Improving Educational Outcomes in High Need,
Low-Income Rural and Urban Communities through a High School Mentoring Model
Education Innovation and Research Program – Early-phase Grant
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A. SIGNIFICANCE. The Center for Supportive Schools (CSS) is applying for an Early-phase Grant in response to *AP1: Demonstrates a Rationale* and *AP 2: Field-Initiated Innovations - General.* The proposed 5-year project will develop, implement, and scale a structured, school-based, one-to-one mentoring intervention for 10th and 11th graders identified as high-risk for dropping out of school, known as **Achievement Mentoring (AM).** The project will also investigate the efficacy of AM and equip CSS to provide schools across the country with tested resources to implement the program. AM is designed to improve social and emotional learning (SEL), improve educational mindsets, enhance student engagement, and support academic and other school-related outcomes. AM is a one-to-one, high school adaptation of the Behavior Monitoring & Reinforcement Program (BMRP), a group mentoring model for middle schools. BMRP has empirical evidence demonstrating its promise and we are confident that AM demonstrates the same promise. The proposed project will serve high-need 10th and 11th graders in up to 20 high schools in low-income, rural communities in North Carolina and urban communities in New York City, among others. CSS and The Policy & Research Group (PRG) will partner to conduct an experimental study to measure program impacts on SEL (goal setting, help seeking), educational mindsets (academic motivation, valuing education, perceptions of teacher support), and student engagement. PRG will examine the extent to which these impacts translate into improved progression in school (as measured by number of courses passed, a critical indicator of being off-track for on-time high school graduation) and increased staying in school (as measured by school attendance). In each of up to 20 schools, we will train an average of 10 adult mentors and 40 students will be identified to enroll in the randomized control trial study. Of these 40 students, 20 will be randomly assigned to participate in AM and 20 will be randomly assigned to a control group, resulting in a total sample of approximately 800 students.

National significance. In school year 2016-17, the adjusted cohort graduation rate (ACGR) for public high school students was 84.6%, the highest it has been since the rate was first measured.[1] However, stubborn disparities in educational achievement and attainment persist for minority, low-income, and other high-need students. While there have been gains among Hispanic and Black students, these subgroups still fall well below the national average at 80 and 77 percent, respectively.[2] In contrast, the ACGR for White students falls above the national average at 88.6%.[3] Other subpopulations that fall below the national average include low-income students (78.3%), students with limited English proficiency (66.4%), and students with disabilities (67.1%).[4] Nationally, the gap between low-income students and their middle- and upper-income peers ranges from a high of 24 percentage points to a low of 2.8 percentage points, and the gap between students with disabilities and those without stands at 21.1 percentage points.[5] In addition, the high school dropout rate[6] for students from families in the lowest income quarter (7.2%) is nearly twice the rate of those from families in the highest income quarter (3.9%).

Higher suspension rates are closely correlated with higher dropout, and delinquency rates and loss of classroom instruction time damages student performance.[7] Black students are suspended and expelled at a rate 3 times greater (16%) than White students (5%),[8] and Black girls are suspended at higher rates (12%) than girls of any other race or ethnicity and most boys. Federal data released in 2018 shows racial disparities in school discipline worsening, with Black students facing far greater rates of school arrests than their White counterparts.[9] In 2015-16, Black students accounted for 15% of the student body but 31% of arrests. The data also show students with disabilities are far more likely to face suspension or arrests at school, accounting for 12% of enrollment but 28% of all arrests and referrals to law enforcement.[10]

Research indicates that school engagement is the primary conceptual model for explaining differential high school completion rates and subsequent adult outcomes.[11] In fact, once students reach 11 years old, school engagement is the most decisive factor influencing academic achievement.[12] Researchers note that positive relationships with adults are perhaps the single most important ingredient in promoting successful student development[13] and can buffer the effects of low income and minority group status on academic achievement.[14] Schools can prevent punitive discipline responses and foster supportive conditions for learning by increasing students' access to caring relationships with school-based adults; there is also compelling evidence that school-based mentoring reduces disciplinary referrals, fighting, and suspensions.[15] Unfortunately, unequal access to mentoring contributes significantly to the opportunity gap,[16] and there are approximately 9 million at-risk youth who will reach age 19 without ever having a mentor and who are therefore less likely to graduate high school, go on to college, and lead healthy and productive lives.[17] This project can help fill the "Mentoring Gap" by fostering effective partnerships between students at heightened risk of dropping out of school and caring, school-based adults who support and advocate for their success.

Contribution to increased knowledge or understanding. Mentoring programs are commonly used as interventions for at-risk students; however, few program components can be confirmed as research-based and effective due to the limited breadth of existing research literature.[18] A startling gap in evidence suggests there is no uniformity in the evaluation standard for mentoring programs across the U.S. which prevents effective comparison of programs to determine best practice standards.[19] A 2016 literature review revealed 98 published research-based mentoring programs aimed at improving outcomes for at-risk students.[20] Of these, only 10 included programs that measured and evaluated effectiveness. A 2019 meta-analysis of 70 studies yielded

some support for the efficacy of one-on-one, caring relationships with adults, while emphasizing the need for improving the quality and rigor of mentoring practices and evaluation strategies.[21]

Our own literature review revealed a 2013 report that examined the impact of the NYC Success Mentor Corps, the nation's largest school-based mentoring effort in a single city.[22] The project was one component of a multi-layered initiative to reduce chronic absenteeism led by an interagency task force. It included 3 primary mentor models piloted in 175 schools over 3 years, reaching over 60,000 students: 1) *external mentors*, staffed by non-profit partners (e.g., AmeriCorps, retirees); 2) *internal school mentors*, including teachers, counselors, and coaches already employed at the school; and 3) *peer mentors,* staffed by selected 12th grade students. Results indicate that chronically absent students who had mentors gained 9 days of school per student, per year. Results were the same for both the internal and external mentoring models.

While promising, this study further underscores the need for additional research to contribute to the knowledge base of how school-based mentoring efforts can help solve persistent problems in education. The study was conducted only in New York City; it has never been replicated in other communities and may have limited applicability. We will assess the efficacy of a school-based model in high schools across multiple communities, including rural North Carolina. The focus of the NYC initiative was on reducing chronic absence and not on other important academic, social, and emotional outcomes. We will measure program impacts on SEL, educational mindsets, and student engagement, and examine the extent to which these impacts translate into improved progression and attendance in school. Researchers also note that the mentoring efforts occurred within the full set of reforms implemented in task force schools and may therefore be hard to replicate. We will evaluate the efficacy of a highly replicable school-based mentoring program. Finally, in the NYC project, mentors were largely assigned to

the neediest students. Even with significant gains in daily attendance, many remained chronically absent. More strategic deployments of mentors are possible – e.g. to support students who missed between 20 and 30 days of schooling the prior year, as these students have the potential to exit chronic absenteeism with the support of a mentor. We will specifically target these students and reveal the potential for school-based mentoring to impact chronic absence rates.

