

A. Quality of the Project Design. *(1) An exceptional approach to the priorities*

UnboundEd, a national nonprofit agency with a stellar record of high-quality teacher and principal professional development, proposes a project with an exceptional approach to **Absolute Priority 2 – Supporting Effective School Leaders with Evidence-Based Professional Development activities to address numeracy, remedial, other needs of LEAs and students.**

UnboundEd’s Math Identity Leadership Accelerator (MILA) will transform how school leaders raise math achievement through an approach that (1) emphasizes the role of building leadership; (2) supports teachers to implement high-cognitive-demand tasks with multiple strategies; and (3) addresses expectations, bias, and culturally relevant methods that will have a strong impact on student achievement. The project builds on UnboundEd’s experience developing and delivering free, standards- aligned instructional resources and immersive trainings. Since 2015, UnboundEd has grown from serving 350 educators to a cumulative total of nearly 9,000 educators from 250 education systems across 47 states, **impacting over one million students.** MILA builds on this expertise and scale with a unique project design that unites evidence-based mathematical teaching strategies, culturally responsive instruction, and collaborative teaching teams led by effective school leaders in a groundbreaking partnership with both district and charter schools.

Evidence-Based Mathematics Content in direct alignment with the SEED grant purpose, UnboundEd will develop, deliver, and evaluate training for school leaders on math problem solving practices for middle schools intended to enhance student math achievement. Student learning in math is greatest where the tasks encourage high level thinking and reasoning (Boaler & Staples 2008, Hiebert & Wearne 1993, Stein & Lane 1996). As such, the standards movement has advocated for learning goals and teaching practices that emphasize high level thinking (NCTM 1991, National Governors Association Center for Best Practices, Council of

Chief State School Officers 2010). As highlighted by the What Works Clearinghouse (WWC), when students are exposed to multiple strategies to solve complex tasks, learning is improved (Star & Rittle-Johnson 2008). And coupling complex tasks with robust student discourse causes meaningful learning and builds conceptual understanding (Michaels, O'Connor, and Resnick 2008), but math in the US has focused on repeated procedures (TIMSS Video Study 1999).

UnboundEd's Math Identity Leadership Accelerator (MILA) is based on WWC Practice Guide for Improving Mathematical Problem Solving in Grades 4-8 Rec. 4 Expose Students to Multiple Problem-Solving Strategies (moderate evidence). MILA will develop school leaders' knowledge, attitudes, and practices around key learning outcomes for training and coaching their school's math teachers to implement the practice of multiple problem-solving strategies.

Through the core focus on math, the project fully addresses **Competitive Preference Priority (CPP) 1 – Promoting Science, Technology, Engineering, or Math Education**. In direct response to this CPP, the project will increase the number of educators prepared to deliver rigorous instruction in math through evidence-based strategies. By training **154 school leaders** on the math problem-solving framework, coupled with strategies that promote discourse (Smith & Stein 2011), we will achieve far greater reach than through direct services to teachers; under CPP 1, we will reach **620 math teachers** and **77,500 middle school students**.

Culturally Responsive Instruction - Each round of state and national assessment results show that US students continue to make minimal progress in math and reveal the persistence of an “achievement gap” between students of color and white peers. UnboundEd disagrees that this “gap” reflects our students' capabilities, but reflects a gap in what adults provide students. Scores highlight the degree to which adults have struggled to provide effective grade-level instruction. We combat this “**provision gap**” with a foundation of culturally responsive instruction (CRI).

We start by looking at the impact of systemic racism and bias on math education, then build school leaders' knowledge and skills in utilizing CRI to engage students of color and support achievement. UnboundEd's CRI approach that uses grade-level standards to define academic rigor is designed to increase student learning and close systemic gaps in educational provision.

Culturally responsive instruction is "a pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes" (Ladson-Billings, 1994). It values and affirms students' cultural backgrounds, knowledge, and experiences by integrating these into instruction. CRI requires educators to get to know students individually and tailor lessons so that language, stories, and examples are student-centered, meaning they use topics and vocabulary already familiar to students, connecting what they know with new knowledge. The underpinning of culturally responsive instruction is how the project addresses **CPP 2 – Fostering Knowledge and Promoting the Development of Skills That Prepare Students to be Informed, Thoughtful, and Productive Individuals and Citizens**. Research shows that in addition to increasing achievement, CRI results in feelings of “status equalization” in students, defined as allowing for the development of self-regulation among learners by envisioning them as capable and competent of making and setting goals, and as capable of motivating themselves and monitoring their own learning” (Rodriguez et al., 2004). This impact of CRI aligns with the CPP focus by developing self-regulation in order to work toward long-term goals. CRI is also characterized by efforts to help students build positive mindsets, self-efficacy, ownership of their own learning, and more positive academic self-identities (Hammond, 2015). CRI efforts lead to improvements in academic self-concept (Cole, 2016; Carjuzaa, 2012) which, in turn, increases academic outcomes (Guay, Marsh & Boivan, 2003; Bouchey & Harter, 2005; Howard, 2003, Hejazi et al., 2010).

The framework for UnboundEd's SEED project is the evidence-based Aspiring Principal Program (APP) cohort professional development (PD) program, which has led to statistically significant gains in math achievement in APP-led schools (Gates et al., 2019; Gates et al., 2014). By building on this effective framework for enhancing school leaders' practice with focus on multiple math problem solving strategies and a CRI foundation, MILA offers an exceptional approach to the Priorities. We feel this is timely and relevant in the current environment, as our project combats systemic racism and bias in the educational system through the use of CRI.

As school leaders go through the 15-month training, they will concurrently implement what they are learning by providing PD and coaching to teachers, while leading collaborative teams in planning and implementing instruction. Teacher PLCs have been identified by research as a high-leverage action principals can take that impacts how they support teachers' PD and how they create a great workplace (Ikemoto, Taliaferro, & Adams, 2012). MILA will prepare school leaders to implement a systematic approach to leading teams of educators effectively.

The project will serve school leaders from five states and seven districts or charter schools: Boston Public Schools, Guilford County Schools (NC), Tulsa Public Schools (OK), Ferguson-Florissant School District (MO), Fresno Unified School District and Green Dot (CA), and schools in the Springfield Empowerment Zone (MA). The project will meet **CPP 3 Opportunity (OZ)**, as we will serve middle schools in qualified OZ census tracts, including 37081012803 where Hairston Middle School is located (Guilford County Schools). We will meet OZ preference by providing MILA services within that census tract for Hairston Middle School's Principal Courtney Blake-Smith. UnboundEd Facilitators will conduct site visits, so she will participate from the school site in the OZ.

(2) Training, professional development provided are of sufficient quality, intensity, and duration

The proposed program will be high-quality, as it has been developed from multiple evidence-based frameworks, including New Leaders' Aspiring Principals Program, WWC Practice Guide for Mathematical Problem Solving, and research literature on CRI. Moreover, it leverages UnboundEd's expertise with developing and facilitating effective educator training programs over the past five years. Our Standards Institute led to increased understanding of math pedagogical content knowledge, instructional strategies and expectations for students (moderate to large effect sizes) as measured on pre-/post-testing. And the vast majority of participants report feeling very strongly that participation helped them to question and recognize the role that bias plays in denying children of color high-quality math instruction (>90%).

The Aspiring Principals Program (APP) is the basis for MILA. It has extensive evidence of effectiveness for improving math achievement. Students attending schools led by APP-trained principals had greater achievement gains relative to similar students at other schools. Research that meets WWC standards with reservations found that after three years in a school led by an APP principal, students experienced statistically significant average gain of 1.3 percentile points in math (Gates et al., 2014). A follow up APP study found even greater impacts on student math achievement - schools led by APP principals had a 3.55 percentile point gain in math compared to non-APP schools (statistically significant with 0.09 standard deviation) (Gates et al., 2019).

