senior program officer
College Spark Washington

From: Carolyn Landel, managing director
Kathi Cook, manager of online course programs
The Charles A. Dana Center at The University of Texas at Austin

Date: February 15, 2017

Re: Report of Major Project Activities for July 2016–January 2017

## Executive Summary

In fall 2014, College Spark Washington launched the College-Ready Math Initiative (CRMI) to increase students' math skills, reduce college remediation rates, improve math instruction, and strengthen advisory programs. College Spark identified two programs developed by the Dana Center and education technology partner Agile Mind, Inc., as part of this effort:

- **School-Year Academic Youth Development (AYD)*:*** A program that helps students reshape their academic identities, enhance their engagement in learning, and improve their achievement
- **Intensified Algebra (IA):** A program that helps students one to three years behind in mathematics catch up and succeed in their first algebra course

The Dana Center's primary role is to participate in initiative planning and leadership meetings and facilitate meetings related to developing and coordinating the comprehensive evaluation plan with the BERC Group and the Washington Office of the Superintendent of Public Instruction (OSPI) for AYD and IA, especially with regard to assessing changes in student and teacher mindsets and strategies. However, we have also played a role in supporting new implementations and in recruitment of new schools.

This report addresses the Dana Center's activities during the last half of 2016 in evaluation and support for implementation.

## Evaluation

The Dana Center collected student and teacher survey data on learning mindsets and academic strategies across multiple time points during 2015–2016. These data continue to help us understand how students' mindsets, learning strategies, motivation, and engagement change related to their involvement and experience in AYD/IA and how teachers' mindsets about learning shift as a function of teaching AYD/IA.

As previously reported, the Dana Center is pioneering new approaches to data-gathering instruments for measuring psychological constructs and monitoring their effectiveness. We are collaborating with the Institute for Measurement, Methodology, Analysis, and Policy at Texas Tech University to develop and refine new items to assess a suite of factors with increased precision and sensitivity. These items continue to be validated against established measures to determine if the new measures better predict important outcomes and are more sensitive to change

while reducing survey burden for students through the use of planned missing-data designs and retrospective presurvey methods.[1]

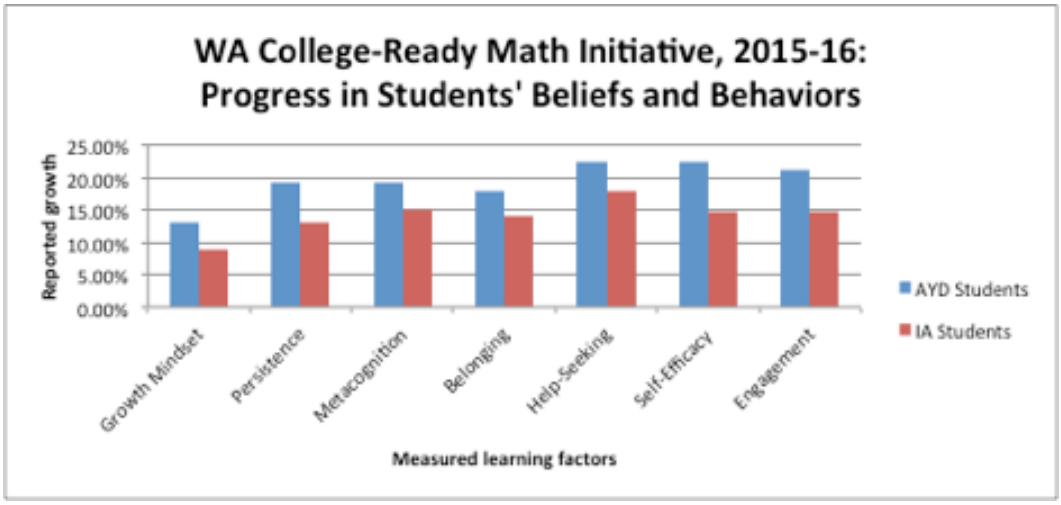
### 2015–2016 Student Surveys

The Dana Center's evaluation of the CRMI focuses on measuring multiple factors of student agency—the learning mindsets and behaviors that contribute to success and positive academic outcomes for students. The survey asked students to reflect on their beliefs about learning mindsets and strategies prior to their AYD/IA experience and indicate their current (midyear) rating on six aspects of learning related to better academic success:

- **Growth Mindset:** The belief that intelligence is changeable with effective effort
- **Persistence:** The degree to which students feel they can persevere in a course of action despite challenges or difficulty
- **Self-Efficacy:** The belief about one's capacity to succeed in a particular situation
- **Metacognition:** The extent to which students can plan, monitor, and evaluate their learning, adjusting strategies when necessary
- **Help-Seeking:** Seeking help from others in pursuit of one's goals
- **Belonging:** An individual's sense of his/her acceptance, value, and being a legitimate group member

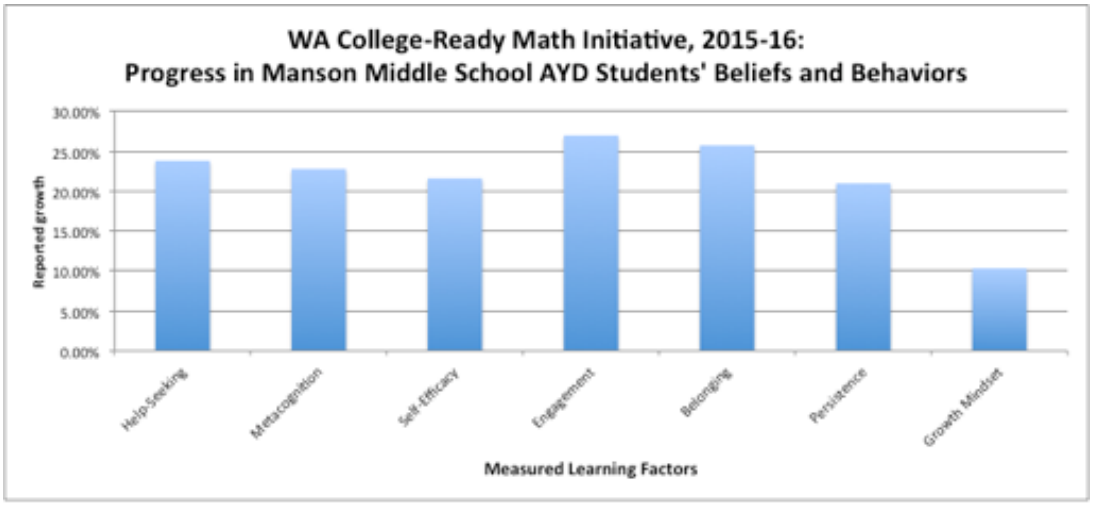
In this report, we present the end-of-year survey results for the 2015–2016 school year.