Promising strategies that build on existing strategies. The proposed project will further develop and implement a school-based mentoring program known as *Achievement Mentoring (AM)* in up to 20 high schools in rural communities in North Carolina and urban communities in NYC and other regions that primarily serve low-income and minority students. AM is a one-to-one, high school adaptation of the Behavior Monitoring & Reinforcement Program (BMRP)*,* a group mentoring model for middle school students. Therefore, this project will adapt an effective middle school group mentoring model for use with individual students in high schools. Engagement decreases steadily from 5th grade (75%), reaching its lowest point in 11th grade (32%).[23] Nearly 3 times as many 5th graders (67%) as 11th graders (23%) strongly agree with the statement, "the adults at my school care about me,"[24] suggesting that high school students do not have a sense that they are individually known at school. Developing targeted interventions for older students to slow or reverse this trend could be a turning point for U.S. schools.[25]

The proposed project offers a particularly promising strategy for high schools in that it will leverage existing resources within a school. High schools that predominantly serve high-need student populations often have the least qualified teachers and provide limited or no access to school counselors, though these students frequently have the strongest need for counseling.[26] Diminished resources in high-poverty schools exacerbate gaps in college attendance and completion between poor students of color and their affluent peers.[27] This said, even schools that

are struggling with low resources have a sub-set of qualified, caring adults who want to make an even bigger impact in the lives of students and welcome opportunities to provide additional support to students. AM taps into these teachers and other school-based adults such as administrative staff, nurses, and others who may wish to help support students beyond the limits of their traditional roles and builds their capacity to deploy themselves differently.

Similarly, we offer a promising structure for high schools as mentoring is <u>fully integrated into the school day</u>, increasing the likelihood that it becomes institutionalized and sustained over time. Since disengaged students usually will not spend any more time in school than is required, and many high-need students have multiple family and/or work obligations outside of school, the proposed project will not require students to arrive early or stay late to meet with a mentor. Further, <u>mentoring sessions</u> will take 20 minutes which will address time constraints for mentors who are full-time school staff. Short meetings are also important for mentee buy-in: once at-risk students learn that the meetings are predictably short and focused on pleasant topics, they will be more likely to embrace mentoring. The program will last for <u>two full years</u>, and there is a noteworthy 100% retention rate for adolescents in the program.[28]

The proposed project will utilize a <u>highly-structured, protocol-based 10-step approach</u> and <u>professional training for mentors</u> including ongoing mentor coaching sessions, all of which is described in detail in the *Project Design* section below. Because of this, we <u>build on the concept of natural mentoring</u> in that all caring, school-based adults – who may already be mentoring students informally – can be trained in evidence-based strategies that can elevate the support they are currently providing. Researchers recommend that mentoring programs explore the use of strategies to cultivate ties between youth and adults who have the potential to serve as effective natural mentors.[29] The frequency with which school personnel are named by youth as natural

mentors suggests their promise as targets. This approach is also grounded in <u>strengths-promotion</u> rather than risk-reduction, which yields larger positive effects for mentoring programs.[30] Further, the individualized mentoring provided through AM will <u>meet each student's specific needs</u> related to school engagement. Because mentors reach out monthly to connect with each student's caregiver, this project will <u>engage parents</u> in the education of students and building strong relationships with students, families, and community partners. Research indicates that parents should be told about signs of a youth's engagement and be asked to praise them at home.[31]

Finally, AM has only been piloted in high schools since 2011, and never as part of any strategic initiative to develop a robust curriculum and training materials or to evaluate the program through a large-scale study across different types of communities. In the proposed project, we will <u>implement and evaluate AM in 20 new schools as part of a cohesive scaling and evaluation strategy for high schools</u>. Further, we will do this <u>across urban and rural communities</u> to develop and streamline current practices into a package of services and materials that will allow AM to be scalable and replicable in diverse communities nationwide. At the conclusion of the grant, after our comprehensive and iterative process of improvement, we will have developed a set of resources and materials to be shared with schools and districts serving high-need youth across rural and urban communities.

Demonstrates a rationale. The present project demonstrates a rationale based on its (1) high-quality research findings and (2) logic model. *(1) Research findings.* An impressive body of research on resilience in at-risk youth and the role of supportive adults suggests that a relationship with at least one significant adult who is not a parent leads to improved outcomes.[32] As noted above, AM is a one-to-one, high school adaptation of the Behavior Monitoring & Reinforcement Program (BMRP), a group mentoring model for middle school students. BMRP

has been noted as a *Blueprints Certified Promising Program* by the Center for the Study and Prevention of Violence,[33] <u>though Blueprints has not certified the high school version of the program</u>. AM has been evaluated as *Promising* by the National Mentoring Resource Research Board and the National Institute of Justice,[34] though as an intervention specifically for urban minority freshmen. There is a great need for a school-based, evidence-based, and scalable individual mentoring model for high-need high school students across urban and rural communities, so CSS will work with BMRP's program developer to further adapt and refine AM into a highly replicable model for all schools. *(2) Logic model.* See *Figure 1:*

ACHIEVEMENT MENTORING
Logic Model

Inputs
- Funding
- CSS Staff
- LEA Staff & Resources
- School partner and consultant resources
- On-site and ongoing mentor coaching
- Fidelity monitoring
- Support from stakeholder team
- Continuous improvement activities

Key Components

PROFESSIONAL DEVELOPMENT
- CSS conducts experiential training (3-days, 6 hours per day) for school staff who serve as mentors (approximately 10 staff/school)
- CSS provides monthly on-site coaching sessions for mentors

MENTOR ACTIVITIES
- Mentors conduct weekly interviews (at least 20) with a teacher of each mentee to obtain mentee grade and behavior data and solicit positive feedback to share with mentee
- Mentors meet with mentees weekly (at least 20 sessions per year) to provide mentoring using a 10-step problem-solving sequence
- Monthly outreach (at least 9 outreaches per academic year) to mentee parents/caregivers to share positive feedback

10th/11th GRADE MENTEE ACTIVITIES
- Student mentees meet weekly in individual meetings with mentor (at least 20 per year) and participate in a 10-step problem-solving sequence
- Mentees receive ongoing positive feedback from teachers and mentor
- Mentees receive weekly school data reports
- Mentees participate in beginning-of-year mentor-mentee match even and end-of-year mentor-mentee closure event
- Mentees participate in mentoring for two academic years

Mediators

As a result of participating in mentee activities, students demonstrate improvements in social and emotional learning and enhanced student engagement:
- Increased school engagement/attachment
- Increased sense of connectedness among peers
- Increased academic motivation
- Increased academic self-efficacy
- Increased efficacy in goal setting and help-seeking
- Increased valuing education
- Increased perception of teacher support
- Greater positive future orientation