The APP training is 12 months with 135 hours of training, followed by a one-year Residency as a school leader with 280 hours of training, and a third year with 80 hours of coaching. UnboundEd is modeling our design on the 135-hour training in year 1; since we are working with current principals, they will continue in their jobs in year 2 (akin to the residency, but with more responsibilities). Our direct training intensity (120 hours) is slightly less than that of APP, but our duration is longer (15 months), and includes 95.5 additional hours of self-paced

assignments (16 hours), classroom observations/feedback on CRI math practices (26 hours), collaborative planning teams (33 hours), participation in a professional learning community (PLC) with peers (4.5 hours), and 16 hours of additional activities for a **total of 215.5 hours**.

We are confident that the integration of CRI will also amplify our impact as research shows that teachers who are “high implementers” of CRI (assessed with observation scores at or above one standard deviation from the mean) had students who scored significantly higher on math assessments than students taught by “low implementers” of CRI (Powell et al., 2016). Another study of CRI first assessed teachers’ self-efficacy from fall to spring as they participated in CRI training; their self-efficacy scores were significantly higher at post-test. Student math achievement tracked to teacher improvements: math scores increased significantly between fall and spring also. Study compared students taught by high/low implementers of CRI and found students with high implementers had higher math scores (Chambers Cantrell et al., 2013-14).

APP training is facilitated over 12 months and includes a three-week summer training, 1-2 in-person group trainings monthly, web tutorials, yearlong residency on an instructional leadership team and leading a teacher team, job-embedded assignments, video recording practice, coaching, and three 1:1 performance meetings. UnboundEd’s model is consistent with APP with the following exceptions: APP is designed for aspiring principals and uses a rigorous selection process, while UnboundEd will work with currently serving principals who have already been screened and selected by partnering school districts. Instead of front-loading the three weeks summer training, UnboundEd spaces out three one-week trainings over the course of our 15-month program to allow more time for school leaders to practice the learning from each training. As we are working with current principals, we expect that they will set the vision for the instructional leadership team, not just participate in one, and they will set the structures for math

teacher teams to implement the WWC problem solving practice through a CRI lens. UnboundEd will coach school leaders with targeted feedback on the demonstration of learned practices.

The table below demonstrates proposed key learning objectives and activities to ensure PD for school leaders is high-quality and leads to our desired impacts of enhanced teaching and increased student achievement. These bring together our primary frameworks of APP, multiple math problem solving strategies, and CRI into a cohesive program.

Module 1: Supportive Conditions and Foundational Learning (16 weeks)
Participants will: build knowledge on multiple problem solving strategies in practice; understand how systemic racism and bias obstruct access to high-quality grade level expectations; understand how deficit thinking of mathematical ability of self and others impacts ability to support equitable math instruction (Ladson-Billings (1994); describe characteristics of a high-quality math classroom and processes to create them.
Practices: identify best practices in math instruction when observing instruction; identify how teacher uses CRI to plan/deliver instruction with multiple problem solving strategies.
Module 2: Sustained Inquiry (14 weeks)
Participants will understand that non-conventional problem-solving strategies can be “mined” from existing student knowledge base; collect low inference notes and use an observation tool to interpret notes; and provide high leverage feedback offered to teachers to increase the efficacy of instructional strategies selected and implemented.
Practices: engage in collaborative planning sessions with building-level math instructional team to unpack ability to apply multiple strategies; observe instruction of

multiple strategies and take low-inference notes to provide feedback to teachers on the use of high-quality instructional materials that are planned and then delivered.

Module 3: Collaboration and Influence (16 weeks)

Participants will understand Smith & Stein’s Five Practices for Orchestrating Math Discourse through the lens of cultural responsiveness; deepen knowledge on PLC structures to support the implementation of mathematical discourse; observe, coach, and give high leverage feedback on teaching mathematical discourse in order to support exposing students to multiple strategies; and understand effective systematic teacher supports and principles of adult, work-place development. **Practices:** support teachers’ orchestration of Math Discourse; provide feedback that refines teacher practice focusing on supports, paying attention to discourse; describe site appropriate support structures.

Module 4: Change and Impact (14 weeks)

Participants will describe common change management frameworks and barriers to implementation; identify technical and adaptive challenges and how they impact leadership; understand tools to monitor implementation of CRI math practices; and interpret data/information from monitoring tools to make changes. **Practices:** evaluating trends in observation data, incorporating additional information from other stakeholders; collaborating with teams to adapt structural support so they better respond to trends.

UnboundEd developed a blended learning format designed to meet school leader needs while remaining flexible as COVID-19 guidelines change regarding in-person convenings. All in-person activities can be transitioned to an online format if needed. The program will be

offered to two cohorts of participants. Components are woven into a program design to ensure principals have ample to time acquire and apply knowledge of quality math instruction in schools, classrooms, and with teachers, culminating with leaders positioned to positively impact teacher practice and student achievement. See topics, format, intensity, and duration below.

Module 1: Supportive Conditions & Foundation Learning		
Topics/Duration	Format & Intensity	
Multiple strategies for problem solving (Weeks 1-4)	60 min research-based reading; 60 min self-paced online training; 90 min with UE Coach	
Identify multiple strategies in practice (Weeks 5-8)	60 min research based reading;60 min self-paced online study; 60 min webinar	
Components of CRI (Weeks 9-12)	60 min research based reading; 60 min self-paced online study; 90 min webinar	
Identifying CRI in Math Practice (Weeks 13-16)	60 min research based reading;60 min self-paced online study; 90 min w/ UE coach	
Module 2: Sustained Inquiry		
Topics	Duration	Format & Intensity
Culturally relevant instructional practices support implement. of multiple strategies approach	Weeks 17-22	1 hr research based reading; 2 hrs self-paced online training; 15 hs webinars (making practice <i>culturally relevant</i>); 60 min w/ UE coach
Use low-inference notes in an observation protocol	Weeks 23-27	60 min reading; 30 min online module; 120 min webinar; 60 min guided practice

Constructive Feedback on Multiple Strategies and CRI	Weeks 28-30	60 min research based reading; 30 min self-paced online study; 60 min w/ UE coach
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Module 3: Collaboration and Influence

Topics	Duration	Format & Intensity
5 Practices for Orchestrating Mathematical Discourse through the lens of culturally relevant teaching.	Weeks 31-34	30 min research based reading 60 min self-paced online training 60 min webinar 60 min w/ UE coach
Professional learning community structures that support mathematical discourse	Weeks 35-38	60 min research based reading; 2 hrs self-paced online training; 30 hrs of onsite professional learning; 60 min guided practice activity
Observation, coaching, feedback cycle on implement. of math discourse with CRI	Weeks 39-42	60 min research based reading; 30 min self-paced online module; 60 min webinar 60 min guided practice activity with peers
Design support systems based on classroom observations	Weeks 44-46	60 min research based reading; 30 min self-paced online study; 60 min w/ UE coach

Module 4: Change and Impact

Topics	Duration	Format & Intensity
Change management frameworks	Weeks 47-49	60 min research based reading; 30 min self-paced online study; 90 min w/ UE coach

Impact of technical/adaptive challenges on leadership	Weeks 50-52	60 min research based reading; 60 min webinar; 2 hr guided practice with school support staff
Monitoring Program with Stakeholders	Weeks 54-57	60 min research based reading; 60 min webinar 120 min guided practice with peer principals
Adapting Plans to improve Implementation	Weeks 58-60	1 hr reading; 2 hrs self-paced online training; 30 hrs of onsite PD; 90 min w/ UE coach

The intensity and duration are expected to lead to improvements in participating school leaders’ practice, which is expected to result in increased math achievement for students. This is premised on the RAND research reports on APP that found statistically significant impacts on math achievement. UnboundEd’s program design is consistent with much of their training. Since we are proposing a longer duration (15 months of training instead of APP’s 12-month training) and strengthening our model with CRI, we anticipate at minimum to achieve similar results.

