

## Prosocial and Active Learning (PAL) Classrooms 2.0: Mid-Phase Narrative

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## Narrative

This EIR mid-phase project, *PAL Classrooms 2.0*, meets Absolute Priority 1 and is submitted under **Absolute Priority 4**—Meeting Student Social, Emotional, and Academic Needs.

*PAL Classrooms 2.0* is submitted by a **rural applicant**. It is a partnership between the University of Missouri (MU) and a rural LEA, **Plato R-V School District** (locale code 43). Plato R-V is an innovative thought-leader among rural schools and is located in a community where 24% of the population are below the poverty level. MU is a research-intensive, AAU university in a rural area in the central U.S. with emphasis on serving high-poverty, rural schools among the hundred-poorest counties in the U.S. (Ozark region). At MU, *PAL Classrooms 2.0* partners are the **eMINTS National Center** and the **Prosocial Development and Education Research Lab (ProLab)**; each have a history of successful completion of ED-funded research (see Section B.3). The **American Institute for Research (AIR)** will conduct a rigorous, external evaluation.

### A. SIGNIFICANCE

The *PAL Classrooms 2.0* goal is to increase the number of middle school educators who have the capacity to promote prosocial behavior among their students. *PAL Classrooms 2.0* builds on a successful early-phase EIR project titled *Prosocial and Active Learning (PAL) Classrooms* that was funded in 2018. The early-phase *PAL Classrooms* provided professional development (PD) to 5th-grade math and science teachers to increase prosocial, cooperative behavior among their students as they engaged in active, problem-based, team-oriented lessons. The current proposal is to expand on and add innovations to the early-phase *PAL Classroom* model (see Section A.2). This is a timely project because our focus is on improving student behavior and increasing teacher retention, both of which are significant national needs (see

Section A.1.ii). *PAL Classrooms 2.0* will directly involve **1,260 middle grades teachers, 84 administrators**, and approximately **25,200 middle school students** in the central U.S.

### **A.1 National Significance**

A.1.i PAL Classrooms 2.0 Program Description. Prosocial behavior is any behavior that benefits others and promotes harmonious relationships, in contrast to antisocial behaviors that harm others and disrupt social groups (Pfattheicher et al., 2022). It includes treating others with respect, and being kind, helpful, considerate and cooperative, among other behaviors.

Students' prosocial behavior predicts **greater academic engagement and higher grades and test scores** from K-12<sup>th</sup> grade (Fisk & Lombardi, 2021; Oberle et al., 2022). For example, students who are more prosocial in 6<sup>th</sup>-7<sup>th</sup> grade have higher achievement in 12<sup>th</sup> grade (Curlee et al., 2019). This is not just correlational; programs that increase students' prosocial behavior raise achievement, even if the program does not have an academic component (Cipriano et al., 2022; Wang et al., 2020).

Students' prosocial behavior also predicts **social-emotional well-being**. Students who are more prosocial feel happier, are less depressed and stressed, and have greater well-being, across ages and across cultures (Curry et al., 2018; Hui et al., 2020; Oberle et al., 2022). They have healthier relationships and are liked better by classmates and teachers (Wentzel, 2013).

**Teachers also benefit** when students become more prosocial. Teachers use less harsh discipline and feel more efficacious and less burnout. In turn, the school climate improves for both students and teachers (Bergin, 2018; Durlak et al., 2011). See Appendix G for more research supporting the importance of prosocial behavior for students and teachers.

Why Middle School? In middle grades students experience a rise in bullying (Nansel et al., 2001) and a decline in prosocial behavior, school bonding, extracurricular engagement,

interest in school, grades, and quality of relationships with teachers (Bergin, 2014; Hughes & Cao, 2018; Juvonen, 2007; Skinner et al., 2008). In middle grades, teachers report high stress (Herman et al., 2020), partly due to increased student defiance, which is a primary cause of office discipline referrals (Spaulding et al., 2010). Teacher’s report feeling unprepared to manage students’ behavior and support their social-emotional well-being (Reinke et al., 2011).

We focus on “**prosocial education**” defined as **educators’ intentional attempt to promote prosocial behavior in students** (Bergin, 2014). Students’ prosocial behavior is malleable; educators can make a difference (Jennings & DiPrete, 2010; Van Ryzin et al., 2015). Prosocial education is a type of SEL that is explicitly “other” focused and emphasizes increasing positive behavior. In contrast, many SEL programs are “self” focused (e.g., focus on students’ own goals or feelings) or emphasize reducing negative behavior (Domitrovich et al., 2017). Our positive focus is important because studies suggest the **presence of prosocial behavior may predict school success better than the absence of negative behavior** for underserved students (Bierman et al., 2009; Jones et al., 2015; Malecki & Elliot, 2002).