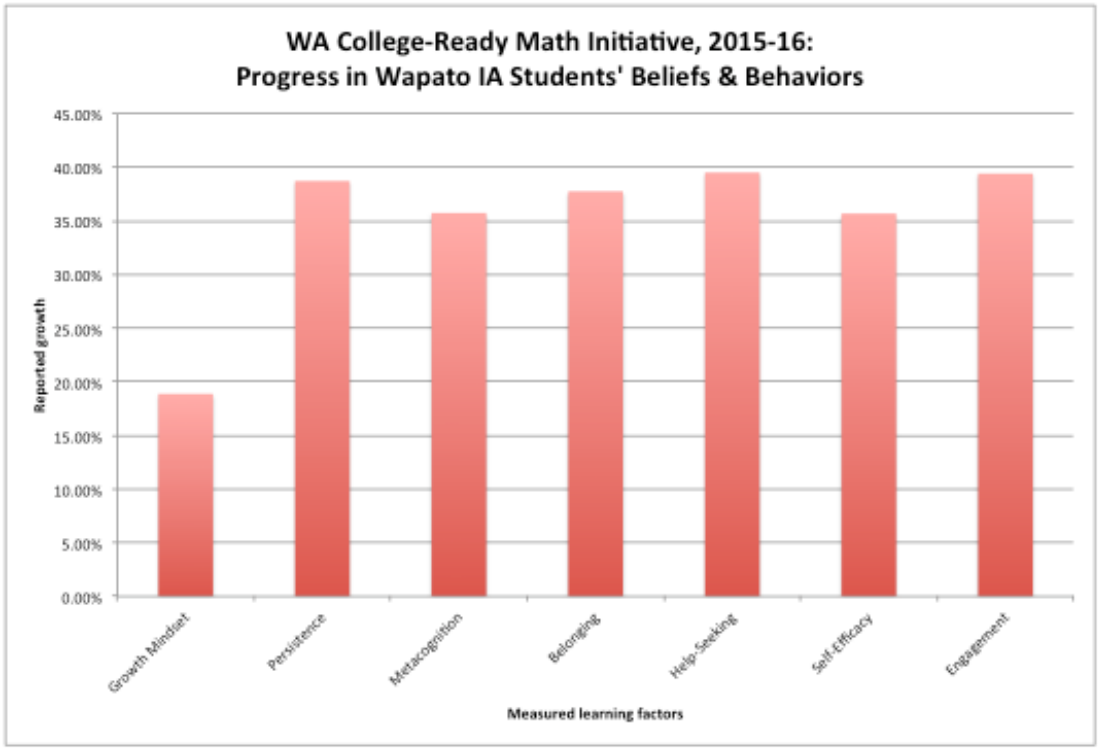
AYD was implemented in 7 schools representing 7 districts, while IA was implemented in 18 schools representing 11 districts. For both programs across these schools, all six aspects of learning on the Learning Mindsets and Strategies Survey improved between students' retrospective ratings at the beginning of the year to their current ratings at the end of the school year. This indicates a positive shift in mindsets and strategies.




[1]The retrospective survey design continues to be optimal for reducing response shift bias and gauging impact. *Response shift bias* is a measurement-related source of response contamination arising from the intervention changing the way participants respond to the instrument. For example, students may overestimate how much they persist until they learn what *persistence* actually entails and the strategies used in persisting. The retrospective design attenuates this bias over traditional pretests by asking participants to rate their level of change related to aspects of the program.

While students across the CRMI showed growth in each measured learning factor, some schools in the initiative showed particularly striking effects. The following highlights Manson Middle School's AYD students and Wapato's IA students.




## 2015–2016 Teacher Surveys

Teachers took a survey on their mindsets and teaching practices prior to attending summer professional development, midway through the academic year, and at the end of the academic year. They rated three key teacher beliefs and behaviors on measures related to student success:

- **Teacher Efficacy:** Teachers' beliefs about their capacity to help students learn
- **Growth Mindset:** Belief that intelligence is changeable with effective effort

- **Teaching Practices That Promote Persistence and Self-Regulation:** Degree to which teachers feel they can support student perseverance in a course of action despite challenges or difficulty and promote student self-regulation

Across the 18 schools implementing IA, 28 teachers completed the midyear survey and 28 the end-of-year survey.[2] IA teachers showed significant increases on all of three scale scores from their initial survey to their midyear and end-of-year enactment surveys. These increases indicate that teachers' self-reported beliefs and teaching practices improved over that period. The strongest impact was for Teacher Efficacy.

Across the seven schools implementing AYD, 45 teachers completed the midyear survey and 34 the end-of-year survey. AYD teachers showed significant increases on all of three scale scores from their initial survey to their midyear and end-of-year enactment surveys. These increases indicated that teachers' self-reported beliefs and teaching practices improved over that period, with strong effects for all scale scores

### 2016–2017 Student and Teacher Surveys

In 2016–2017, the participating Cohort 1 districts implemented IA and AYD with a new group of students. Surveys were administered in December to students and teachers to capture shifts in their learning mindsets, strategies, and attitudes thus far. Data for the midyear student and teacher surveys are currently being analyzed. These analyses will be provided to College Spark and the enacting districts as soon as they are available.