Student Outcomes
Mediators result in short-term & long-term outcomes:

SHORT-TERM	LONG-TERM
• Fewer course failures (academic achievement indicator) • Increased school attendance (engagement indicator) • Fewer suspension incidents (discipline indicator)	• Increased grade-level on-time promotion rates • Decreased high school dropout rates (i.e. greater persistence in school) • Increased on-time high school graduation rates • Increased college enrollment and completion; and success in careers

B. PROJECT DESIGN. Goals, objectives, outcomes. Goals of the proposed project are to: 1) increase student engagement and staying in school; 2) improve students' progression in school as
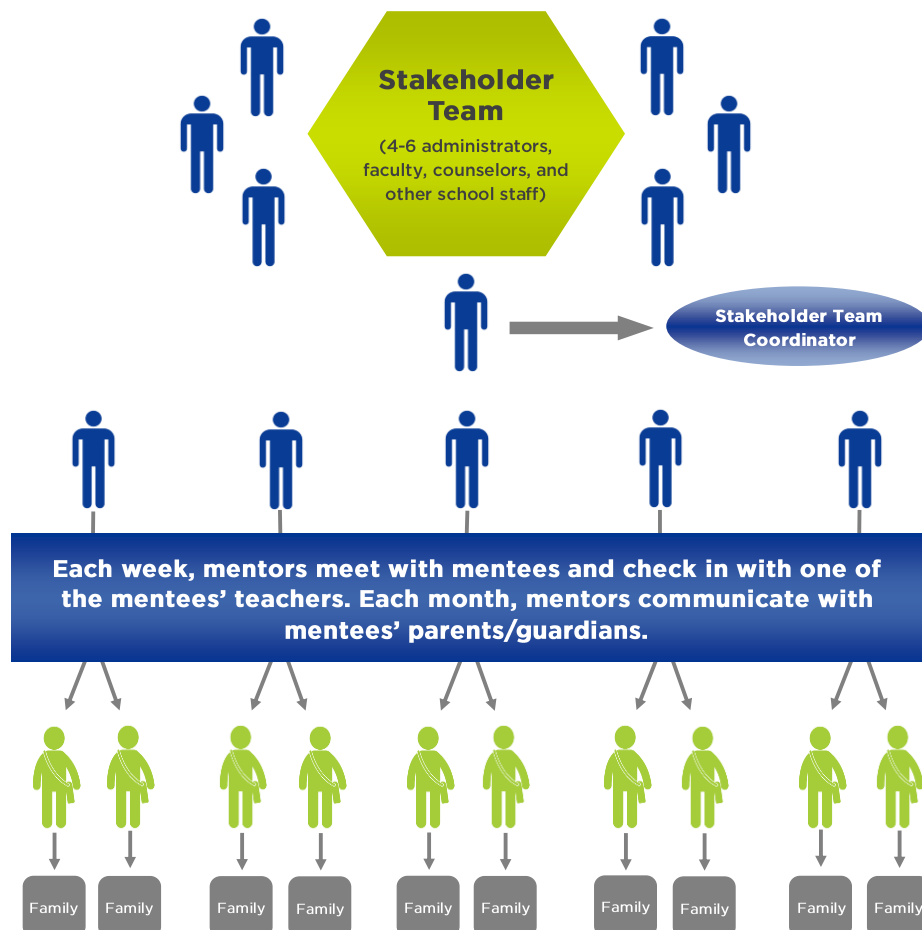
measured by greater number of courses passed (a critical indicator of being off-track for on-time

high school graduation); 3) increase SEL skills and educational mindsets, and 4) further develop

and evaluate the implementation and effectiveness of key components of AM. See *Table 1*:

Project Goal #1: Increase student engagement and staying in school as measured by improved school attendance and a student survey		
Objectives and Outcomes	**Measure/Sample Measures**	**Activity**
1.1 Beginning in Year 2 and each year thereafter, students in the treatment group will demonstrate an aggregate **attendance rate** that is 10% higher than the attendance rate among students in the control group	Annual attendance data (school records)	Mentor-mentee mentoring sessions
1.2 After two years of program participation and as compared to students in the control group, AM participants will demonstrate a .10 *sd unit* higher score on a measure of **school engagement**	Identification with School (Radziwon, 2003)	Mentor-mentee mentoring sessions
1.3 After two years of program participation and as compared to students in the control group, AM participants will demonstrate a .10 *sd unit* higher score on a measure of **sense of connectedness among peers** (an indicator of student engagement)	Student Engagement Instrument: Peer Support for Learning subscale (Appleton et al. 2006)	Mentor-mentee mentoring sessions
Project Goal #2: Improve students' progression in school as measured by number of courses passed		
Objectives and Outcomes	**Measure/Sample Measures**	**Activity**
2.1 Beginning in Year 2 and each year thereafter, students in the treatment group will demonstrate an aggregate **courses passed rate** that is 10% higher than the courses passed rate among students in the control group	Courses passed among participants (school records)	Mentor-mentee mentoring sessions
Project Goal #3: Increase SEL skills and educational mindsets as measured by a student survey		
Objectives and Outcomes	**Measure/Sample Measures**	**Activity**
3.1 After two years of program participation and as compared to students in the control group, AM participants will demonstrate a .10 *sd unit* higher score on measures of **efficacy in goal setting and help-seeking** (indicators of SEL)	Self-efficacy in goal setting (Martino, 1993), Children's Multidimensional Scales of Perceived Self-efficacy (Zimmerman et al, 1992)	Mentor-mentee mentoring sessions
3.2 After two years of program participation and as compared to students in the control group, AM participants will demonstrate a .10 *sd unit* higher score on a measure of **valuing education**, **academic motivation, academic self-efficacy,** and **perception of teacher support** (indicators of educational mindsets)	Student Engagement Instrument: Future Aspirations & Goals subscale (Appleton et al. 2006), Academic Motivation Scale-HS (Vallerand, 1992), California Healthy Kids Survey, Caring Relationships	Mentor-mentee mentoring sessions
Project Goal #4: Further develop and evaluate the implementation and effectiveness of key components of AM		
Objectives and Outcomes	**Measure/Sample Measures**	**Activity**
4.1 Examine to what degree key components of the AM model are implemented as intended	Mixed method implementation study that includes observations, fidelity monitoring logs, mentor and mentee feedback and rating forms	Evaluation plan
4.2 Examine the extent to which fidelity of implementation (i.e. adherence, quality, and context), mediating and moderating factors (e.g. nature and quality of mentor relationship), or dosage influences outcomes.	Mixed method implementation study that includes observations, fidelity monitoring logs, mentor and mentee feedback and rating forms	Evaluation plan
4.3 Finalize the components of high-school 1:1 mentoring model	Completed mentoring model articulated, training and coaching resources developed for mentors	Evaluation plan