Most SEL programs take a *curricular* approach, meaning that lessons are provided to students; taking time from an already over-full academic curriculum, has a disproportionate opportunity cost for at-risk students who need additional time on academic content (Durlak et al., 2011; Vincent & Grove, 2012). In contrast, *PAL Classrooms 2.0* takes an *interactional* approach, meaning that teachers modify their interaction with students in everyday encounters during academic curriculum (Bergin et al., 2023). The approach centers on PD that **increases educators’ competencies to support their students**. The approach may result in greater dosage of SEL because it is infused throughout each school day. **The focus is on changing classroom climate rather than just on changing individual “misbehaving” students**. This is important

because teacher behavior and the classroom climate are primary factors predicting student achievement in high-poverty schools (Farrington et al., 2012; Irvin et al., 2011).

Educators in *PAL Classrooms 2.0* PD will learn four strategies to promote students' prosocial behavior (see Appendix G for additional research supporting these strategies):

(1) Praise students' prosocial behaviors. Research robustly finds that when students are praised for prosocial behavior, their prosocial behavior tends to increase, whereas material rewards decrease it over the long-run (Bryan et al., 2014; Epstein et al., 2008; Mussen & Eisenberg, 2001). In a randomized controlled study in middle schools, when teachers increased praise, students became more cooperative, less disruptive, and earned higher grades (Caldarella et al., 2020). Despite such evidence, praise may not be used effectively in most classrooms (Hardman & Smith, 2003).

(2) Use of induction discipline which refers to giving students reasons for directives. We emphasize “other-oriented” induction, which involves pointing out how a student's misbehavior affects others, asking the student to imagine being the other, and suggesting how to make amends. In contrast, most classrooms use power assertion. Yet, research finds that induction predicts prosocial behavior, whereas power assertion predicts anger and antisocial behavior (Bergin, 2018; Donald et al., 2021). Induction gives students information to guide future behavior while communicating caring, and respect for students, preserving student dignity.

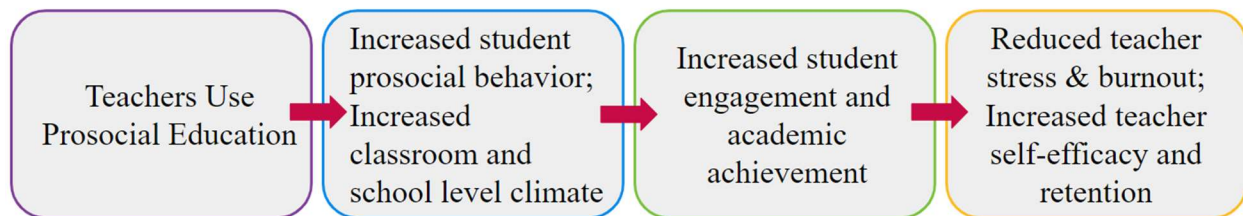
(3) Form positive teacher-student relationships (TSRs). Positive TSRs predict students' greater prosocial behavior and higher achievement (Jia et al., 2009; Roorda & Koomen, 2021) and fewer behavior problems (O'Connor et al., 2011; Wang & Fredricks, 2014). Students are more motivated to pay attention, cooperate, and work hard in classrooms where they feel cared for (Spilt et al., 2012). TSRs predict less teacher burnout (Alamos et al., 2022; Aldrup et al.,

2018). Teachers form positive TSRs when they use praise, induction, and other research-based strategies, such as perceiving interests and respecting student autonomy, among others (Bergin & Bergin, 2009; Jeffrey et al., 2013; Wentzel, 1997).

(4) Create a positive classroom and school climate. A positive climate is one that is perceived as fair, safe, and emotionally upbeat, with respectful, caring relationships (Berkowitz et al., 2017). Positive climate predicts students' greater engagement, achievement, and less antisocial behavior (Lazarides et al., 2019; Reyes et al., 2012). Educators create positive climate when they use praise, induction, form positive TSRs, and use other research-based strategies, such as occasionally sharing fun activities (Bergin, 2018).