(3) Design of project is appropriate to, and will address, the needs of the target population

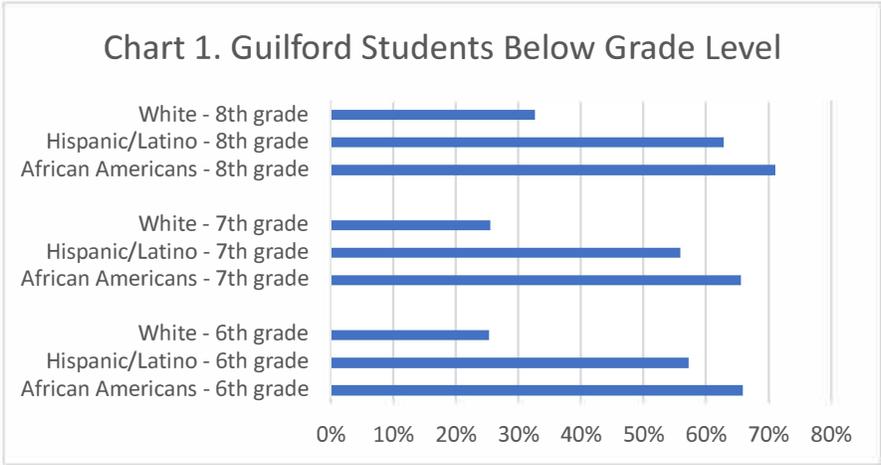
MILA will successfully address needs of the ultimate target population - middle school students who are below grade level in math. It will better engage and support the learning of students of color so they can achieve at the same levels as their white peers. The project is partnering with seven diverse urban and rural school districts across the country that provide a large sample of Black and Latinx students to assess intervention effectiveness. The table below describes participating school districts’ demographics and levels of math achievement.

School Districts	Socioeconomicall y Disadvantaged	Blacke/ Latinx	6 th below grade level	7 th below grade level	8 th below grade level
Boston PS	58%	30% / 42%	68%	68%	66%

Tulsa PS	83%	24% / 35%	77%	81%	88%
Guilford CS	66%	40% / 17%	49%	49%	55%
Fresno USD	88%	8% / 69%	68%	76%	79%
Ferguson- Florissant PS	Not available	83% / not available	76%	87%	96%
Springfield*	77%	19% / 67%	76%	81%	81%
Green Dot	94%	15%/82%	All middle school grades		85%

* Data reflects Springfield School District, but MILA will target Empowerment Zone schools.

Partnering school districts struggle with math achievement, exacerbated for students of color by a “provision gap” in instruction quality. Impact is stark in comparing math achievement between African American and Latinx students and white counterparts. The chart below shows an example from Guilford County School District in North Carolina where percentages of students of color below grade level in math are roughly twice that of white students.



The project will have multiple approaches to boost math achievement for middle school students, and for middle school students of color. Based on moderate evidence from the WWC, math instruction that uses multiple problem-solving strategies has been found to have positive effects on **flexible knowledge** (Star and Rittle-Johnson, 2008), **procedural flexibility**

(Ainsworth et al., 1998; Star and Seifert, 2006; Rittle-Johnson and Star, 2007; Star and Rittle-Johnson, 2009; Rittle-Johnson and Star, 2009), **procedural knowledge** (Perels et al., 2005; Rittle-Johnson and Star, 2007; Ginsburg-Block and Fantuzzo, 1998; Jitendra et al., 2009; Jitendra et al., 2010), and **conceptual knowledge** (Rittle-Johnson and Star, 2009). The inclusion of CRI will tailor math content to better engage students by integrating it with their cultural experiences, norms, language, and frames of reference. This is documented by evidence to increase math achievement for African American (Nasir, Hand, & Taylor, 2008) and Native American students (Kisker et al., 2012; Lipka & Adams, 2004; Lipka, Webster, & Yanez, 2005).

Our aim is to support improved student achievement, but we understand importance of addressing teacher and school leader needs. UE staff have observed three obstacles to effective instruction: 1) collaboration within instructional teams is lacking or ineffective; 2) coaching and PD rarely focus on evidence-based practices; and 3) unconscious biases manifest in educator mindsets, preventing students of color from receiving evidence-based instruction.

School leaders will complete training on effective *observation, coaching, and feedback cycles*, using low-inference notes (descriptive, objective evidence from observations) for high-leverage feedback, observations and coaching for a CRI classroom, and transferring coaching cycle knowledge from one classroom to school-based support. As they complete modules, they will implement observation, coaching, and feedback cycles aligned to CRI math practices every other week for 30 minutes (26 hours). Training for school leaders will also develop competencies in leadership, collaborative planning structures, CRI, and multiple math problem solving strategies, mathematical discourse, and high leverage practices to enhance teacher practice. As school leaders participate they will concurrently implement these practices with school teams

through facilitated PD for teachers and collaborative teaching teams that build educators' capacity for high-quality instruction and leadership.

Collaborative teaching teams will form the basis for implementing and sustaining project activities and benefits at school sites. UnboundEd will prepare school leaders to understand structures and practices that lead to effective teaching team planning and implementation, as well as enhance understanding of topics like how to develop PLC structures that support math discourse, and impact of technical/adaptive challenges on leadership. Leaders will convene middle school math teachers in collaborative planning teams that are anticipated to meet for 90 minutes every other week during academic year (total of 33 hours). Teams will go through a cycle of: 1) student data assessment; 2) analysis of cause with attention to indicators of CRI; and 3) plan action steps to meet classroom/school goals. School leaders will further develop this practice through small group PLCs with peer principals (total of 4.5 hours).

(4) Potential and planning for the incorporation of project purposes, activities, or benefits

UnboundEd developed our SEED project with scaling and sustainability in mind. We have a robust plan to incorporate MILA activities and benefits into PD programs. As required by the U.S. Department of Education, UnboundEd will openly license all new content created with SEED funds, and we plan to go beyond this by adding selections of the new digital content to our instructional resources library already offered for free on our website, which includes the EngageNY K-12 math and English Language Arts curriculum. EngageNY has been downloaded over 40 million times and is used by educators in all 50 states. Thanks to our existing network of school and district partners, we anticipate that MILA will be widely accessed and utilized.

In addition to printed and digital instructional and professional development resources, the project's online learning management system to deliver live training along with pre-recorded,

self-paced digital learning modules that leverage videos, case studies, will also be sustained. We've opted to put portions online to increase accessibility. UnboundEd is aware that teachers and districts have challenges with capacity constraints, restrictive release time, and travel costs. As we build out our online professional development options, we anticipate that these will increase accessibility in two ways beyond the grant period: free content can be accessed by any teacher or school leader via our instructional resources library, and we will be able to include a mix of the online content with in-person trainings going forward, which enables us to reduce travel costs and release time for educators, thus increasing access to the benefits of MILA.

After the grant ends, UnboundEd will charge participants for live trainings (whether delivered online or in-person) in order to sustain this professional development option for school leaders. Our current model of providing free access to curricula and resources and charging for facilitated trainings has demonstrated success at both covering UnboundEd's costs while increasing access to high-quality instructional resources for districts and schools. To date we have served more than 9,000 educators in our Standards Institute and other offerings, which shows this model will work for the SEED project as well. And, the two-day Virtual Summit we are offering the week of June 22, 2020 has sold out with nearly 1,000 paying educators.