## Support for Implementation

Dana Center staff supported implementation of the IA and AYD components of the CRMI through the following activities:

- Lisa Brown, one of the lead developers of AYD, attended CRMI professional development activities in August 2016 to support the kickoff of implementation for the 2016–2017 school year. During a preinstitute session, she observed and provided advisor feedback for an Educator's Course in AYD. During the institute, Lisa observed and provided advisor feedback for a School-Year AYD session as well as for a session to support Geometry teachers using the Geometry Toolkit. She also assisted in facilitating the consultancy protocol with returning IA teachers, cofacilitated a session for leaders alongside David Savage of Agile Mind, and delivered the institute's keynote address.
- Kathi Cook, manager of online course programs, collaborated with David Savage to present the 2015–2016 data to CRMI districts in September 2016. At this meeting, they helped districts connect trends and patterns in their data to concrete aspects of their 2015–2016 implementation in order to inform the 2016–2017 implementation.
- Kathi Cook and Susan May, the lead developer of the Geometry Toolkit, are collaborating with Agile Mind program staff to interview CRMI teachers about their use of the toolkit. The information gathered will inform enhancements to the Geometry Toolkit and the protocols supporting its use.
- Lisa Brown worked with colleagues from OSPI, Agile Mind, and College Spark to review and screen applications to select Cohort 2 schools.

[2]Due to the small numbers of teachers at each site, the need to preserve confidentiality prevents reporting results at the district and school levels.

## Challenges and Obstacles

### Data-Sharing Agreement with ERDC and Washington State IRB

The Dana Center had hoped to have the Washington state IRB requirements and data-sharing agreements in place by this time, but some delays have been encountered during the process. This has hindered sharing our survey data as well as obtaining the student-level data needed to analyze connections between the learning mindsets and strategies we measure and student outcomes. Our data-sharing agreement is now in the hands of ERDC. As soon as it is finalized, we will upload our survey data. At the same time, our IRB proposal is in review, and we hope to receive approval within the next two weeks so that we can move ahead with further data analysis.

## Financial Update

An official report from the University of Texas Office of Accounting will be sent under separate cover as soon as it is available. The June salaries did not clear in time to be included in this report. Spending is proceeding according to plan.

## Table 1
## 2016 College-Ready Math Initiative Activities

| Activities | Status |
|---|---|
| **Coordinate evaluation planning, activities, and related communication.** | |
| Participate in monthly communication across core partners: OSPI, BERC, Dana Center, Agile Mind, College Spark | Ongoing |
| Hold monthly coordination call with BERC. | Ongoing |
| Confirm school district selection for student focus groups and conduct interviews/ focus groups based on student changes on noncognitive surveys. | Completed |
| Attend professional development for Cohort 2 (AY 2016–2017) and establish teacher baseline data for 2016–2017. | August 2016 |
| Coordinate and collect baseline data on student survey for AY 2016–2017. | August/September 2016 |
| Comply with UT IRB. | Ongoing |
| **Negotiate data agreements with school districts implementing IA and School-Year AYD and ERDC.** | |
| Continue ongoing coordination of evaluation activities for 2015–2016 and 2016–2017 district partners with all AYD and IA districts. | Ongoing |
| Finalize data-sharing agreement with ERDC for the administrative data. | Spring 2016 (*See Challenges and Obstacles*) |
| Secure comparison groups for AYD and IA for 2016–2017 for student surveys. | Spring 2016 (*See Challenges and Obstacles*) |
| **Establish optimal measurement of student and teacher learning mindsets and skills.** | |
| Partner with Todd Little and the Institute for Measurement, Methodology, Analysis, and Policy at Texas Tech University to develop and refine learning mindsets and skills measures and analysis strategy.<br>• Integrate retrospective pre–post survey design. (January)<br>• Employ planned missing study design to mitigate survey burden.<br>• Validate refined set of student learning mindsets and skills measures.<br>• Report on student and teacher surveys across pre/post/delayed post administrations. | Ongoing |
| Administer student survey (post and delayed post) of learning mindsets and skills. | Completed |
| Administer teacher survey (post and delayed post) of beliefs about learning and fostering student . | Completed |
| Examine Agile Mind usage data. | Ongoing |
| Analyze relationship of student learning mindsets and skills and achievement. | February–March 2017 |
| **Evaluation reporting** | |
| Establish quarterly (approximate) communication schedule for partner districts to communicate upcoming activities, district highlights, and preliminary findings (develop plan in quarterly meeting with core partners). | Ongoing |
| Evaluation report(s) to College Spark. | Completed |

## Appendix B

# College Spark Washington's College-Ready Math Initiative

*Annual Report*
*Fall 2017*

The University of Texas at Austin
Charles A. Dana Center

## Executive Summary

In fall 2014, College Spark Washington launched the College-Ready Math Initiative (CRMI) to increase students' math skills, reduce college remediation rates, improve math instruction, and strengthen advisory programs. As part of this effort, College Spark identified three programs developed by the Dana Center and Agile Mind, Inc.

- **School-Year Academic Youth Development (SY-AYD)*:*** An instructional program that introduces powerful psychological constructs to help students reshape their academic identities, enhance their engagement in learning, and improve their achievement, particularly in mathematics
- **Intensified Algebra (IA):** An instructional program that helps students one to three years behind in mathematics catch up and succeed the first time in their Algebra I course
- **An Educator's Course in Academic Youth Development (E-AYD)**: A professional learning program that helps shape teachers' and campus and district leadership teams' positive beliefs about their self-efficacy, growth mindset, and teaching practices that promote persistence and self-regulation

Key to IA and SY-AYD's foundation is psychological research indicating courses that integrate cognitive (i.e., rich academic content) and noncognitive (i.e., motivational) aspects of learning are highly effective for improving academic achievement. The term *noncognitive factors* describes the mindsets, beliefs, strategies, and behaviors impacting students' motivation and success in school and beyond. Evidence from studies in psychology and education points to these factors as lifelong learning skills critical to academic success and postsecondary opportunities.

The Dana Center's internal evaluation work on the CRMI involves the following:

- **Developing and coordinating,** in collaboration with BERC Group and the Washington Office of the Superintendent of Public Instruction (OSPI), a comprehensive evaluation plan to determine the impact of IA and SY-AYD programs on students' mindsets.
- **Designing and developing student and teacher surveys** that accurately and consistently measure student and teacher mindsets and strategies.
- **Measuring changes** in student and teacher mindsets over time.
- **Determining the impact of participating** in IA and SY-AYD programs on student and teacher mindsets and strategies.
- **Determining the impact of changes** in students' learning mindsets on achievement in mathematics.