In *PAL Classrooms 2.0*, educators will learn about research on each strategy and practical implementation suggestions through collaborative PD that includes a book study of *Designing a Prosocial Classroom* written for educators (Bergin, 2018). Participants will be asked to use these strategies and share/reflect with their cohort, guided by project staff. As educators do so, they may develop greater self-efficacy (Bandura, 2012). Teachers with greater self-efficacy are more engaged and satisfied with their work (Granziera & Perera, 2019). Figure 1 provides a simple model of outcomes expected in *PAL Classrooms 2.0*. See Section C1 for a full logic model.

**Figure A1.** Flow of Expected Outcomes for *PAL Classrooms 2.0*



A.1.ii National Needs Addressed by PAL Classrooms 2.0. The COVID-19 pandemic decreased student social-emotional well-being (Racine, 2021; Rogers, 2021), academic engagement, and sense of school community (Branje & Morris, 2021), and increased teacher

stress and exhaustion (Pressley et al., 2021). Most educators have reported that SEL is more important now and want training to support student social-emotional well-being (Hanover Research, 2021). EIR funding priorities reflect these needs. *PAL Classrooms 2.0* addresses 6 national needs articulated in the EIR NIA (p. 33108 of federal register) as follows:

1. Strength's Based PD. *PAL Classrooms 2.0* PD builds educators' capacity to use prosocial education strategies. The PD deliberately focuses on students' strengths, rather than deficits. That is, praising prosocial behaviors and using discipline that conveys respect for students.
2. Promote strong, trusting teacher-student relationships. This is one of the four key strategies of *PAL Classrooms 2.0* discussed above.
3. Support educator capacity to support SEL and development that fosters academic progress. *PAL Classrooms 2.0* builds educator's capacity to increase students' prosocial behavior, which predicts academic progress as discussed above (see also Appendix G).
4. Improve teacher retention in high-need schools or shortage areas. As students become more prosocial and engaged, teachers feel greater self-efficacy, which predicts greater satisfaction with their work as discussed above. *PAL Classrooms 2.0* targets high-poverty, rural schools where teacher shortages are acute.
5. Address conditions that may negatively impact socioemotional well-being for underserved students. While prosocial education benefits all students, effects are larger for underserved, students (Berkowitz et al., 2017; Hoglund & Leadbeater, 2004; Jones et al., 2015). For example, positive TSRs effect size is larger for high-poverty, male, or minority students (Green et al., 2008; Olsen & Huang, 2021). Unfortunately, these same students are more likely to have poor TSRs (Spilt & Hughes, 2015). Prosocial education creates a welcoming and inclusive climate where all students feel a positive sense of identity and are able to

engage productively with diverse others (Camacho et al., 2017; Loyd & Williams, 2016).

6. Provide PD for discipline that is inclusive and addresses disparities. Some students are disproportionately referred for minor offenses or suspended compared to other students (Del Toro & Wang, 2022). These higher rates of harsh and exclusionary discipline are not the result of more misbehavior or more severe infractions (Morris & Perry, 2017; Welsh & Little, 2018). This “discipline gap” results in less opportunity to learn for underserved students (Anderson et al., 2019; Green et al., 2018). The discipline gap applies to male, low-SES, ethno/racial minority, non-heterosexual students and students with disabilities (Cruz et al., 2021; Nguyen et al., 2019). One root cause is that teachers don’t know how to help students replace disruptive behavior with prosocial behavior (Epstein et al., 2008). *PAL Classrooms 2.0* helps teachers replace power assertion with induction, which preserves student dignity, improves TSRs, and does not remove students from classrooms for common misbehavior.

By addressing these last three national needs in high-poverty, rural contexts – targeting teacher shortages, benefiting underserved students, and using dignity-affirming discipline – ***PAL Classrooms 2.0*** contributes to equity defined as everyone having access to the opportunities and resources they need to thrive (Bergin et al., 2023). The Aspen Institute’s “Nation at Hope” report (2018) found that focus on skills such as prosocial behavior contributes to equity.

PAL Classrooms 2.0 also contributes to **students’ career readiness**. The World Economic Forum (2020) prioritizes prosocial skills among future workers – such as ability to collaborate, manage conflict, respect others, and so on – because global jobs increasingly require teamwork. Employers rank prosocial skills as more important than cognitive skills for workplace success (Casner-Lotto & Barrington, 2006; Savitz-Romer et al., 2015). Yet, managers believe just 30% to 40% of new hires have enough of these skills (Brackett & Cipriano, 2020). Thus,

prosocial students are at an advantage when it comes to career readiness.