We selected **Absolute Priority 2 Supporting Effective School Leaders**, because, as discussed in *Significance* below, effective school leaders can have tremendous impact on teaching, learning, and student achievement across whole schools. While we will directly train 154 school leaders over the three-year project, these leaders will go on to support 620 math teachers, who will provide enhanced instruction to 77,500 high need students across the country.

B. Significance. Importance or magnitude of results or outcomes likely to be attained

Project MILA Logic Model

NEEDS	ACTIVITIES	OUTPUTS	Short Term- <i>Principals</i>	Medium Term- <i>Teacher and Students</i>
<p>High socioeco. disadvantaged rate (58%-88%)</p> <p>High percentage of students below math grade level 6th-8th grade (49-96%)</p> <p>Need for teacher enhanced instruction and instructional leadership</p>	<p>Pre-work assignments (16 hours), Classroom observ., feedback aligned to culturally responsive math practices (26 hrs), collaborative planning team meetings (33 hours), PLC with peer school leaders (4.5 hours), learning activities (16 hours) occurring via 4 Learning Modules</p>	<p>MILA professional development training and materials.</p> <p>155 School Leaders complete MILA program;</p> <p>620 math teachers receive PD and coaching from trained school leaders;</p> <p>77,500 students impacted by enhanced instruction.</p>	<p>School leaders: improve understanding of math problem solving; improve culturally responsive teaching self-efficacy; implement effective and sustained PLCs; provide high quality coaching monthly; complete four annual observation and feedback cycles with each teacher to improve their practice.</p>	<p><i>ED Program Measures</i></p> <p>Teachers: demonstrate change in awareness/understanding of math problem solving; improve culturally responsive teaching.</p> <p>Students: demonstrate more flexible knowledge; improve math proficiency; report deeper connection with instruction, positive changes in math identity, and greater degrees of self-worth; report greater sense of belonging</p>

MILA will help school leaders increase their understanding of math problem solving strategies, culturally responsive pedagogy, and structures necessary to support development in teachers. They in turn will build collaborative planning spaces where teachers develop focused understanding of content and plan meaningful grade-level instruction that utilizes strategies for math problem solving, including leader and peer observation for instructional norming. School leaders build targeted PD to enhance teacher pedagogical content knowledge and use of CRI.

We expect that efforts of school leaders will result in the following for teachers: deeper understanding of math problem solving strategies; increased and effective use of culturally responsive instruction that increases the relevance of math concepts and leverages multiple math problem-solving strategies. Ultimately, these improvements in leadership and instruction will positively impact student achievement in mathematics and students' connection to instruction.

The most important outcome will be the creation of a research-based instructional model that addresses three significant areas of need for school leaders. It will support school leaders in recognizing and addressing systemic racism and instructional bias impeding achievement, while targeting content knowledge in math in middle grades (a high need in target districts, as shown above), and help leaders develop structures for collaborative instructional planning and implementation. The program will also create results that can be scaled as PD resources for school leaders. This is achieved through a hybrid model of in-person and online PD. Online and distance learning is critical not only in the current environment of social distancing, but to build greater equity for very high need school districts and charter schools, many of which cannot afford higher costs of in-person professional development. MILA provides a scalable model to bring high quality, cost-effective PD to school leaders at many more school districts and charter schools across the country than is currently possible with only in-person options.

Specific results expected to be achieved by Project MILA in the three year project period can be seen in improvements in teacher readiness and long-term student achievement as demonstrated in program outputs and outcomes. The project will provide professional development services for 154 Principals and School Leaders from seven high need urban and rural school districts serving predominantly low income students of color. Notably, 58% - 94% of students in these districts are socio-economically disadvantaged. These school leaders work directly with 620 Teachers who support approximately 77,500 middle school students.

MILA will support improved student math achievement. This is significant as mathematics is the cornerstone of STEM education (CPP1). Math competence is associated with workplace readiness, higher future earnings and college attendance (Pane, 2014), which is significant for students of low socioeconomic status, as inequities persist in math achievement in this group. MILA is expected to result in student gains in connection to instruction, self-concept of math identity, self-worth (assessed with Student Measure of Culturally Responsive Teaching).

Achievement data for economically disadvantaged students of color across the country paints an urgent need for improvements in math instruction. According to the National Assessment of Educational Progress (NAEP) for 2019, 8th grade math assessments show that only 34% of students scored proficient or higher. While the overall average 8th grade math NAEP proficiency was 34%, Asian students were 62% proficient, while white students were 44% proficient. In comparison, African American students were 14% proficient and Latinx were 20% proficient. There is an urgent need for PD to enhance grade level math instruction.

(2) Contribution of project to development and advancement of theory, knowledge, and practices

The project will contribute to theory, knowledge and practice by developing and establishing a middle school math (STEM) PD program for school leaders based on evidence

that meets moderate level of WWC effectiveness in our research base. The result, as established through an independent evaluation, will create research submitted for peer reviewed publication to meet WWC standards with reservations. While there is existing research on effective math instruction and CRI, the field lacks studies that bring these frameworks together.

MILA will target school leaders new to their positions and already established in their careers. While principal preparation is needed, this does not benefit thousands of principals who are already serving. In part because of the lack of mid-career leadership development programs for principals, retention is a significant problem, which in turn has serious effects on student achievement. Students achieve less when their school has a new principal, a first-time principal, or an interim/temporary principal; and conversely, students have greater learning gains the longer the tenure of the principal at their school (Beteille et al, 2011).

Research demonstrates that principals have the largest effect on student achievement after classroom teachers as much as 25% of overall school impacts on academic achievement (Marzano, Waters, and McNulty, 2005). Highly effective principals increase student achievement by between two and seven months of learning in a single academic year, while ineffective principals reduce achievement to the same degree (Branch, Hanushek, & Rivkin, 2013). And while classroom instruction still has the greatest impact on student achievement, that only occurs class by class, while principal effectiveness affects whole schools. MILA will prepare school leaders to effectively support teachers to improve instruction, including an explicit focus on best instructional practices to support middle school mathematics instruction.

The MILA focus on math instruction in middle school is a very high need which requires additional research to build the evidence base. In particular, the program design for professional development is targeting Recommendation 4 of the WWC Practice Guide (October 2018),

Improving Mathematical Problem Solving in Grades 4 Through 8, by exposing students to multiple problem-solving strategies. This recommendation has a moderate level of evidence, and Project MILA will expand the proposed model by incorporating research and study on CRI.

Research suggests (Rodriguez, Jones, Pang & Park, 2004) that tailoring instruction in light of student social barriers can help students succeed academically, while Cohen & Garcia (2008) demonstrate how responsive classroom teaching can mitigate harmful effects on student academic performance of negative cultural stereotypes. Further, research demonstrates the effectiveness of CRI in a Math in a Cultural Context (MCC) project in which treatment students made statistically significant gains over a control group in meeting state mathematics standards (Kisker et al., 2012; Lipka & Adams, 2004; Lipka, Webster, & Yanez, 2005). MILA will provide a professional development model that incorporates multiple problem solving strategies with CRI supported by an independent evaluation to document improvements in school leader effectiveness and student academic improvement with a moderate level of effectiveness.

(3) Results of project are to be disseminated in ways that will enable others to use information

UnboundEd's existing Teacher and School Leader professional development and support programs have demonstrated a considerable impact, having grown from serving 350 educators and district decision-makers to a cumulative total of 9,000 educators from 250 education systems across 47 states trained from 2016-20. This network of partners and professionals remains in contact with UnboundEd, and will access project results through Open Educational Resources (OER) developed through MILA. These will be available on partners' websites, on UnboundEd's website (which received 1,288,492 page views in 2019), and through external sites such as *Teachers Pay Teachers*. UnboundEd staff will provide resources, talks including a podcast, and

give presentations to school districts and charter management organizations to share lessons learned and provide resources to support dissemination beyond the funding period.