Target population. A total of 20 high schools will participate in the project over 5 years. Cohort 1 will include 6 of the schools for which we have obtained MOUs (*Appx. C*): 3 from rural communities in Sampson County, North Carolina (urban-centric district locale codes: 42 and 43) and 3 from urban communities NYC. The remaining 14 schools will be selected from rural counties in NC where we have deep relationships, and NYC (see *Appx. C* for additional MOUs) as well as other urban districts where CSS has deep relationships, including: Baltimore; Boston; Philadelphia; high-need communities across New Jersey; and Washington, DC. We will train an average of 10 mentors per school who mentor 20 students each. All participating schools will serve large numbers of students representing subpopulations at disproportionate risk for poor academic outcomes, including exclusionary discipline practices. See *Table 2* for profiles of Cohort 1 schools:

School	District/ LEA	% Econ Disadv Students[i] [ii], [iii]	% African American[iv] [v], [vi]	% Hispanic/ Latino[vii] [viii], [ix]	Average 4-year cohort graduation rate over 5 years – *All students[x], [xi], [xii], [xiii]*	Average 4-year cohort graduation rate over 5 years – *African American Students[xiv], [xv], [xvi], [xvii]*	Average 4-year cohort graduation rate over 5 years – *Latino Students[xviii], [xix], [xx], [xxi]*
Hobbton HS	Sampson County NC	85%	18.3%[35]	40.4%[36]	86.6%	84.4%	83.1%
Lakewood HS	Sampson County NC	85%	29.7%[37]	19.3%[38]	79.7%	76.3%	64.3%
Union HS	Sampson County NC	90%	31.2%[39]	41.7%[40]	73.9%	80.0%	71.8%
Bronx HS for Visual Arts	NYC District #11	80.3%	24.9%	61.2%	65.3%	52.6%	65.7%
Bronx Lab School	NYC District #11	88.1%	33.6%	59.1%	42.4%	40.4%	43.8%
Brooklyn Theatre Arts HS	NYC District #18	80.9%	84.0%	11.0%	67.1%	65.2%	70.0%

Conceptual framework. The conceptual framework for AM is grounded in (1) sound design and (2) strong theory. *(1) Sound design.* The proposed project will provide structured one-on-one mentoring activities for identified, high-risk 10th and 11th graders. Prior to launching the program with students, we will assemble a stakeholder team of administrators, faculty, parents, and students and led by a coordinator, who receive the training, tools, and resources necessary to meet regularly to plan for implementation, troubleshoot obstacles, and ensure AM's long-term sustainability. We have strong working relationships with leadership in each of the LEAs to ensure greater impact of this initiative than could be expected by solely working with individual schools. See *Appx. C* for LOS/MOU and *Figure 2*, below.

CSS will provide the stakeholder team with written protocols to select ***mentors***, including the *AM Guide for Selecting Mentors* which includes resources for assessing qualifications and fit. Prospective mentors will be assessed for criteria within general categories such as attitude, character, interpersonal skills, communication skills, and rapport with students. Mentors will participate in a one-hour orientation session to learn about their role and to ensure they are serious about the commitment to being a mentor, followed by a 3-day intensive training course to learn how to serve in the role. CSS supports mentors through monthly, one-hour consultation/coaching meetings and ongoing technical assistance, provided on-site and via teleconferences by CSS, to address challenging situations and to support progress, fidelity, and effectiveness of planning, preparation, and/or implementation as needed.

CSS will provide a rubric and training to help mentors carefully select **mentees** who are 10th grade students at risk for dropping out of high school who are struggling academically and/or behaviorally. These students are at particularly high risk due to school failure (failing one or more core courses), poor attendance (missed 20+ days in previous school year), and/or behavior problems (3+ discipline referrals in the previous year). Mentees will be followed for 2 years by his or her mentor. CSS will provide guidance to match mentors with mentees and ensure that pairs are assigned with the intent to build strong, long-term mentoring relationships.

Before meeting weekly with each student, mentors will complete a Weekly Report Form (WRF) while having a 3-5 minutes **consultation with one of the student's teachers** about the student's academic performance and behavior during the prior week. These may include: on-time arrival to class, had materials for class, completed classwork, completed homework, had satisfactory behavior, and any recent grades. Mentors also solicit one positive comment from the teacher that can be shared with the mentee. This is important because disengaged youth often do

not see themselves and their school persona in the same way as others do; disengaged students often are surprised to learn that teachers want them to succeed and will notice small signs of growth in them. At-risk students can learn that there indeed are consistent, basic, minimum expectations and standards of conduct in schools, which they are capable of meeting. Mentees will then meet individually with mentors for **20 minutes per week,** typically during lunch, physical education, advisory, or study hall. The mentor will utilize a structured, 10-step sequence:

1. check-in;
2. review WRF and call attention to one or more instances of positive school engagement;
3. praise specific instances of school engagement and encourage student to take credit for their instances of school engagement (i.e., ask, "How did *you* do it?")
4. read aloud teacher's observations on WRF in objective, empathic manner;
5. motivational interviewing, encouraging students to talk about their need for change and their own reasons for wanting to change;[41]
6. refine mentee's goal for the week;
7. plan and practice implementation;
8. students write the following week's goal on their WRF and return to class;
9. mentor documents mentoring session; and
10. mentor gives feedback to teachers, parents, and stakeholder team coordinator(s).

Each **parent/guardian** is contacted by the mentor once per month. At that time, the mentor will share with the parent/guardian something positive about the mentee. Finally, mentors participate in a **weekly check in** with a site-based Stakeholder Team Coordinator.

(2) Strong theory. Like the Behavior Monitoring & Reinforcement Program (BMRP) upon which it is based, AM is a cognitive-behavioral intervention grounded in *learning theory* which suggests that all actions, thoughts, and feelings are learned. Further, we learn through the immediate consequences of what we do, think, feel, or remember, and the things we learn under certain circumstances can be changes with new learning experiences. AM provides a structure in which adolescents are noticed and praised immediately for doing, saying, feeling, or thinking something that increases their school engagement. Because it is a weekly intervention, AM

ensures that actions, thoughts, and feelings consistent with school engagement are consistently recognized over time. Praising a youth's positive behavior should also influence his or her concept of self and positive feelings about school, ideally creating a positive feedback loop that nurtures longer-term academic success.[42]

Ensuring feedback and continuous improvement. The evaluation design will include comprehensive fidelity of implementation (FOI) measures in order to understand variations in how AM works in practice; to assess progress against interim and longer-term goals; to make mid-course corrections; to interpret the efficacy of the intervention; and to identify features and conditions necessary for sustainability, effective replication, and testing in other settings. Measures include program dosage tracking, fidelity monitoring logs to track deviations from the program model, weekly online mentor reporting forms to track the implementation of each program component, mentor and mentee feedback forms to obtain information about perceived program benefits and suggested modifications and enhancements, and assessments of relationship quality completed by mentees about their mentors. *Table 3* outlines strategies to ensure active communication, accountability, and continuous improvement:

Project Team Meetings (Monthly)	Project team reviews progress toward milestones and goals at each partner site and identifies and problem-solves challenges.
Site-based Stakeholder Team Meetings (Monthly)	Held at each implementation school. Include the CSS Project Manager, principal, district-level representative, stakeholder team coordinator, and other site-based stakeholder team members to prepare for launch and evaluation of AM, ensure program operations are running smoothly, the program is well resourced, and school staff is well supported.
Mentor Check-Ins, Observations, & Fidelity Monitoring (Every Other Week)	CSS Project Manager will check in with AM mentors regarding progress on implementation and to troubleshoot obstacles. Check-ins will include a review of program attendance tracking, feedback to mentors, and fidelity monitoring logs as described in greater detail in the Project Evaluation Plan (Section D).
District and School Leadership Check Ins (Quarterly)	CSS Regional Executive Directors will meet with district and school leadership to review progress toward major milestones, assess any areas that require modifications, and, if necessary, develop an action plan for modification. This meeting will include at least one check-in to review student survey forms to see if students are reporting changes in key SEL areas and level of engagement at school as well as a review of student record data to examine course failures and attendance among program and non-program participants.
Implementation Feedback (Ongoing)	Gathered from administrators, other stakeholders, mentors, mentees at each LEA, including quarterly feedback forms and annual focus groups regarding the perception of the intervention's value and impact.
Annual Advisor Summit	Offered annually in years three, four, and five for mentors/stakeholders across sites to review the previous academic year's program, share successes and challenges, receive mentorship

	from other successful implementation sites, review data, prepare for integration of any program enhancements, prioritize areas of improvement for the following school year.

C.   MANAGEMENT PLAN. **Roles and responsibilities of partners.** *CSS* will oversee all aspects

of the project, and will: recruit, confirm, and retain LEA and school partners; provide

stakeholder development at each school; train school-based mentors; provide on-site technical

assistance and coaching; fidelity monitoring; continuous improvement; implementation-related

performance measures (see p.9); and work closely with the evaluation team at PRG. *PRG* will

conduct the independent RCT evaluation and will obtain IRB approvals, parent consent, and

student assent; conduct random assignment procedures; finalize and administer the student

survey; obtain student record data; analyze all data; submit progress reports; and collaborate with

CSS to develop articles and conference presentations to disseminate study results. *School staff*

will implement AM (average of 10 mentors per school), manage day-to-day project activities,

and provide all requested data per the evaluation requirements. Mentor stipends are included in

the budget. The management plan will also involve the following team structure (*Table 4*):

Project Team	Led by PD, the project team (CSS staff) will meet monthly to develop and implement effective strategies related to program implementation, evaluation, networking and publicity, replication, and sustainability. The team will articulate a common vision for the project, define partners' roles and responsibilities, monitor implementation, respond to challenges, manage financial and other resources, support data collection and analysis, and promote the sustainability of AM in each school. The Project Team will have the lead responsibility for executing the project according to the timeline and ensuring progress metrics and annual performance targets are met.
Workgroups	Two workgroups will meet monthly in the first year and then quarterly to address aspects of program implementation and evaluation including: (a) *Technical Assistance, Coaching, & Training Workgroup* to oversee on-site coaching and training for stakeholders and faculty advisors; and (b) *Continuous Improvement, Fidelity Monitoring, & Evaluation Workgroup* to oversee fidelity monitoring and evaluation activities, make recommendations for enhancements, and disseminate results.
Site-based Stakeholder Teams	Includes CSS Project Manager, principal, district-level representative, stakeholder team coordinator (STC), and other site-based stakeholder team members. STC is responsible for leading the stakeholder team, managing project activities, providing all requested data, and serving as the key point of contact for CSS. The Project Manager will work closely with site-based coordinators to: convene bimonthly stakeholder team meetings to discuss action plans, accomplishments and challenges; conduct biweekly telephone meetings (following a carefully designed protocol) with each site-based coordinator as a supplement to biweekly written reports; and coordinate monthly on-site observations and TA visits. See *Conceptual Framework* for more information on Stakeholder Team.

Match contribution. CSS will provide 10% of the year 1 budget by repurposing existing funds

(see *Appx. H* for commitment letter). We will also seek other funders to help secure the

outstanding match requirements though we are committed to supporting the full 10% if necessary. CSS has a successful track record of securing significant grants from private foundations, and secured full 15% match for our 2015 i3 grant through the private sector.

Project timelines and milestones. Key project activities, milestones, and timeline *(Table 5):*

PHASE ONE: Milestones and Timeline (October 2019 – August 2020)			
Project Category	Key Milestone	Date Due	Responsible
Evaluation	Finalize evaluation design; USED approval	Jan 2020	PRG
Implementation	Finalize management plan; USED approval	Jan 2020	CSS
Implementation	Identify and finalize 6 Cohort 1 (C1) partner schools	Jan 2020	CSS
Evaluation	Obtain necessary IRB approvals	March 2020	PRG
Development	Build out the in-development mentor training manuals and mentor coaching resources	May 2020	CSS
Evaluation	Develop Outcome Questionnaire, fidelity monitoring, and continuous improvement tools	Feb 2020	PRG
Development	Pilot key components of the intervention	Jan-June 2020	CSS
Evaluation	Pilot Outcome Questionnaire	March 2020	
Evaluation	Finalize Outcome Questionnaire	June 2020	PRG
Implementation	Finalize continuous improvement tools	June 2020	CSS; PRG
Development	Finalize the intervention	Aug 2020	CSS
PHASE ONE: PERFORMANCE TARGET	**Finalized AM intervention, training, and coaching; Finalized evaluation instruments; IRB approvals obtained; Confirmed partner schools**	**Aug 2020**	**CSS; PRG**
PHASE TWO: Milestones and Timeline (Sep 2020 – June 2021)			
Project Category	Key Milestone	Date Due	Responsible
Implementation	School-based stakeholder teams (SBST) select mentors and stakeholder team coordinator (STC) at each C1 partner school	Sep 2020	CSS; SBST
Evaluation	Obtain parental consent for study participation (C1)	Sep 2020	PRG; CSS
Implementation	Conduct at least 3 annual on-site planning meetings with C1 SBSTs	Sep 2020 – June 2021	CSS
Implementation	Conduct mentor orientation at each C1 partner school	Sep 2020	CSS
Implementation	Conduct Day #1 training for mentors (C1)	Sep 2020	CSS
Evaluation	Randomly assign study participants (C1) to participate in AM or participate in a control group	Sep 2020	PRG
Implementation	Match mentors-mentees (C1)	Sep 2020	CSS
Evaluation	Ensure (C1) students are scheduled into the program according to the outcome of random assignment	Sep 2020	CSS
Evaluation	Administer baseline surveys to (C1) study participants	Sep 2020	PRG
Implementation	Launch AM with at least 120 10th graders at each C1 partner school (minimum 20 mentoring sessions, mentor-mentee match event, and closure event with 10th graders)	Oct 2020-May 2021	CSS; SBST; Mentors
Implementation	Conduct Day #2 training for mentors (C1)	Nov 2020	CSS
Implementation	Conduct Day #3 training for mentors (C1)	Mar 2020	CSS
Implementation	Ongoing monthly coaching sessions with mentors (C1)	Oct 2020-June 2021	CSS
PHASE TWO: PERFORMANCE TARGET	**Launch AM in 6 Cohort 1 partner schools with at least 120 students; Enroll 240 total students in the study**	**Oct 2020**	**CSS; PRG**
PHASE THREE AND FOUR: Milestones and Timeline (July 2021 – September 2024)			
Project Category	Key Milestone	Date Due	Responsible
Implementation	Identify and finalize 14 Cohort 2 (C2) partner schools	May 2021	CSS (PD)
Evaluation	Finalize and disseminate school-specific implementation reports	Aug 2021	CSS; PRG