## **A.2 *PAL Classrooms 2.0* Develops a Promising New Strategy**

The early-phase *PAL Classrooms* combined (1) prosocial education, an innovation developed by researchers with deep expertise at the nation's premiere **Prosocial Development and Education Research Laboratory (ProLab)** with (2) the **eMINTS National Center** that has decades of experience providing educator PD grounded in adult-learning principles. eMINTS has a **What Works Clearinghouse (WWC) endorsement of "Strong Evidence" for increasing student achievement** (Meyers et al., 2015). See Evidence Form.

The early-phase *PAL Classrooms* was evaluated using a randomized control trial (RCT) with 67 teachers. Data come from blinded classroom observation, self-report, and state standardized tests. Analysis is still underway and unpublished, but preliminary analysis by AIR indicates the intervention group teachers had higher self-efficacy and students had greater prosocial behavior, in-class engagement and higher test scores ( $ES = .14$  for ELA and Science). Both teachers and students reported more positive TSRs and classroom climate.

The proposed mid-phase *PAL Classrooms 2.0* builds on this foundation but innovates in four ways: (1) Involves middle schools, (2) includes teachers in all subjects, (3) includes multiple states, and (4) intervenes at the school level (rather than teacher level) by involving all teachers in the school as well as administrators and a designated teacher-leader. While our early-phase *PAL Classrooms* outcomes suggest prosocial education can be effectively implemented in a single classroom, we expect school-wide implementation will be more effective.

## **A.3 Potential to Increase Knowledge and Understanding of Educational Problems**

Student disrespectful behavior is a significant educational problem related to teacher retention. Disrespect, argumentativeness, and disobedience have increased since the 1950s, with

more students having clinical levels of behavior problems (Achenbach et al., 2003). Verbal abuse and disrespect toward teachers both increased from 2000 to 2020 (Irwin et al., 2022). This was prior to COVID-19. Thus, while COVID accelerated the problem, it is not likely to decrease as the pandemic fades. Educators need research-based, strength’s-focused positive approaches to improving behavior that does not compromise students’ self-control or traumatize them.

Prosocial education is a key potential solution because it both empowers, rather than burdens, teachers to manage student behavior, yet treats students with dignity, improves self-control, and increases engagement and achievement (see Section A.1).

Research on prosocial development has at least a 50-year history (Radke-Yarrow et al., 1982; Wispé, 1972). This research has produced evidence of potential mechanisms that might increase students’ prosocial behavior. However, this research – and the term “prosocial” – is not widely known in education settings, like other aspects of the research-to-practice gap. In addition, specific mechanisms remain to be tested as a classroom intervention in diverse settings. The innovation of the early-phase *PAL Classrooms* was to “package” the 50 years of research into just a few specific strategies teachers could implement in authentic classrooms, and to provide high-quality PD to support teachers learning to use those strategies. *PAL Classrooms 2.0* will extend this work and increase knowledge in three ways: (1) measuring additional national-priority outcomes, (2) including older grades and a whole-school approach, and (3) analyzing effect sizes across diverse students, educators, and schools (see Section D).

## **B. STRATEGY TO SCALE**

### **B.1 Strategies that Address Barriers to Scale**

Scaling any program presents staffing, quality control, and travel challenges. The early-phase project highlighted four barriers to scale, including conflicting school-level practices, lack

of school leader understanding, expense of in-person PD for rural schools, and lack of trained staff to deliver the PD. *PAL Classrooms 2.0* will address these barriers through five strategies:

Strategy 1: School-wide Implementation Team. Participating schools will convene an implementation team of school administrators, counselors, teacher-leaders, classroom teachers, and other stakeholders. The team will meet quarterly to (a) examine existing school policies and practices for compatibility and establish new policies (if needed) that support school-wide prosocial education, (b) designate **6 PD days for teachers** in the school year and determine how to structure the PD time to maximize engagement and meet local school needs, and (c) identify a teacher-leader for the program (duties are described below).

Strategy 2: School Administrator Professional Development. Administrators will participate in **3 days of PD** designed for administrators to (a) develop a deep understanding of prosocial education, (b) ensure school practices support students' prosocial development, (c) ensure quality of implementation, and (d) build capacity to evaluate and affirm teachers' use of prosocial education strategies. They will learn to use inductive discipline to replace harsh, exclusionary discipline where reasonable. Research suggests that administrators who value prosocial behavior foster a supportive school climate. Students in their schools come to behave more prosocially. The effect of administrators is small, but meaningful (Berson & Oreg, 2016).