This report presents findings from the Teacher Mindsets and Practices Survey for teachers who taught IA and SY-AYD during 2016–2017 and from the Student Learning Mindsets and Strategies Survey for their students. These data are helping the Dana Center understand how students' learning mindsets, strategies, motivation, and engagement change related to their experience in IA/SY-AYD and how teachers' mindsets about learning and teaching strategies shifted as a function of teaching IA/SY-AYD. Schools showing a strong positive impact are highlighted in Appendix A. This report also includes preliminary findings of the impact on changes in students' learning mindsets on achievement for the 2015–2016 cohort of students.

Learning mindsets and strategies outcomes for IA and SY-AYD students by school will be released in November 2017. The 16 individual school reports include pre-IA/SY-AYD, midyear, and end-of year mean scores for each aspect of learning and their corresponding effect sizes.

## Key Activities from 2015–2016 and 2016–2017

The Dana Center's activities in the period since its last report address participating students and teachers from three different academic years.

- For the 2015–2016 student cohort, we conducted an analysis on the relationship between students' reported perceptions about their attitudes and beliefs and their performance on the Smarter Balanced Math Assessment (SBMA).
- For the 2016–2017 student and teacher cohort, we administered and analyzed baseline, midyear, and end-of-year surveys to measure changes in IA and SY-AYD students' learning mindsets and strategies as well as changes in teachers' beliefs about teaching and learning and their teaching strategies.
- For the 2017–2018 student and teacher cohort, we began administering baseline surveys for IA and SY-AYD students and teachers.

## Overview of Findings from 2015–2016 and 2016–2017

End-of-year survey results from 2016–2017 suggested that overall IA and SY-AYD had the strongest impact on students' perceptions of engagement, metacognition, and belonging. The programs had small negative effects on students' growth mindset—changes in students' mindsets over time were not found to be statistically significant. Teaching IA or SY-AYD had a significant positive impact on teachers' beliefs about their self-efficacy, growth mindset, and teaching practices that promote persistence and self-regulation.

The Dana Center's analysis of student achievement data for the 2015–2016 cohort indicated that self-efficacy and belonging significantly predicted scores on the SBMA—the higher students rated these two aspects of learning, the higher their scores on the SBMA.

Validity and reliability testing established that the Student Learning Mindsets and Strategies Survey is a sensitive measure for assessing changes in students' learning mindsets over time. The Dana Center's innovative survey, developed in collaboration with the Institute for Measurement, Methodology, Analysis, and Policy (IMMAP) at Texas Tech University, is a better quality tool to measure student motivation and engagement as well as other factors important to student learning than the standard measures in the literature.

| Findings | Implications | Recommendations |
|---|---|---|
| **Survey Development** | | |
| The Student Learning Mindsets and Strategies Survey is an accurate and consistent measure of students' learning mindsets and strategies that are attributable to IA/SY-AYD program effectiveness. | The Dana Center and IMMAP have designed an innovative, valid, and reliable measure to use when determining the effects of programs on students' learning mindsets and strategies. | The Dana Center should continue to collaborate with IMMAP to validate the use of the student survey to predict student achievement. |
| **Research Design** | | |
| The planned missing data, retrospective pretest/posttest design provides a more economical and efficient means to collect quality evaluation data. | The Dana Center will conduct better and more efficient research and reduce survey burden and fatigue by using a planned missing data, retrospective pretest/posttest design when collecting survey data. | The Dana Center should use the planned missing data, retrospective pretest/posttest design (in lieu of a traditional pretest) when collecting data using the Student Learning Mindsets and Strategies Survey. |

| Findings | Implications | Recommendations |
|---|---|---|
| **Teacher Attitudes and Beliefs (2016–2017)** | | |
| Teaching IA and SY-AYD had a strong positive impact on teachers' beliefs about their self-efficacy, growth mindset, and teaching practices that promote persistence and self-regulation. Results were statistically significant. | Over time, these changed beliefs should be evident in teacher behaviors, which should impact results first for IA and SY-AYD students and then for students in the teachers' other classes. | The Dana Center should conduct research on how changes in teachers' mindsets mediate student achievement outcomes for IA, SY-AYD, and other students. |
| **IA and Student Attitudes and Beliefs (2016–2017)** | | |
| IA had a small positive impact on students' perceptions of engagement, metacognition, and belonging at the end of the school year. IA had a small negative effect on students' growth mindset. Results were not statistically significant. | Although results were not statistically significant, it is possible that students developed a more accurate understanding of what growth mindset is during their experience, and rated their *then* and *now* perceptions accordingly. The reported results are anomalous with the Dana Center's growth mindset research results in other studies. | The Dana Center should conduct a power analysis to determine a suitable sample size for detecting a significant effect. The Center should strengthen data collection methods. The Center should examine teacher participation data (i.e., teachers' implementation of content targeting the stated constructs) to determine variability in student exposure to the treatment. The Center should conduct a meta-analysis at the end of the CRMI to determine factors that account for year-to-year variation. |
| **AYD and Student Attitudes and Beliefs (2016–2017)** | | |
| AYD had a strong positive impact on students' perceptions of engagement, metacognition, and belonging at the end of the school year. Results were not statistically significant. | Although results were not statistically significant, SY-AYD does not appear to impact students' perceptions of agency, growth mindset, help-seeking, and self-efficacy. The reported results are anomalous with the Dana Center's growth mindset research results in other studies. | The Dana Center should conduct a power analysis to determine a suitable sample size for detecting a significant effect. The Center should strengthen data collection methods. The Center should examine teacher participation data to determine variability in student exposure to the treatment. The Center should conduct a meta-analysis at the end of the CRMI to determine factors that account for year-to-year variation. |
| **Attitudes and Beliefs and Achievement (2015–2016)** | | |
| Self-efficacy and belonging significantly predicted scores on the SBMA—the higher the ratings on self-efficacy and belonging, the higher the SBMA scores. | Developing self-efficacy and belonging in students is important to their math achievement as indicated by the SBMA. | The Dana Center should investigate the relationship between attitudes and beliefs and achievement when it has a larger sample across multiple end-of-course measures (e.g., SBMA, Algebra I end-of-course). |

## Student Learning Mindsets and Strategies Survey

### Research Design

The Dana Center, in collaboration with IMMAP, conducted a planned missing data, retrospective pretest/posttest research design to determine whether this method yields more valid and sensitive assessments of changes in students' learning mindsets and strategies than a traditional pretest/posttest design. Research indicates retrospective pretest/posttest designs provide more accurate estimates of program effects than traditional pretest/posttest designs.