	to C1 schools		
Implementation	Select mentors and stakeholder team coordinator (STC) at each C2 partner school	Sep 2021	CSS; SBST
Evaluation	Obtain parental consent for study participation (C2)	Sep 2021	PRG; CSS
Implementation	Conduct at least 3 annual on-site planning meetings with C2 school-based stakeholder teams (SBST)	Sep 2021 – June 2022	CSS
Implementation	Conduct orientation session at each C2 partner school to prepare them to implement AM	Sep 2021	CSS
Implementation	Conduct three days of training for mentors (C2)	Sep 2021-March 2022	CSS
Evaluation	Randomly assign study participants (C2) to participate in AM or participate in a control group	Sep 2021	PRG
Implementation	Match mentors-mentees (C2)	Sep 2021	CSS
Implementation	Resume mentoring sessions at C1 schools, including beginning-of-year mentor-mentee event and monthly coaching sessions with mentors	Sep 2021	CSS; SBST; Mentors
Evaluation	Ensure (C2) students are scheduled into the program according to the outcome of random assignment	Sep 2021	CSS
Evaluation	Administer baseline surveys to (C2) study participants	Sep 2021	PRG
Implementation	Launch AM with at least 280 10th graders at each C2 partner school (minimum 20 mentoring sessions, mentor-mentee match event, and closure event with 10th graders)	Sep 2021	CSS; SBST; Mentors
Implementation	Ongoing coaching sessions with mentors at C2 schools	Oct 2021-May 2022	CSS
PHASE THREE: PERFORMANCE TARGET	**Launch AM in 14 selected C2 schools with at least 280 students; Enroll 560 total students in the study in C2 schools (total study enrollment of 800 across C1 & C2 schools)**	Oct 2021	**CSS; PRG**
Evaluation	Administer follow-up Outcome Questionnaire (C1 & C2)	May 2022 (C1); May 2023 (C2)	PRG
Evaluation	Finalize and disseminate school-specific implementation reports C1 & C2 schools	Aug 2022	CSS; PRG
Implementation	Resume mentoring sessions at C2 schools, including beginning-of-year mentor-mentee event and monthly coaching sessions with mentors	Sep 2022	CSS; SBST; Mentors
PHASE FOUR: ANNUAL PERFORMANCE TARGET	1. Deliver AM to at least 400 students per school year 2. SBSTs demonstrate commitment to continue the program for the following school year 3. 10/11th graders report AM is positively impacting engagement, connectedness, and non-cognitive skills 4. SBSTs report observation of positive changes in AM participants	Oct 2022-May 2024	CSS; PRG
Implementation	Conduct Annual Mentor Summit with advisors from C1 and C2 study schools	Oct 2021; Oct 2022; Oct 2023	CSS
Evaluation	Complete analysis and reporting of annual results	Aug 2023; Aug 2024	PRG
Dissemination	Disseminate project lessons learned and findings through at least one professional conference and one publication	Oct 2023	CSS; PRG
Project scalability	Assess AM expansion in each partner school and assess possible expansion to additional high schools	Oct 2023	CSS; SBST
Dissemination	Submit at least one manuscript on project results/lessons learned to a peer-reviewed journal	Oct 2023	CSS; PRG
Project evaluation	Complete full evaluation & summarize lessons learned	Summer 2024	PRG
PHASE FOUR: PERFORMANCE TARGET	Refine plan to sustain program beyond EIR grant; expand program in each partner school; and, if applicable, expand program to additional high schools	Summer 2024	CSS

Project personnel. *Sherry Barr, Psy.D.,* MD of Operations and Evaluation at CSS, will serve as Project Director (PD). Dr. Barr has been on staff at CSS for 19 years and has extensive expertise directing federally and state-funded studies. She is the current PD for a 2015 i3 project and 2017 EIR project, among other large-scale research projects. She has a successful track record of recruiting and partnering with high-need schools in rural and urban communities. *Eric Jenner, Ph.D, Lead Evaluator, PRG,* will serve as Principal Investigator (PI). He directs research projects relating to the evaluation and study of regional, state and federal social, education and economic welfare programs. Dr. Jenner is the PI for four current i3 Development/EIR early phase grants, and several other ongoing RCTs, quasi-experimental, and observational studies. He has over 10 years' experience in supervising rigorous evaluations and serves as a peer reviewer for the *Journal of Education for Students Placed at Risk*. He received his *What Works Clearinghouse Certification* for group design standards in June 2014 from IES. PRG has led 50 federally-funded evaluations, including 10 RCTs. **CSS and PRG staff** have successful track records working with the target population on similar interventions and conducting similar types of evaluation projects. See *Table 6* for staff/roles; also see *Appx. B* for résumés and *Appx. I* for personnel charts. *Dr. Brenna Bry,* Professor Emerita at the Graduate School of Applied and Professional Psychology at Rutgers University and a leading researcher on adolescent risk and protective factors and school-based interventions will provide consultation on the project.