UnboundEd's annual Standards Institute (SI) and year-long cohort programs - System Leader Academy and Equity Influencer Residency- have brought together thousands of educators and offer a significant dissemination opportunity. The SI is a five-day intensive professional development event offered twice a year since 2016. Hosted in Washington DC, Boston, MA, Fort Lauderdale, FL, Orlando, FL, and in Los Angeles and San Diego, CA for the past five years, it provides professional development training and materials to thousands of school leaders and educators. Connections with educators representing hundreds of school districts are maintained and reinforced through regular newsletters, blogs, podcasts, and digital media posts including Facebook, Twitter and LinkedIn as well as an online community - all targeted to our subscriber base. In June 2020, the Standards Institute is transitioning to a two day Virtual Summit for over 1,000 attendees, to jump-start equitable academic ready-to-learn plans..

UnboundEd website materials are typically OER and are freely available and openly licensed to the public. Our website will offer key components of Project MILA, furthering our mission of empowering educators by providing free, high-quality standards-aligned resources. Currently, free resources available for download include standards aligned PreK- Grade 12 curricular resources in English Language Arts (ELA) and Mathematics, content guides for instruction in schools, such as *Ratios: A Guide to Grade 7 Mathematics Standards*, as well as toolkits to support school leadership. UnboundEd provides archived professional development resources from SI that build, improve, and sustain equitable instructional excellence in ELA, mathematics, and leadership. Available written material and curricula from Project MILA will be added on the website and provided for no cost to teachers and school leaders.

UnboundEd will also disseminate results through external websites for teachers, including *Teachers Pay Teachers*, a top website for instructional resources for teachers. Dissemination will be supported by partnering teacher training networks, including the National Center for Teacher Residencies, Student Achievement Partners' (SAP) Instruction Partners, Leading Educators, New Leaders, New Teacher Center, Pivot Learning, Relay Graduate School of Education, The New Teacher Project (TNTP), and the Achievement Network (ANet).

Dissemination will occur through presentations at national conferences, such as the American Educational Research Association (AERA). Project MILA will develop a research paper on our methodology and results, which will be submitted to peer-reviewed journals such as the *Journal for Research in Mathematics Education*. This will meet What Works Clearinghouse (WWC) evidence standards with reservations and will be submitted to the WWC for consideration. UnboundEd, working with Human Resources Research Organization (HumRRO), the independent evaluator, will publish interim and final reports to make results and methodology freely available and to adjust programming based on feedback as needed.

C. Quality of Management Plan. *Goals, objectives, outcomes are specified and measurable.*

The long term goal of MILA is to demonstrate the effectiveness of intensive professional development programs for school leaders that provide tools to empower teachers at their schools while increasing student achievement in mathematics. The goals, objectives, outcomes and measures (performance measures) discussed below describe the impact on all three populations, and incorporate an independent evaluation to analyze the impact of instructional quality on teaching and student achievement in mathematics in the middle grades. Please see the included *Form for Project Objectives and Performance Measures Information* for the SEED Program Objectives that UnboundEd will meet working with the Department.

Goal 1: Develop and implement MILA program with fidelity	
Objectives	Outcomes/Measures
Develop MILA curriculum and training materials, build program content and tools, train staff, small scale pilot of components of training.	Professional development curriculum and training complete; 6 staff prepared to facilitate training; formative assessment provides feedback for final improvements to program.
Complete district MOUs, including data sharing agreements for eval; recruit and randomize 154 School Leaders for participation	MOUs in place with six districts agreeing to participate in professional development activities, random assignment, and evaluation requirements.
MILA program implemented with fidelity for 154 school leaders	Action plan completed by each school leader that brings together leadership lessons and technical knowledge to begin the school year with a mathematics instructional plan.
Goal 2: Increase number of highly effective school leaders in middle schools serving high needs students by engaging 154 school leaders (AP2, CPP1, CPP2)	
School leaders increase their understanding of math problem solving strategies, culturally responsive pedagogy, and structures necessary to support development in teachers.	Demonstrate change in awareness and understanding of math problem solving as measured by tools to be created. Demonstrate change in culturally responsive teaching self-efficacy as measured by the pre-post testing using the Culturally Responsive Teaching Self-Efficacy Scale (CRTSE).

<p>School leaders build planning spaces where teachers explore and develop understanding of content and plan meaningful grade-level instruction</p>	<p>154 school leaders develop or enhance math PLC at their school in a defined schedule with hours of collaborative planning built into the yearly school calendar.</p>
<p>School leaders build targeted opportunities to enhance teacher pedagogical content knowledge and use of culturally responsive instruction.</p>	<p>School leaders implement a school-specific mathematics action plan with leadership lessons, pedagogical content knowledge, and culturally responsive instructional techniques in a PD calendar that includes observation cycles and coaching. School leaders complete monthly coaching sessions with individual teachers and /or grade level teaching teams. School leaders complete four annual observations, using the CRIOP, of each math teacher to build their skills</p>
<p>Goal 3: Improved teacher efficacy around utilization of high quality mathematical instructional practices</p>	
<p>Teachers deepen their understanding of math problem solving strategies</p>	<p>Teachers demonstrate change in awareness and understanding of math problem solving as measured by program tools.</p>
<p>Teachers increase understanding of culturally responsive math instruction to enhance teaching that supports multiple problem solving strategies.</p>	<p>Teachers improve their culturally responsive teaching self-efficacy as measured by the pre-post testing using the Culturally Responsive Teaching Self-Efficacy Scale (CRTSE).</p>

Goal 4: Improve high need middle school students' math achievement in target schools.	
<p>Students experience culturally responsive instruction that supports the use of math problem solving strategies that enhance overall math achievement.</p>	<p>Students improve flexible knowledge as shown through improved math proficiency by a statistically significant amount relative to control students (as measured by formative and standardized state math assessments). Students report deeper connection with instruction, positive changes in math identity, and greater degrees of self-worth as indicated by scores on the Student Measure of Culturally Responsive Teaching (SMCRT). Students report greater sense of belonging as indicated by scores on Psychological Sense of School Membership assessment.</p>

(2) Adequacy of management plan to achieve the objectives of project on time and within budget

Below, please find a detailed breakdown of timelines and milestones, linked to objectives and goals. To maintain communication and accountability, the UnboundEd team led by the Program Director uses a wide range of communication and project management tools, including Zoom conferencing, cloud tools such as Slack and Google's suite of tools that support communication, collaboration and to organize complex logistics around professional development training. They also use Atlassian's project management tools including Jira and Confluence. These are used by both the UnboundEd operational team, the program team and the independent evaluation team to ensure services are delivered and are analyzed appropriately and in a timely manner to track program outcomes and success.

Project Timeline with Milestones and Roles

Goal 1: Develop and implement MILA program with fidelity			
Objectives	Dates	Person Responsible/Activities	Milestones
Objective 1: Develop MILA curriculum and training materials, build program content and tools, train staff	10/2020 - 03/2021	Program Director will work with staff to complete. Staff curriculum development meetings, staff training workshops	MILA Professional Development curriculum, materials, and facilitator training complete
Objective 2: Complete district MOUs for participation, including data sharing agreements for eval; recruit and randomize 154 School Leaders for participation	10/20-03/21	Program Director working with UE COO. Send draft MOU including data sharing requirements, revisions. Work with Districts to confirm school leader participation; HumRRO randomizes within districts	MOUs signed with all participating districts that include data sharing agreements. MILA participants ready for project start
Objective 3: MILA program implemented with fidelity for 154 school leaders.	2/2021 - 3/2021	Program Director working with Chief Academic Officer and ED Research. Pilot components of curriculum, use formative feedback from HumRRO for improvements	Formative evaluation complete, MILA curriculum and materials complete; staff trained

Goal 2: Increase the number of highly effective school leaders in middle schools serving high needs students by engaging 154 school leaders in MILA PD (AP2, CPP1, CPP2).