#### *Planned Missing Data*

Planned missing data designs significantly reduce the amount of time participants spend taking lengthy surveys, subsequently reducing measurement error (i.e., overestimates or underestimates of program impact) attributable to participant burden and fatigue as well as reducing costs associated with traditional data collection. *By using a planned missing data design, the Dana Center and IMMAP reduced the time it traditionally takes students to complete a long-form survey by 45 percent, while simultaneously maintaining data quality and minimizing research costs.*

#### *Retrospective Pretest/Posttest*

Students were given a baseline Learning Mindsets and Strategies Survey at the beginning of the school year, prior to exposure to IA/SY-AYD. They rated—on a 100-point continuous scale (0 = strongly disagree, 100 = strongly agree)—their perceptions of a series of survey items that reflect learning mindsets and strategies. Then, at two time points (midyear and end of year) after exposure to IA/SY-AYD, students were administered a retrospective pretest/posttest of the same survey items. At these survey administrations, students responded to *then* and *now* prompts for each survey item. For *then* prompts, students reflected on their beliefs about learning mindsets and strategies prior to their IA/SY-AYD experience. For *now* prompts, students indicated their current beliefs about learning mindsets and strategies after participating in IA/SY-AYD. The survey constructs (i.e., learning mindsets and strategies) were separated into seven aspects of learning related to better academic success:

- **Agency:** Beliefs about ones' abilities and efforts
- **Belonging:** An individual's sense of his/her acceptance, value, and being a legitimate member of a group
- **Engagement:** Participating, asking questions, and sharing ideas in class
- **Growth Mindset:** The belief that intelligence is changeable with effective effort
- **Help-seeking:** Seeking help from others in pursuit of one's goals
- **Metacognition:** The extent to which students can plan, monitor, and evaluate their learning, adjusting strategies when necessary
- **Self-efficacy:** The belief about one's capacity to succeed in a particular situation

### Validity and Reliability Testing

The Dana Center and IMMAP have established the validity and accuracy of the student survey to measure changes in students' mindsets over time through validity and reliability testing.

- To test validity, we determined whether the survey accurately measures what it intends to measure. Our testing indicated that the survey accurately measures students'

perceptions of agency, belonging, engagement, growth mindset, help-seeking, metacognition, and self-efficacy.

- To test reliability, we determined how well multiple survey items intended to measure the same construct or idea produce similar results. Our testing indicated that the survey consistently measures students' perceptions of agency, belonging, engagement, growth mindset, help-seeking, metacognition, and self-efficacy.

On the baseline pretest, students overestimated their perceptions of their learning mindsets and strategies. After they were exposed to IA/SY-AYD and gained more experience and training in the program, students became more aware of what the learning mindsets and strategies meant and thus were better able to judge their perceptions of their mindsets and strategies. For example, students overestimated their beliefs about *agency* until they learned what *agency* meant. The results of validity testing presented strong evidence that students could retrospectively think back to and provide accurate judgments of their pre-IA/SY-AYD perceptions of learning mindsets and strategies.

IMMAP's further analysis indicated that the retrospective pretest is a more stable and reliable measure than the baseline pretest when estimating the effects of IA/SY-AYD on changes in students' learning mindsets and strategies over time. The analysis confirmed that students overestimated their perceptions of learning mindsets and strategies on the baseline pretest and more accurately judged their perceptions on the retrospective pretest.

The Student Learning Mindsets and Strategies Survey is an accurate and consistent tool for measuring changes in students' learning mindsets and strategies. The retrospective pretest/posttest design is more accurate and sensitive at capturing changes in students' learning mindsets and strategies that are attributable to IA/SY-AYD program effectiveness than a baseline pretest/posttest design. The retrospective design also provides a more economical and efficient means to collect quality evaluation data, as there is no need for two rounds of data collection (i.e., pretest and posttest). With this design, students are administered one survey at one time, and data are collected for two time points (i.e., retrospective pre and post).

## Teacher Mindsets and Practices Survey

Prior research indicates participation in IA/SY-AYD impacts the mindsets of teachers. As such, the Dana Center developed a teacher survey and collected data on changes in teacher mindsets and practices over time. The Teacher Mindsets and Practices Survey was administered to teachers to assess how teaching IA/SY-AYD impacts their beliefs and teaching practices. Comprised of 23 questions, the online survey asked teachers to reflect on their beliefs about teaching and learning and their teaching strategies at three time points: prior to teaching IA/SY-AYD, midyear, and end of school year.

Teachers rated their beliefs and behaviors on the following measures related to student success:

- **Teacher Efficacy:** Teachers' beliefs about their capacity to help students learn
- **Growth Mindset:** Belief that intelligence is changeable with effective effort
- **Teaching Practices That Promote Persistence and Self-Regulation:** Degree to which teachers feel they can support student perseverance in a course of action, despite challenges or difficulty, and their ability to promote student self-regulation

## Detailed Findings

Appendix A describes the Dana Center's detailed findings for its internal evaluation for the 2016–2017 school year, covering the following topics:

- Teacher mindsets and practices
- Student learning mindsets and strategies
- Impact of IA and SY-AYD
- Learning mindsets and student achievement in mathematics

## Challenges and Obstacles

Student survey results are not reflective of all IA and SY-AYD students. Because students did not enter consistent identification numbers across survey administrations, the Dana Center could not match some students' midyear surveys to their end-of-year surveys. As a result, sample sizes are relatively small. For future data collection, we have worked with OSPI to ensure that accurate and consistent student identification numbers are used. This year, CRMI district evaluation coordinators provided us with the official state student identification numbers (SSIDs) before schools received the student survey links. IMMAP incorporated survey validation prompts that blocked students from entering the survey unless their official SSID was entered. Teachers were provided lists of SSIDs to give to students as they took the surveys.

By gathering and authenticating official SSIDs, the Dana Center can track student survey results across each survey administration. We will also be able to accurately align student survey data with student demographic, achievement, attendance, and behavior data in the Washington State Educational Research and Data Center (ERDC), enabling us to conduct powerful analyses of the effects of changes in students' mindsets on their achievement in mathematics.