Name & Title	Description of Role	Team
Dr. Sherry Barr, *Managing Director, Operations and Evaluation & Project Director (CSS)*	Serve as PD. Oversee all aspects of the project; facilitate team meetings; liaison with PRG, USED, superintendents; recruit and ensure partner schools uphold commitments; address implementation obstacles; train/supervise project staff; develop and coordinate external communications; and prepare required progress reports.	Leads Project Team; serves on both internal Workgroups
Regional Executive Directors: **Dr. Beshon Smith (MD); Catherine Nti (PA & NJ) Erin O'Leary (NYC); Joyce Loveless, (NC) (CSS)**	Oversee programming, interface with district leadership, ensure partner schools uphold program commitments; address implementation obstacles; train/supervise project staff.	Project Team; TA WG; Evaluation WG
Morgan Silk, *National Curriculum & Training*	Coordinate trainings; oversee all updates and revisions to the AM curriculum & training manuals informed by continuous improvement	Project Team; TA WG;

Director (CSS)		Evaluation WG
Senior National Trainer: **Christine Harris (CSS)**	Lead trainer at all AM trainings, support regional Project Managers in providing on-site coaching to mentors, provide internal professional development to Project Managers	Project Team; TA WG; Evaluation WG
Project Managers: **Jon Englebrecht (MD); Pam Taylor (PA & NJ), Joyce Lundy (NYC); Becca Brandt (NC) (CSS)**	Provide on-site stakeholder development, training to mentors, on-site coaching and technical assistance, on-site fidelity monitoring, assist schools with assigning students to AM according to outcome of randomization, assist schools with matching mentors and mentees, assist schools will mentor-mentee events, collect feedback and performance measures data	Project Team; TA WG; Evaluation WG
Lindsay Shouldis, *National Director of Evaluation and Data Management (CSS)*	Track continuous improvement and implementation data, monitor/manage implementation data databases, summarize implementation data, and provide feedback to project team	Evaluation WG
Leah Shaw, *National Evaluation Manager (CSS)*	Monitor and report monthly on attendance data at mentoring sessions across sites	Evaluation WG
Lauren Wainczak, *Senior Director of Finance (CSS)*	Oversee all fiscal and budgetary management of the project	Project Team
Nicole Yanchuck, *Administrative & Program Associate (CSS)*	Provide administrative support to project, assemble and ship training materials, assist with data entry and managing school databases	Project Team
Dr. Eric Jenner, *Lead Evaluator (PRG)*	Oversee development of the impact evaluation/analysis plan, including: instrumentation (questionnaire content), research design, analytic sample, research questions, RCT methods, analytic methods	Evaluation WG
Katie Lass, *Senior Research Analyst (PRG)*	Under the supervision of the Lead Evaluator, prepare initial drafts of the impact and implementation evaluation/analysis plan, including: instrumentation (questionnaire content), research design, analytic sample, research questions, RCT methods, analytic methods	Evaluation WG
Kelly Burgess, *Research Analyst (PRG)*	Day-to-day management of the evaluation, including conducting literature reviews, working with sites to operationalize how the study will work at their school, working with sites to complete a study agreement, training staff, setting up datasets for data collection, working with sites to support study consent	Evaluation WG

Potential for continued support. AM lends itself well to large-scale replication and sustainability. The initial investment to launch AM is typically a *one-time-only occurrence* that covers CSS's training, curriculum, and technical assistance to help the program become integrated into the fabric of the school day and sustained in perpetuity without ongoing support. AM taps into critical resources that schools already have in place and results in a recurring cost to schools of only a few dollars per student per year. AM's integration into the school day provides a built-in mechanism for participation and retention in contrast to extracurricular models that are vulnerable to a variety of scheduling and commitment challenges. Because each school will have 10 trained mentors, and the project will use a highly structured and replicable

model, mentors will be well-positioned to build the capacity of other school staff to become mentors. CSS has deep experience with train-the-trainer approaches and will support each school to taking steps to ensure sustainability and growth.

D. PROJECT EVALUATION. CSS has engaged PRG as the independent evaluator (see MOU in *Appx. C*). **Key project components and mediators.** The logic model (p. 8) outlines key project components and hypothesizes how a two-year-long, school-based, mentoring model grounded in learning and SEL theories will promote and improve 10th and 11th grade students' non-cognitive development (goal setting, coping, communication, decision-making), future educational aspirations, sense of school connectedness, and school engagement, thereby improving their educational outcomes. The evaluation will test these hypotheses using: 1) an individual-level randomized controlled trial (RCT) to draw causal inferences about the effects (impact) of AM and 2) an implementation evaluation to understand how AM works in practice, interpret the efficacy of the intervention, provide feedback for program improvement, and identify features and conditions necessary for sustainability and replication. The impact evaluation investigates whether offering AM to participants impacts their engagement in school and educational outcomes. If the hypothesized effects exist, the proposed impact evaluation will be powered to detect those effects (at the hypothesized effect size) and produce evidence that will have the potential to meet the What Works Clearinghouse Evidence Standards without reservations. The exploratory analyses will examine how identified mediators influence the hypothesized outcomes. We will do this within an intent-to-treat (ITT) framework so the contrast we are investigating is the effect of the offer to participate in the treatment program relative to the offer to participate in the control program.

Research questions. We are proposing to answer two ***primary research questions***: at the end of two academic years, what is the impact of the offer to participate in AM (treatment) relative to the offer to participate in the control (business as usual) on participants': **1)** staying in school (operationally defined as number of school days attended, Obj. 1.1), and; **2)** progressing in school (operationally defined as number of classes passed, Obj. 2.1). These research questions reflect Project Goals 1 and 2 as specified on p. 8. In addition, if funded, we may investigate the following ***exploratory (secondary) research questions:*** What are the short-term (immediate post-program) impacts of AM relative to business as usual on participants' reported: 1) school engagement/attachment (Goal 1, Obj. 1.2), 2) sense of connectedness among peers (i*ndicator of engagement*) (Goal 1, Obj. 1.3), 3) efficacy in goalsetting and help-seeking (*indicator of SEL*) (Goal 3, Obj. 3.1), 4) academic motivation (*indicator of educational mindset*) (Goal 3, Obj. 3.2), 5) academic self-efficacy (*indicator of educational mindset*) (Goal 3, Obj. 3.2), 6) perceived value of education (*indicator of educational mindset*) (Goal 3, Obj. 3.2), 7) perceived teacher support (*indicator of educational mindset*) (Goal 3, Obj. 3.2), and, finally: 8) to what extent does fidelity of implementation (i.e., adherence, quality, and context), mediating and moderating factors (e.g., nature and quality of the mentor relationship), or dosage have an influence on outcomes (Goal 4, Obj. 4.2)? The exploratory findings may not be causal in interpretation but will go beyond the impact findings to help determine not just whether the program is effective at improving identified primary outcomes, but if the program works, whom it works for and under what circumstances it is most/least effective. Additionally, we will explore the intervention's effect on other theoretically relevant student outcomes such as discipline referrals and academic performance to learn more about how the program could influence the graduation pipeline. These

additional questions should have value for the future development of the program and help provide guidance for and inform any future replication efforts.

What Works Clearinghouse. The impact study design and methods will meet **What Works Clearinghouse WWC evidence standards** *without reservations*.