Objectives	Dates	Activities	Milestones
<p>Objective 1: School leaders increase understanding of math problem solving strategies, culturally responsive pedagogy and structures to support development in teachers</p>	<p>Cohort 1: 4/21-6/22 Cohort 2: 6/22-8/23</p>	<p>Program Director with Chief Academic Officer and ED Research <i>(See Table 2. Cohort Training)</i> Module 1, 2, 3, 4: Indep. study, Async modules, Synch modules, Guided Practice Coaching, Onsite PD</p>	<p>School leaders complete 120 hours of facilitated professional development and 95.5 hours of associated activities</p>
<p>Objective 2: School leaders build collaborative planning spaces where teachers develop content understanding, plan grade-level instruction with strategies for math problem solving, including</p>	<p>Cohort 1: 4/21-6/22 Cohort 2: 6/22-8/23</p>	<p>Program Director working with Chief and Deputy Academic Officer and ED Research. School Leaders complete observation and feedback aligned to culturally relevant math practices, lead collaborative planning with the MS Math Teachers, small group PLC with peer principals</p>	<p>154 math PLCs are implemented at participating schools and have a defined schedule with hours of collaborative planning built into annual school calendar</p>

leader/peer observ. for instructional norming.			
Objective 3: School leaders build opportunities to enhance teacher pedagogical content knowledge, culturally responsive instruction	Cohort 1: 4/21-6/22 Cohort 2: 6/22-8/23	Principals/ School Leaders. School leaders facilitate PD opportunities on CRI and math content for teachers, and lead cycles of observation, coaching, and feedback.	154 leaders implement action plan; monthly teacher coaching; school leaders each complete 4 annual CRIOP observations
Goal 3: Improved teacher efficacy around the utilization of high quality mathematical instructional practices			
Objectives	Dates	Person/Responsible/Activities	Milestones
Objective 1: Teachers deepen their understanding of math problem solving strategies	8/21 and beyond	Principals/School Leaders. Teachers interact and receive observation and feedback aligned to mathematics problem solving strategies, MS Math Teachers participate in collaborative planning teams w/ principals.	Teachers demonstrate increased understanding of math problem solving strategies, through integrated and updated lesson plans reviewed by principals.
Objective 2: Teachers increase understanding of, and confidence	8/21 and beyond	Principals/School Leaders. Teachers interact with principals and receive observation and feedback aligned to culturally relevant math	Teachers demonstrate increased understanding of culturally responsive math instruction,

to deliver, culturally responsive math instruction		practices, Math Teachers participate in collab. planning teams with principals.	through integrated and updated lesson plans reviewed by principals.
Goal 4: Improve high need middle school students' math achievement in target schools.			
Objectives	Dates	Person Responsible/Activities	Milestones
Students experience culturally responsive instruction that supports the use of math problem solving strategies that enhance overall math achievement.	8/21 and beyond. 10/21, 5/22 assess.	Teachers working under the direction of the Principal implement CRI in classrooms, defined in lesson plans. Teachers get to know students and then tailor lesson plans that meet grade-level expectations for math while integrating topics related to students' cultural knowledge and frames of reference.	Formative and standardized state mathematics assessment occur. Student Measure of Culturally Responsive Teaching (SMCRT) and Psychological Sense of School Membership assessments occur.

Key Personnel: Roles and Responsibilities

Please see the Personnel Table below with staff roles and responsibilities in MILA.

Please see Appendix B for resumes detailing qualifications and past experience of all personnel.

Name, Title, Percent of Time on Grant	Responsibilities
[REDACTED]	[REDACTED]

[REDACTED]	[REDACTED]

(3) The adequacy of procedures for ensuring feedback and continuous improvement

UnboundEd will use two methods to collect performance feedback that will enable continuous improvements to the project. The first will be part of the evaluation conducted by the independent evaluator, and will include two phases of the project- **Pilot** (phase 1 - a four month pilot project after planning) and **Implementation** (phase 2 - Years 2 - 3 of services). Please see details in *Evaluation* below about collecting performance feedback. UnboundEd will continually use feedback to inform changes to curriculum and training content and delivery throughout the three year project period (including Years 4-5 if additional funding is provided).

During the Pilot phase, MILA will serve a small cohort of school leaders with shorter, focused training, and conduct a formative evaluation. This will include completion of surveys assessing school leader and program staff understanding of effectiveness of program services. At the end of the Pilot, formative evaluation results will inform changes to the design including

improvements to better meet the outcomes and performance measures. The final Implementation Design will be in place by Month 8, when the first Implementation Cohort will begin.

Continuous improvement will also be provided through an ongoing review process throughout Implementation. This will include regular review of project data through process evaluation activities. Process evaluation activities are led by the external evaluator and UE's project team. Interim Project Data Reports, which offer snapshots of progress in meeting performance indicators by breaking down project goals into quarterly benchmarks, are created and reviewed each quarter. For MILA, this includes tracking school leaders served, minutes spent with trainings and service in each Module, progress towards goals, attendance in training (number of sessions and time spent), and attendance at all other training components. This tracking allows for rapid improvements in services when any shorter-term benchmark is not met and supports reaching long-term goals. Documenting successes also helps UE identify best practices to replicate while defining and scaling our professional development model.

UE relies on strong data partnerships with partnering districts and charter schools to inform continuous quality improvement during implementation, including a formal Data Sharing Agreement with each school partner included in the created MOU with each that allows access to required data points. Project staff and facilitators use these data to tailor and improve strategies.

Project staff led by the Director will convene quarterly Working Group meetings of staff and three times yearly partner meetings to review data and refine services. These will discuss successes and challenges related to implementation, integration, student needs, and project progress. Working Group meetings foster collaboration and ensure services effectively scaffold each other to meet goals. Finally, UE staff led by the Director will hold quarterly evaluation meetings to discuss progress; the evaluator will share feedback annually via Formative Feedback

memos. In addition to quantitative data, the evaluator will collect qualitative data in interviewing PD facilitators, staff, and school leaders. Results from interviews will be shared in the aggregate with the MILA team to identify areas for improvement and continue building on project success.

In addition to the specific management plan described above, UnboundEd has comprehensive quality, fiscal, and administrative controls in place to monitor grants, and utilizes procedures to ensure that services are provided as specified and in compliance with grant requirements. Reporting to the UE Board of Directors each quarter, the UE Chief Executive Officer and Chief Operating Officer exercise oversight of program services to ensure that core program objectives are achieved and programs are accountable for all awarded funds.

Compliance will be monitored by the UE Chief Operating Officer Laura Smith, while fiscal compliance is monitored and led by Director of Finance and Operations, Taknauth Khilawan.

A. Quality of the Project Evaluation *Methods of evaluation produce effectiveness evidence*

HumRRO will conduct an independent formative evaluation to provide timely feedback that informs continuous process improvements throughout the life cycle of MILA to ensure the program is meeting goals and objectives. HumRRO will also conduct an independent summative evaluation of MILA's impact on (a) principals' instructional coaching and culturally responsive leadership self-efficacy; (b) teachers' problem-solving skills, and culturally responsive self-efficacy; and (c) students' math achievement. Together, the formative and summative evaluation will support program claims. The validity of a program hinges on the extent to which each link in the chain of "if-then" statements is true. The basic program logic flows from, (a) if school leaders receive high-quality professional development, then they will change their beliefs, attitudes, and practices; (b) if school leaders change their beliefs, attitudes, and practices, then teachers will change beliefs, attitudes, and practices; and (c) if teachers change their beliefs,

attitudes and practices, then students will experience increased math achievement and changes in academic-related constructs, such as self-regulation and math self-efficacy.