## Implications

The Dana Center and IMMAP have designed an innovative, valid, and reliable measure for determining the effects of programs on student learning mindsets and strategies. The Student Learning Mindsets and Strategies Survey has implications for the Center's future work in noncognitve student learning and for the fields of education, psychology, social science, and research. Using planned missing data, retrospective pretest/posttest research design, we can provide a lower cost mechanism to collect high-quality data. As a result, we will more accurately and reliably measure the effectiveness of the IA and SY-AYD programs on students' learning mindsets and strategies and reduce the burden and fatigue of data collection.

Although some positive results were found on the practical significance of the impact of IA and SY-AYD on students' learning mindsets and strategies (as determined by effect size measures), results were not statistically significant. In addition, the small negative (nonsignificant) impact of IA on students' growth mindset is anomalous compared to the Dana Center's similar studies.

Research on the effects of programs designed to impact students' noncognitive development and social emotional learning has shown variability in effectiveness. Conventions for effect sizes for changes in students' learning mindsets and strategies have yet to be established. A small effect size for the impact of educational programs on changes in students' mindsets may be reasonable. Further investigation is warranted to determine conventional effect sizes for programs designed to impact students' learning mindsets and strategies.

Decisions about the effectiveness of IA in improving students' mindsets and strategies should not be based on a single study in a single year. Variation in results from year to year is expected. Many factors influence the effectiveness of curriculum on student outcomes. An analysis of results over time is needed to reach reasonable conclusions about program impact.

## Recommendations

The Dana Center should continue to collaborate with IMMAP in strengthening the Student Learning Mindsets and Strategies Survey (i.e., ensure validity for predicting student achievement and behavioral outcomes) and prepare the survey for publication. The Center should employ the retrospective pretest/posttest design (in lieu of the traditional pretest/posttest design) with future CRMI cohorts, thus reducing the burden and fatigue of surveying students. Once development and testing is complete, the Center should use the survey across all of its programs designed to impact students' learning mindsets and strategies and should publish and market the survey to education and social research scientists.

Results on the impact of IA and SY-AYD on students' learning mindsets and strategies were not statistically significant. In future investigations, the Dana Center should conduct power analyses to determine suitable sample sizes for detecting significant program effects. We should also strengthen methods to ensure adequate samples of student data are collected. Using more powerful sample sizes, we should investigate the relationship between students' learning mindsets and strategies and their achievement in math across multiple end-of-course measures.

The Dana Center should continue to use teacher participation and course usage data to determine variability in student exposure to the treatment and how course usage mediates or influences program effects.

The Dana Center should begin tracking student cohorts to examine the long-term effects of IA and SY-AYD on student mindsets, achievement, and behavior. This has not been achievable thus far because of the lack of accurate student identification information to align their survey data with their achievement and behavior data.

At the end of the CRMI, the Dana Center should consider conducting a meta-analysis by combining data from each year's study to determine the reasons for year-to-year variation and use the results to inform decisions about IA/SY-AYD program design and implementation.

## Next Steps

The Dana Center is continuing its collaboration with IMMAP in developing and refining survey items for measuring psychological constructs associated with student learning mindsets and strategies. IMMAP is testing survey items to determine *predictive validity* – the extent to which items can predict student achievement and behavioral outcomes. This type of validity allows accurate examination of whether increases in students' learning mindsets and strategies predict increases in student achievement in math and improvements in attendance and behavior.

In addition, the Dana Center will work to establish more reliable data collection techniques so that it can track students across each survey administration and accurately align student survey data with demographic, achievement, attendance, and behavior data in the ERDC. We will also conduct statistically powerful analyses of changes in students' learning mindsets over time, and the effects of changes in students' attitudes and behaviors on their achievement in math.

# Appendix A

*Detailed Findings*

## Teacher Mindsets and Practices

### *Intensified Algebra*

*Teaching IA had a significant, positive impact on teachers' beliefs about their self-efficacy, growth mindset, and teaching practices that promote persistence and self-regulation.* Across the 15 schools implementing IA in 2016–2017, 25 teachers completed the midyear survey and 18 the end-of-year survey. IA teachers showed significant increases on each of three scale scores from their initial survey to their midyear and end-of-year surveys. These increases indicated that teachers' self-reported beliefs and teaching practices improved over the course of teaching IA during the school year.

### *Academic Youth Development*

*Teaching SY-AYD had a significant, positive impact on teachers' beliefs about their self-efficacy, growth mindset, and teaching practices that promote persistence and self-regulation.* Across the six schools implementing SY-AYD in 2016–2017, 25 teachers completed the midyear survey and 15 the end-of-year survey. SY-AYD teachers showed significant increases on each of three scale scores from their initial survey to their midyear and end-of-year surveys. These increases indicated that teachers' self-reported beliefs and teaching practices improved over the course of teaching SY-AYD during the school year.

## Student Learning Mindsets and Strategies

Analysis of matched student survey data for the 2016–2017 cohort showed no statistically significant differences in changes to students' learning mindsets and strategies over time. The Dana Center then computed effect sizes to determine the practical significance of program impact. Research on the effects of programs designed to impact students' noncognitive development and social emotional learning has shown variability in effectiveness. Conventions for effect sizes for changes in students' learning mindsets and strategies have yet to be established. A small effect size for the impact of educational programs on changes in students' mindsets may be reasonable. Further investigation is warranted to determine conventional effect sizes for programs designed to impact students' learning mindsets and strategies.

In the absence of such conventions, the Dana Center computed a common measure of effect size, Cohen's *d*, to quantify the differences between students' presurvey and postsurvey ratings. In this case, the effect size is a measure of how large or small of a difference we observed between students' pre-IA/SY-AYD survey ratings of their perceptions of learning mindsets and strategies and their end-of-year survey ratings. The table on the following page presents the common scale of effect size measures and what they mean.

Decisions about the effectiveness of IA in improving students' mindsets and strategies should not be based on a single study in a single year. Variation in results from year to year is expected. Many factors influence the effectiveness of curriculum on student outcomes. At the end of the initiative, the Dana Center may combine data from each year's study to determine factors contributing to site-to-site and year-to-year variation.

An effect size of ≥ 0.4 is a desired effect, suggesting IA/SY-AYD had a strong positive impact on students' learning mindsets and strategies.