Sample identification/selection, sample size, and minimal detectable effect size. The target population is students in the 10th grade who are deemed to be at risk for dropping out of high school as a result of course failure, poor attendance, and/or behavior problems (see eligibility criteria below). Students will be enrolled at 20 partner high schools in multiple districts during the 2020-21 and 2021-22 school years. Students in each school will be recruited and individually randomized into study conditions each year for two successive cohort years (6 schools in cohort 1, 14 schools in cohort 2). Each cohort will participate in the study (and have the opportunity to participate in either the AM or control condition) for two academic years. Random assignment will be blocked by school to ensure an approximately equal assignment ratio within each site. We estimate working with a total of 20 schools that have a combined 3,800 10th grade students (average of 190 per school). The projected total eligible 10th graders at each school is 35% of the 10th grade class (total of 1,330 eligible students across schools). We estimate a 60% consent rate for the study, resulting in a total sample of approximately 800 students enrolled in the study. A recent comprehensive meta-analysis suggests that the average effect size of these programs on academic achievement outcomes is slightly greater than .20 (Hedges' g).[43] The evaluation as currently proposed - with 800 students randomly assigned to treatment and control conditions - will be adequately powered to detect an effect of this size. Based on standard assumptions and reasonable expectations this study should yield a Minimal Detectable Effect Size (MDES) of approximately .19 (Hedges' g).[44] [Please see these assumptions detailed in the endnotes.] In fact,

because we have made conservative assumptions in terms of the amount of variance explained by covariates (including a baseline measure of the outcome) and blocking variables, we expect that we should have even more precision and therefore statistical power.

PRG will implement and monitor all random assignment procedures. In September of each study school year, PRG will: obtain final student rosters of all 10th grade students enrolled and attending each partner school; identify all students eligible for the study; and randomly assign eligible youths at the individual level to either the treatment (AM) or control condition (business as usual). Eligible students include those who have: **1)** failed one or more core courses in the last year, missed more than 20 days in the previous school year but are attending school an average of 3 days per week, *and/or* incurred 3 or more discipline referrals in the previous year; **2)** provided parent consent/youth assent for the evaluation, and; **3)** have not previously participated in AM. Assignment procedures will occur *prior to* the provision of any programming or collection of baseline data. Tenth graders assigned to the treatment condition will have the opportunity to participate in weekly 20-minute individual sessions over two years. There will be no alternative program or additional activities offered to the control group.

Valid and Reliable Performance Data on Relevant Outcomes: Outcome measures and data collection. To measure the impact of the intervention, PRG will collect outcome data from two sources: 1) student-level administrative data from each partner LEA for two full academic years (primary research questions), and 2) an *Outcome Questionnaire* to collect self-reported data directly from study participants (exploratory research questions). Please see *Appx. I* for a draft of the items to include in the *Outcome Questionnaire*. All items and scales used for outcome measurement will be composed of measures that have been used and validated in published research. The same questionnaire will be administered by PRG online at baseline and 20 months

later, immediately after the program ends. Data collection procedures will be identical for both treatment and control conditions. Attendance data and academic records will be requested by PRG from all partner schools in the fall of each grant year for the previous program year; data-sharing agreements with all LEAs will be formalized. We summarize data sources, collection methods, timelines, and analytic approaches by research question in *Appx. I.*

Analytic approach. For all primary research questions, the proposed analytic approach will be to regress outcome measures on a treatment/comparison indicator and relevant individual-level covariate and blocking variables. While a comparison of means should produce un-biased estimate of impact, we propose a modeling approach to increase the precision of our impact estimates. Estimates will be produced using an ordinary least squares regression with robust standard errors in Stata.[45] Statistical significance will be inferred at $p < .05$, using a two-tailed test. To monitor the quality of the random assignment and data collection procedures, senior analysts at PRG will conduct **baseline equivalence** testing on demographic and outcome data gathered at baseline. Diagnostics on the complete baseline sample will be a useful monitoring tool for the verification of randomization procedures; baseline diagnostics on the analytic samples (those who have provided follow-up data) will monitor for imbalance (**differential attrition**) between study groups. **Overall attrition** will be closely monitored and analyzed routinely. PRG will execute a comprehensive follow-up plan to retain participants in the study based on the evidence-based Engagement, Verification, Maintenance, and Confirmation Model;[46] PRG staff have achieved extremely low overall and differential attrition on a number of individual-level RCTs using such strategies, and have authored a paper on the model.[47] Because the design involves random assignment at the individual (student) level and not the cluster level,

joiners are not a concern as they would be in a cluster random assignment design (group assignment, such as at the classroom or school level) per the Revised Cluster Design Standards.[48]

Guidance for Replicability: Methods for implementation study, acceptable implementation threshold. PRG will design and conduct an implementation evaluation to understand variation in how AM works in practice, interpret the efficacy of the intervention, provide feedback for program improvement, and identify features and conditions necessary for sustainability and replication. The implementation evaluation will assess and report on: adherence, quality, control group experiences, and contextual factors. Implementation data will be analyzed and reported to CSS semi-annually as formative feedback and to encourage modifications to improve program effectiveness. Annual thresholds are set for each key component depicted in the logic model as specified on pg. 8 and will be assessed and reported on annually. These thresholds include: **1) Professional Development:** 3-day training completed; monthly on-site coaching sessions (at least 9); **2) Mentor activities:** 20 individual sessions with each mentee; 9 outreach sessions per year, and; **3) Participant Activities**: 20 individual sessions; two years of participation; a beginning and an end-of year mentor-mentee event. Fidelity measures will include: program dosage, weekly online fidelity surveys for mentors, and mentor and mentee feedback forms. We describe each implementation element, data used to assess each element, frequency of data collection, and responsible party in the *Implementation Evaluation Summary Table* in *Appx. I.* Quantitative data, such as dosage data and close-ended questions from the survey, will be analyzed descriptively. To analyze qualitative data gathered in interviews and open-ended survey questions, the evaluators will use a grounded theory approach. This approach allows the evaluators to conduct flexible yet focused qualitative analysis through a systematic coding process to identify emergent themes and meaningful patterns of ideas in the data.[49, 50]

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[44] Effect size estimates are calculated with *Optimal Design* and reflect the following expectations: power (β) = .80, significance (α) =.05 and a two-tailed significance test. In the calculation of the MDES, we have included: 1) the assumption of 90% attrition (analytic sample n = 720), which should be reasonable given the reliance on administrative data for primary outcomes, and 2) the expectation that student-level covariates, including the pre-intervention measure of the outcome, will explain 20% of the variation of the outcome. The latter assumption is a conservative one, especially when we consider the additional precision that is expected from site-level fixed effects.

[45] Outcomes are counts so we will confirm the benchmark findings with distributionally appropriate models – negative binomial or Poisson – where the appropriate model will be defined by the assumptions of the model and the distributional characteristics of the outcome. There is some evidence in the education literature that suggests OLS can perform better in analyzing count outcomes such as course completions than Poisson or negative binomial models because it produces fewer *false* statistically significant relationships. See; Liou, P. (2009). A Model Comparison for Count Data with a Positively Skewed Distribution with an Application to the Number of University Mathematics Courses Completed.

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