The evaluation will have four phases: Phase 1 is formative evaluation activities to inform program development. This will begin upon grant award and last until April 2021. Randomized control trial (RCT) activities will be conducted only in Phase 2 and formative evaluation activities that will inform program implementation and principal perceptions of effectiveness will be conducted for the first cohort of principals in Phase 3. Phases 2 and 3 occur concurrently beginning in April 2021 through May-June 2022. Phase 4 includes formative evaluation activities for the second cohort of principals, which consists of the control group from the RCT.

The summative evaluation (Phase 2) will use a block cluster RCT with 154 principals (i.e., schools) from the seven participating school districts to investigate the extent to which MILA impacts changes in Culturally Responsive Instruction (CRI) beliefs and practices in leaders and educators and student math achievement and other related student outcomes. Within each block (i.e., district), the evaluator will randomly assign half of the principals to treatment and half to control. Because the seven districts are different in terms of location, student make-up, and size, a block design will reduce potential district-level confounds cross contamination among the control and treatment groups. HumRRO will work with UnboundEd to minimize this during module training and also capture it in survey questions collected during PD. Treatment duration is 15 months, from April 2021 through June 2022. The 77 control schools will be provided treatment after the treatment group has concluded and all post-test measures associated with the RCT are complete. As a block cluster RCT, this study can achieve a WWC rating of *Meets Design Standards without Reservations* for the key outcome of increased student achievement at the school level.

RCT Eval. Question	Outcome Description	RCT design notes	RCT Timeline
EQ1: To what extent do <i>principals</i> participating demonstrate high quality leadership that is culturally responsive?	Principal instructional coaching self-efficacy Principal CR self-efficacy	Principals will begin treatment in April 2021 with the first MILA module	Pre-test: April 2021 Post-test: May/June 2022
EQ2: To what extent do math <i>teachers</i> of principals participating demonstrate high quality math instruction that is culturally responsive?	Teacher math self-efficacy Teacher CRI self-efficacy	Teacher baseline data collected during fall 2021-2022 school to help reduce attrition resulting from year-to-year transitions	Pre-test: Aug/Sep 2021 Post-test: May/June 2022
EQ3: To what extent does the math achievement of <i>students</i> of these math teachers improve?	Student state assessment math achievement scores Local validated interim assessments (e.g., NWEA) Local interim assessments if better aligned to measure math problem solving	During the fall 2021, we will collect prior year's student achievement scores for all teachers in our sample and match them with the spring 2022 achievement scores	Pre-test: May/June '21 Post-test: May/June '22. Will end in fall 2022 once achievement scores are available

EQ4: To what extent do <i>students</i> of these math teachers perceive they receive teacher and school support?	Student perceived teacher and school support, aggregated at the school level	During fall 2021 and spring 2022, we will administer surveys to students from two classes for each teacher	Pre-test: Sept/Oct 2021 Post-test: May/June 2022
EQ5: To what extent do <i>students</i> of math teachers feel they belong?	Student belonging, aggregated at school level		

To investigate program effectiveness, the evaluation will conduct hierarchical linear modeling (HLM) to account for clustered treatment nature. For each outcome level (principal, teacher, and student) we will first compute the intra-class correlations (ICCs) for a 3-level HLM (teachers, schools, districts). Student outcomes will be aggregated at school level and accounted for at school/principal level. Although evaluator expects between-district variance to be negligent, if the ICC indicates a between-district effect, they will account for that using a 3-level model. If ICC indicates no between-district effect, they will use a 2-level model for final analyses. A 2-level model would be preferred because it would lead to a simpler interpretation.

One key outcome is that through PD that equips educators with effective math problem-solving strategies, coupled with CRI strategies, students will increase math achievement, so the primary outcome to measure program effectiveness in the RCT will be student achievement. The computed minimum detectable effect (MDE) size for student achievement is .16. Assuming an average of 4 teachers per school and 125 total students per teacher with 154 schools ($k_{\text{Treatment}} = 77$, $k_{\text{Control}} = 77$), approximately 616 teachers ($j_{\text{Treatment}} = 308$, $j_{\text{Control}} = 308$), and approximately 77,000 students ($i_{\text{Treatment}} = 38,500$, $i_{\text{Control}} = 38,500$), school-level ICC = .15, power = .80.

When conducting analyses focused on student-level outcomes, models will cluster students within teachers within schools. When conducting analyses focused on teacher outcomes models will cluster teachers within schools. Principal-level outcomes will involve simple regression or other appropriate linear models. The evaluation will include covariates as appropriate to address potential confounding variables at each level related to the outcomes. Because the study focuses on cultural responsiveness, it will be important to include covariates that may impact school culture and to examine patterns for different subgroups of students and/or schools. For example, it will account for race/ethnicity, school urbanicity, school enrollment, percent English learners, and a measure of socioeconomic status (i.e., school and/or student level free or reduced lunch participation). For each HLM, it will compute ICCs to identify the amount of variance attributed to school-level differences. In addition to examining significance of each analysis, it will compute effect sizes using Hedge's *g* to determine the size of treatment impact.

MILA acknowledges that COVID-19 could have effects on student achievement in spring 2021. Thus, it will look for anomalies in the data (e.g., differences from spring 2019 to spring 2021 state test scores) and stratify based on the overall score and the change score by effect size. Additionally, current racial discord in the United States may prompt many districts to implement various levels of CRI PD that could contaminate the control group. The evaluation will collect data on these initiatives from the control group and assess the potential impact on findings.

To meet the WWC standards without reservations, the study needs to account for minimal attrition. Close, Sinclair, McCollough, Liddle, and Hughes (2016) note attrition less than 5% in RCTs is typically not considered problematic and not a threat to bias. Attrition above 20% is seen as potentially problematic. Deke, Sama-Miller, and Hershey (2015) note certain types of attrition are more problematic than others. For example, if groups are randomly assigned

and a principal chose to drop out because of the treatment assignment, this would pose a larger threat than losing participants due to non-random events. Attempts to minimize attrition will be made by (a) providing professional development free of cost to all treatment and control schools that agree to participate in this study (offering control groups treatment after the RCT will help reduce the draw for them to implement other similar initiatives during the treatment period); (b) minimizing the level of burden on principals and teachers (e.g., using short survey forms) so the benefits outweigh the costs of participation and offering incentives, and (c) recruiting principals with a high likelihood of remaining at the same school throughout the treatment period. All principals have agreed to participate in advance and are highly interested in receiving the treatment; thus, the program anticipates that measures to reduce attrition will be successful.

(2) Methods of evaluation will provide performance feedback and permit periodic assessment

In addition to conducting a rigorous RCT meeting WWC standards, the evaluation will provide ongoing feedback on meeting intended goals. During Phases 1, 3, and 4, it will collect multiple sources of data from principals, teachers, and students. These formative evaluation efforts will provide feedback on program performance, implementation, and perceived effectiveness. The primary formative evaluation questions support main summative evaluation questions that frame the RCT and are listed in the sub-evaluation questions below.

Formative Evaluation Questions (*Note: EQs 3, 4, and 5 are related to the RCT only*)

EQ1: To what extent do *principals* in MILA demonstrate high quality leadership that is culturally responsive?

EQ1A: To what extent do these *principals* convey their understanding of how systemic racism and bias obstructs access to high quality grade level expectations in math?

EQ1B: To what extent do these *principals* build collaborative planning time for teachers to develop focused understanding of math content, plan meaningful grade-level instruction that emphasizes problem solving, and observe peer teachers than do principals not participating?

EQ1C: How do *principals* participating in MILA provide math teachers with targeted feedback that highlights equitable instruction and problem-solving strategies?