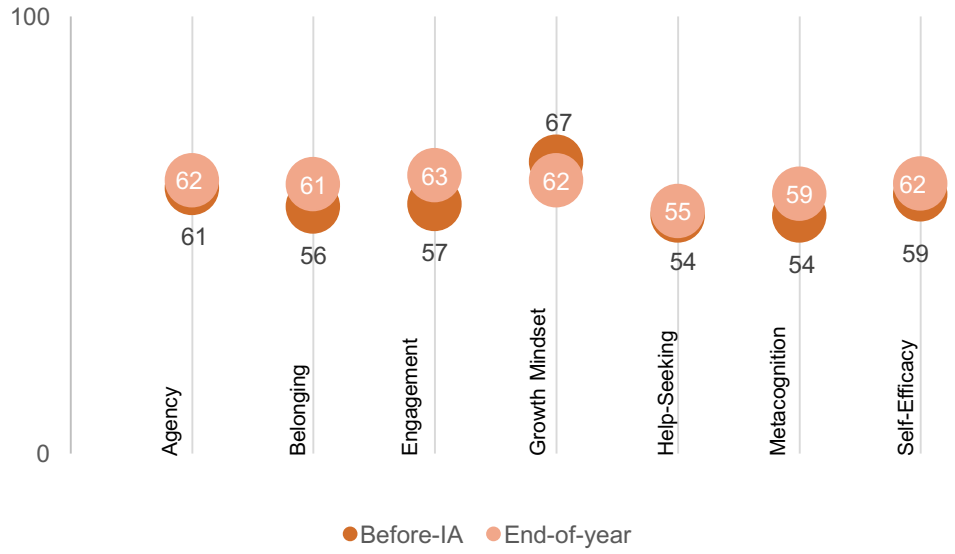
| Effect Size | Meaning | |
|---|---|---|
| 0.0–0.20 | IA/SY-AYD has *no effect or impact* on students' learning mindsets and strategies. | |
| 0.21–0.50 | IA/SY-AYD has a *small effect or impact* on students' learning mindsets and strategies. | ≥ 0.4 is a desired effect |
| 0.51–0.79 | IA/SY-AYD has a *moderate effect or impact* on students' learning mindsets and strategies. | |
| ≥ 0.80 | IA/SY-AYD has a *large effect or impact* on students' learning mindsets and strategies. | |

## Impact of Intensified Algebra

### *Student Learning Mindsets and Strategies Survey*

*IA had a small positive impact on students' perceptions of engagement (d = 0.29), metacognition (d = 0.27), and belonging (d = 0.21) on average at the end of the school year.* IA had no practically significant impact on students' sense of agency (*d* = 0.10), help-seeking (*d* = 0.05), and self-efficacy (*d* = 0.14). The Dana Center observed a small negative effect of IA on students' perception of their growth mindset (*d* = –0.24) at the end of the school year.

**Students' (*n* = 252) average mindsets ratings before participating in IA and at the end of the school year**




## School Highlights: Strong Positive Effects of Intensified Algebra

While IA had positive impacts on some learning factors for students on average, the impact for students in some schools was particularly striking. Average results for students at Washington and Walla Walla High Schools are presented. Agile Mind IA program administrators provided implementation information to contextualize results at both high schools. Better understanding of the practices in place in these "outliers" will be used to inform potential revisions to the

program design or implementation supports to increase the likelihood that more sites can achieve similar results.

### *Washington High School (Tacoma)*

IA had a strong positive impact on students' learning mindsets and strategies at Washington High School. At the end of the year, students' ratings of engagement ($d$ = 0.72), metacognition ($d$ = 0.59), agency ($d$ = 0.51), self-efficacy ($d$ = 0.51), belonging ($d$ = 0.49), and help-seeking ($d$ = 0.47) greatly increased from the beginning of the year. The largest impact was observed on engagement. In the previous year (2015–2016), the Dana Center observed strong positive effects of IA on Washington High School students' average learning mindsets and strategies at the end of the year, with the strongest effect observed on perceptions of metacognition ($d$ = 0.49).

The leadership team for Franklin Pierce Schools included district-level leaders—the curriculum director and teacher on special assignment. The building principal empowered the district personnel to guide the implementation, along with the teachers. The team visited two other CRMI school sites to network and learn from instructional staff. Additionally, the leadership team worked directly with the teachers and their Agile Mind professional development advisor to plan and pace lessons.

In the first year of implementation, two teachers at Washington High School each implemented one section of IA. Their online participation was within recommended ranges. One did not fully participate because he was completing his administrative certification. The instructional role was shared with a student teacher and frequent guest teachers, which is not a preferred arrangement. In the second year of implementation, Washington High School reduced its enactment of IA to a single section taught by one teacher from the first year's enactment. The other teacher shifted to an administrative role, leaving no additional faculty assigned to the initiative. The teacher for the second year departed materially from enacting the program as designed, preferring her own curriculum. During Years 1 and 2, 100 percent of participating students accessed the online content. The district coordinator and school principal remained the same for both years of implementation.

A group of 34 educators across the district (including the IA teachers) completed E-AYD in August 2016, prior to the start of the second year of implementation.

### *Walla Walla High School*

IA had a strong positive impact on Walla Walla High School students' perceptions of engagement ($d$ = 0.80), agency ($d$ = 0.57), metacognition ($d$ = 0.56), self-efficacy ($d$ = 0.44), and belonging ($d$ = 0.39) at the end of the year, with the largest positive effect observed on engagement. There was no impact on IA on students' growth mindset or help-seeking on average. In the previous year (2015–2016), the Dana Center observed strong positive effects of IA on Walla Walla High School students' average learning mindsets and strategies at the end of the year, with the strongest effect observed on sense of self-efficacy ($d$ = 0.66).