Strategy 3: Teacher-Leader Professional Development. An experienced and effective teacher-leader will be identified by the implementation team in each building. Teacher-leaders will receive **3 days of PD** in mentoring skills and adult learning principles, in addition to the 6 days teacher PD. Teacher-leaders will serve as school-level mentors to (a) provide day-to-day coaching for other teachers to ensure the work continues between PD sessions and 6 in-class coaching visits per teacher, (b) guide the implementation team to create a clear vision and plan,

(c) ensure the project is completed on time and within budget, (d) communicate regularly with stakeholders, and (e) celebrate successes.

Strategy 4: Train-the-Trainer Certification. To support sustainability and scaling of *PAL Classrooms 2.0*, in Year 5 we will train district-level trainers in our partner LEAs. “Trainers” may be a teacher or teacher-leader who completed the 6-day teacher PD. These trainers will be allowed to provide the *PAL Classrooms 2.0* PD to any teacher in their district, after being certified. *PAL Classrooms 2.0* staff will evaluate trainers, ensure fidelity of implementation and require yearly recertification. (Our staff has experience successfully implementing programs requiring certification, see Section B3). Thus, districts may expand prosocial education to other schools within their district and on-board new teachers, reaching more teachers and students.

Strategy 5: Virtual Professional Development. The early-phase PAL Classroom PD was in-person and began prior to COVID-19. During the pandemic we transitioned to virtual. We were able to develop a highly engaging, interactive and effective virtual program. This virtual approach reduced costs for travel and costs for substitutes. This positioned the program to be more scalable for *PAL Classrooms 2.0*, where the PD will be delivered virtually.

## **B.2 Adequacy of the Management Plan**

The project leadership team, comprised of eMINTs and ProLab staff, will meet weekly. The leadership team will meet on alternating weeks with the external evaluator (AIR). They will meet with the LEA lead partner and NEE director as needed for specific tasks. These meetings will ensure project activities are on time and implemented with quality. *PAL Classrooms 2.0* will occur over **five** calendar years (January 2024 to December 2028) as presented in Figure B1. Specific milestones, dates and roles for grant activities are outlined in Table B1.

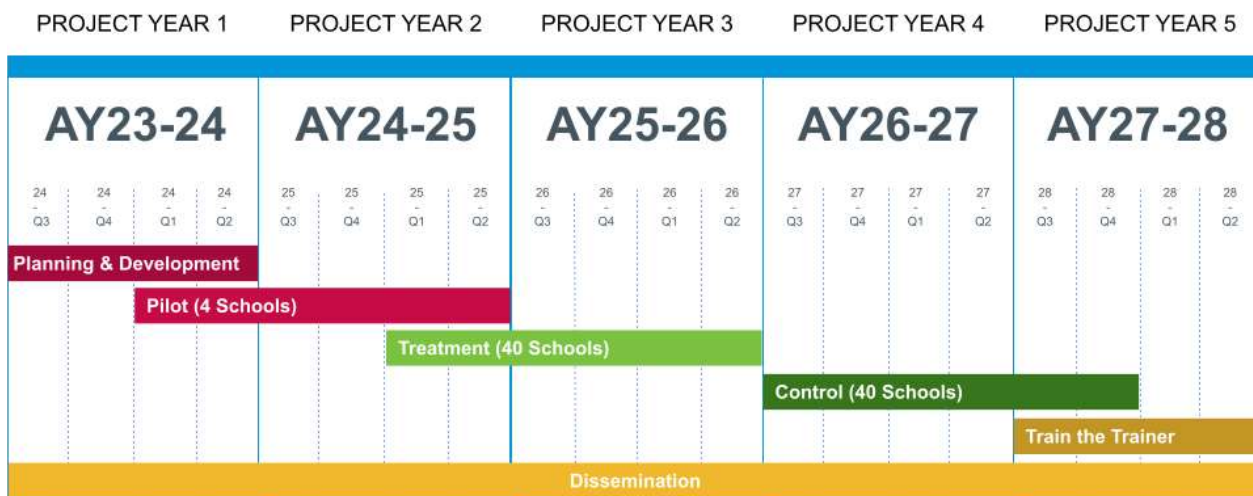
**B.2.i Pilot Schools.** In spring 2024, **4 pilot schools** will establish their implementation

teams and identify PD days for AY24-25. The pilot schools will engage in teacher, teacher-leader, and administrator PD during AY24-25. In summer 2024, these teams will begin to examine their school's climate and discuss their existing school policies and practices. We will work closely with the pilot schools to collect feedback for revisions and program development.