EQ1D: What coaching structures do *principals* participating in MILA provide math teachers to support cross classroom peer lesson studies?

EQ1E: What targeted opportunities do *principals* participating provide for math teachers to enhance their pedagogical content knowledge and use of culturally responsive teaching?

EQ2: To what extent do math *teachers* of principals participating in MILA demonstrate high quality math instruction that is culturally responsive?

EQ2A: To what extent do math *teachers* of principals participating in MILA hold high expectations for all their students?

EQ2B: How do math *teachers* of principals participating in MILA deepen their understanding of math problem solving?

EQ2C: In what ways do math *teachers* of principals participating in MILA enhance their students' math identities and support their self-concepts?

EQ2D: What strategies do math *teachers* of principals participating in MILA use to provide meaningful instruction built around math problem solving?

EQ6: To what extent is MILA implemented with fidelity across *principals*?

EQ6A: How has implementation of the MILA varied across *principals*?

EQ6B: What do *principals* cite as successes or challenges associated with implementation?

During initial program development, the evaluation will conduct small-scale trials of self-developed protocols and instruments. Because MILA utilizes a blended learning environment, minimizing threats to validity of performance learning is paramount to program success and subsequent impacts on teachers and students. As such, the formative evaluation will include examining how well the learning management system functions via user acceptance testing and small focus groups. Feedback will be provided promptly and as appropriate.

Phase 3 formative activities will focus on the principals' direct experiences and implementation during the treatment to monitor whether the program is meeting its intended goals, particularly related to each MILA module. These activities will coincide with the RCT (Phase 2). Generally, throughout the treatment cycle, the evaluator will conduct small focus groups with principals, and develop short surveys for principals to provide feedback during the treatment. It is also important to assess the implementation of program activities and objectives in each specific module. As such, it will conduct module-specific formative activities as appropriate. We will compute interrater reliability statistics on the scoring of the principal feedback on classroom instructional videos in Module 2 (Sustained Inquiry). Because training for the principals should impact teacher outcomes as well, the evaluator will also conduct a small number of classroom observations during Modules 3 (Collaboration and Influence) and 4 (Change and Impact) to assess degree to which principals' practices manifest in the classroom.

In addition to formative and process evaluation questions, the continuous improvement model includes fidelity of implementation. This is a major challenge with this type of research. If principals do not follow the implementation plan as intended, it is impossible to accurately estimate program effectiveness. The program will administer a MILA implementation survey for principals to gather self-reported data on implementation. HumRRO conducted similar surveys

for the California Department of Education and the College Board. The structure of the survey will be designed to create an implementation fidelity rating. In addition to the self-report, the evaluation will conduct periodic observations and add questions about fidelity of implementation into module surveys to triangulate information. If there are very low ratings for fidelity of implementation, this will allow the evaluator to clean the treatment sample and make more accurate determinations about MILA effectiveness as a diagnostic measure. Poor implementation fidelity can significantly attenuate indications of program effectiveness.

Phase 4 formative activities will be very similar to those conducted for Phase 3, with the only difference being target cohort. While Phase 3 focuses on the RCT treatment group, Phase 4 will focus on program implementation during the third grant year (including schools previously in RCT control group). Although the evaluator will not conduct a rigorous RCT in this phase, they will administer pre-post measures for principals and teachers, and to analyze school-level student math achievement data to examine within-group changes. To address potential treatment contamination from serving as control group during the RCT, they will ask principals what level of exposure they had during the RCT to explain potentially small effects.

(3) Methods of evaluation include the use of objective performance measures

The outcomes measured will be relevant and tailored to MILA and produce valid and reliable performance data. The measures in the table below were selected to measure evaluation questions based on the logic model. We will capture data at the principal, teacher, and student levels. For students, we will use state standardized test scores as required for valid and reliable achievement measure. The evaluation is developing surveys based on literature and best practice that will use existing survey questions as appropriate, such as the NAEP Math studentteacher surveys. We are also using published surveys and assessments such as the *Culturally Responsive*

Teaching Self-Efficacy Scale (Siwatu, 2007) short form (Cronbach alpha reliability of .95) that will be administered to teachers and revised for principals, and *Student Measure of Culturally Responsive Teaching* (Dickson, Chun, & Torres Fernandez, 2005; Cronbach alpha of .90).

Evaluation Question	Outcome Measure	Outcome Measure Reliability
EQ1: To what extent do <i>principals</i> participating in Project MILA demonstrate high quality leadership that is culturally responsive?		
EQ1A: To what extent to these <i>principals</i> convey their understanding of how systemic racism and bias obstructs access to high quality grade level expectations in math?	Adapting Culturally Responsive Teaching Self-Efficacy Scale for Principals (RCT) Using Culturally Responsive Instruction Observation Protocol (CRIOP) for formative evaluation	Unknown for principals; Cronbach’s alpha for teachers is .95 Interrater (IRR) reliability typically around .80
EQ1B: To what extent do <i>principals</i> build collaborative planning time for teachers to develop understanding of math content, plan meaningful grade-level instruction emphasizing problem solving, and observe peer	Developing survey for formative evaluation Using select items from CRIOP	NA IRR typically around .80

teachers than do principals not participating in this program?		
EQ1C: How do <i>principals</i> provide math teachers with targeted feedback that highlights equitable instruction and problem-solving strategies?	Developing survey for formative evaluation Using select items from CRIOP	NA IRR typically around .80
EQ1D: What coaching structures do <i>principals</i> participating provide math teachers to support cross classroom peer lesson studies?	Developing survey for formative evaluation	NA
EQ1E: What targeted opportunities do <i>principals</i> participating provide for math teachers to enhance their pedagogical content knowledge and use of culturally responsive teaching?	Using developed survey for formative evaluation Using select items from CRIOP	NA IRR typically around .80
EQ2: To what extent do math teachers of <i>principals</i> participating in Project MILA demonstrate high quality math instruction that is culturally responsive?		
EQ2A: To what extent do math <i>teachers</i> of principals participating hold high expectations for all their students?	Using Culturally Responsive Teaching Self-Efficacy Scale (RCT). Using Culturally Responsive Instruction	Cronbach's alpha is .95 IRR reliability typically around .80

	Observation Protocol (CRIOP)	
EQ2B: How do math <i>teachers</i> of principals participating deepen understanding of problem solving?	Adapting and working with math advisor to develop a measure	NA
EQ2C: In what ways do math <i>teachers</i> of principals participating enhance students' math identities and support their self-concepts?	Adapting and working with math advisor to develop an appropriate measure	NA
EQ2D: What strategies do math <i>teachers</i> of principals participating use for meaningful instruction built around math problem solving?	Adapting and working with math advisor to develop an appropriate measure	NA
EQ3: To what extent does math achievement of <i>students</i> of these math teachers improve?		
RCT Outcome Only	Using state interim or summative assessments	Average reliability is above .90 for state mathematics summative assessments
EQ4: To what extent do <i>students</i> of teachers perceive they receive teacher/school support?		
RCT Outcome Only	Using Student Measure of Culturally Responsive Teaching (SMCRT)	Cronbach alpha is .90

	Using Child and Adolescent Social Support (Dickson et. al.)	Cronbach's alpha ranges from .91-.95
EQ5: To what extent do students of these math teachers feel they belong?		
RCT Outcome Only	Psychological Sense of School Membership (Dickson et. al.)	Cronbach's alpha .77-.88
EQ6: To what extent is the MILA implemented with fidelity across <i>principals</i> ?		
EQ6A: How has implementation varied across <i>principals</i> ?	Developing fidelity protocol and survey	NA
EQ6B: What do <i>principals</i> cite as the successes and challenges associated with implementation	Developing survey and interview protocol	NA