The leadership team in Walla Walla Public Schools took an active role in CRMI implementation. Along with participation in the cohort leadership sessions, the district grant coordinator and building principal supported the implementation through his continuous presence and coaching during all site visits, classroom walkthroughs, and debriefing sessions. He and his team opened their doors to observers. They welcomed administrators and teachers into both IA

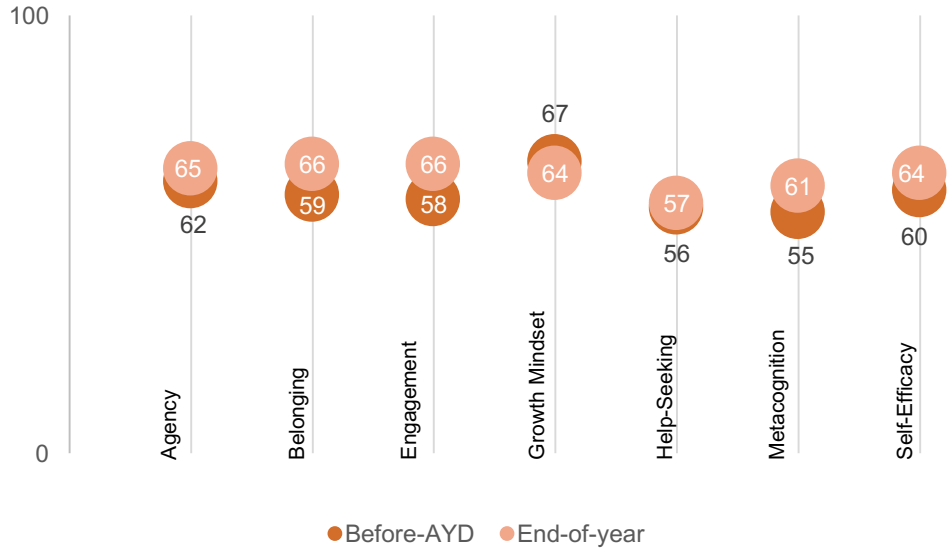
classrooms and Geometry sections for the purpose of collaborating with other school sites that are either implementing or considering applying for the grant. Additionally, the principal served as a valued member of the CRMI leadership panel during professional development.

At Walla Wall High School, the same two teachers implemented IA in 2015–2016 and 2016–2017. Their online participation was within recommended ranges each year of implementation. A third teacher joined in 2016–2017 to teach students who advanced from IA to Geometry using Agile Mind Geometry, with support of the SY-AYD Geometry Toolkit. Each year, more than 90 percent of IA students participated in online assignments and quizzes. There was continuity of the district coordinator and school principal during the two years of implementation.

## Impact of School-Year Academic Youth Development

SY-AYD had a strong positive impact on students' perceptions of engagement ($d$ = 0.40) and a borderline strong positive effect on metacognition (d = 0.38) and belonging ($d$ = 0.35) on average at the end of the school year. SY-AYD had a small positive impact on students' sense of self-efficacy ($d$ = 0.22). There was no practically significant impact of SY-AYD on students' perceptions of growth mindset ($d$ = –0.02), help-seeking ($d$ = 0.04), and agency ($d$ = 0.20).

**Students' ($n$ = 214) average mindsets ratings before participating in SY-AYD and at the end of the school year**




## School Highlights: Strong Positive Effects of Academic Youth Development

While SY-AYD had positive impacts on some learning factors for students on average, the impact for students in some schools was particularly striking. Average results for students at Delta High School and Toppenish Middle School are presented. Agile Mind AYD program administrators provided implementation information to contextualize results at both schools.

### *Delta High School (Pasco)*

SY-AYD had a strong positive impact on some aspects of students' learning mindsets and strategies at Delta High School. At the end of the school year, students' average ratings of belonging ($d$ = 0.48), engagement ($d$ = 0.44), and metacognition ($d$ = 0.40) greatly increased from

their ratings at the beginning of the year. Better understanding of the practices in place in these "outliers" will be used to inform potential revisions to the program design or implementation supports to increase the likelihood that more sites can achieve similar results.

Delta High School provided a STEM-focused curriculum for students from three school districts in the Tri-cities area: Kennewick, Pasco, and Richland. The building principal and guidance counselor served key roles in the SY-AYD implementation. The program was leveraged as a culture-building resource with the grand opening of the new Delta facility at the onset of the first year of CRMI implementation. Active participation of the leaders during all site visits served to prioritize the plan to deliver lessons for all 9th and 10th graders during the first year. In addition, the building principal fully engaged every SY-AYD teacher in summer professional development and leveraged this time to integrate SY-AYD concepts into planning for instruction across the curriculum. Twenty-one teachers completed E-AYD during summer 2016.

In the first year of implementation, 11 teachers and 223 9th and 10th graders participated in SY-AYD. In the second year, six teachers (all of whom had taught SY-AYD the previous year) enacted the program with 104 9th graders. This implementation plan was consistent with the original plan to engage students in grades 9 and 10 for Year 1 and then transition to grade 9 only for Year 2.

### Toppenish Middle School

SY-AYD had a strong positive impact on Toppenish Middle School students' average perceptions of engagement ($d$ = 0.41) and metacognition ($d$ = 0.41) at the end of the year. In the previous year (2015–2016), the Dana Center observed strong positive effects of SY-AYD on some of Toppenish Middle School students' average learning mindsets and strategies at the end of the year, with the strongest effect observed on perceptions of metacognition ($d$ = 0.56) and help-seeking ($d$ = 0.55).

In launching the CRMI in August 2015, Toppenish leaders engaged a team of 35 educators in the E-AYD coursework. The building principal and school counselor attended all leadership onboarding sessions in spring 2015 and professional development sessions in the summer. After the first year of enactment, the principal was reassigned and an interim principal appointed. In May 2017, a new principal joined the team.

In the first year of implementation, 19 teachers and 270 students participated in SY-AYD. In the second year, five teachers implemented the program with 310 students. During the two years of implementation, SY-AYD lessons were delivered during students' advising course period. The placement of SY-AYD during the weekly advising course did not allow sufficient time for instruction. Based on this experience, the decision was made to embed delivery of SY-AYD within a 55-minute class period for the 2017–2018 school year.

## Learning Mindsets and Student Achievement in Mathematics, 2015–2016

The Dana Center conducted an analysis to determine whether student learning mindsets predicted scores on the SMBA. We found that self-efficacy and belonging significantly predicted scores on the SBMA. *On average, the higher the students' ratings were on self-efficacy and belonging, the higher their scores on the SBMA.* Agency, engagement, growth mindset, help-seeking, and metacognition did not predict scores on the SBMA for this sample of students.

This analysis was limited because only 127 SSIDs were matched of 402 students completing the Student Learning Mindsets and Strategies Survey and the SBMA. As mentioned in the Challenges and Obstacles section, the Dana Center has implemented more efficient data collection practices that allow it to conduct analyses of the effects of changes in students' mindsets on their achievement in math.

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