**B.2.ii Efficacy Study.** In AY24-25, we will recruit **80 predominantly high-poverty and rural middle schools** in the central United States to participate in an RCT (see Section D). Treatment schools will receive teacher, teacher-leader, and administrator PD during AY25-26. Treatment schools will create their implementation teams in spring 2025 and begin to examine their school's climate and discuss their existing school policies and practices over summer 2025. The wait-list control schools will go through the same process a year later (AY26-27).

**B.2.iii Dissemination and Sustainability.** During the final year of the project (AY27-28), we will provide a train-the-trainer program to partner LEAs (see Section B1). We identify several dissemination strategies in Section B4.

**Figure B1.** Project Timeline Overview



**Table B1.** Milestones, Dates and Responsible Parties for Grant Activities

Milestones	Dates	Responsible Party
<b>Planning &amp; Management</b>		
Submit project for IRB review, update annually	1/24 - 3/24	ProLab
Create sub-awards and scope of work agreements	1/24 - 3/24	eMINTS
Establish management team and set meeting schedule	1/24	eMINTS / ProLab
Monthly management team meetings	ongoing	eMINTS / ProLab
Monthly evaluation team meetings	ongoing	eMINTS / ProLab / AIR
Refine the existing PAL Classrooms Teacher PD	1/24 – 5/24	eMINTS
Develop teacher-leader Professional Development	1/24 - 5/24	eMINTS
Develop administrator PD	1/24 - 5/24	eMINTS / NEE
Plan implementation team meetings (schedule & agendas)	1/24 - 3/24	eMINTS
Develop train-the-trainer PD	5/24 - 8/24	eMINTS / NEE
Refine evaluation plan as needed	8/24 - 8/26	eMINTS / ProLab / AIR
Progress reports	Annually	eMINTS / ProLab / AIR
<b>Pilot Schools Implementation</b>		
Identify four pilot schools; provide orientation	1/24 - 3/24	eMINTS
Engage pilot schools' implementation teams	3/24 - 5/25	eMINTS / LEA's
Engage pilot schools in PD (teachers, teacher-leaders, administrators)	8/24 - 5/25	eMINTS / LEA's
Collect data from participants for programmatic feedback	5/25 - 6/25	ProLab
Iterative improvement based on feedback	6/25 - 8/25	eMINTS / ProLab
<b>Efficacy Study</b>		
Recruit 80 middle schools	1/24 - 3/25	eMINTS / ProLab / NEE

Randomize schools	3/25	AIR
Communicate randomization with schools	3/25	eMINTS
Engage treatment schools implementation teams	3/25 - 5/25	eMINTS / LEA's
Collect Tx & control baseline survey data	7/25	AIR / ProLab
Engage treatment schools in PD	8/25 - 5/26	eMINTS / LEA's
Collect Tx & control observation data	4/26	AIR / ProLab
Collect Tx & control outcome survey data	5/26	AIR / ProLab
Engage control schools' implementation teams	3/26 - 5/26	eMINTS
Engage control schools in PD	8/26 - 5/27	eMINTS
<b>Dissemination</b>		
Provide train-the-trainer professional development	8/26 - 5/27	eMINTS
Clean outcome data, obtain achievement data	6/26 - 5/27	AIR / ProLab
Data analysis and evaluation report	8/25 - 6/27	AIR / ProLab
Dissemination of products and publications	5/25 - 10/27	eMINTS / ProLab / AIR

### B.3 Capacity to Bring PAL Classrooms 2.0 to Scale on a Regional Level

The University of Missouri (MU) is a comprehensive, research intensive university with over \$432 million in research funding in 2022. MU has fully staffed offices to handle fiscal, personnel, IRB and other research-related needs. A unit of MU, eMINTS, created in 2001, has received over \$43 million in grants and contracts, including two i3 grants, a SEED grant, and three EIR grants. This included a \$12 million grant serving over 15,000 students that led to a WWC endorsement of “Strong Evidence of Effectiveness.” eMINTS has a network of more than 325 affiliate PD specialists across 10 states certified to implement the eMINTS PD model; they have trained over 4,000 teachers. Another unit of MU, the Prosocial Development and Education Research Lab (ProLab), is the nation’s premier research lab focusing on prosocial education. The

lab director has had over \$52 million in external funding and currently has \$16 million, including EIR, IES, and SEED funding. The lab is staffed by faculty, postdocs, doctoral-level GRAs, and a lab coordinator, most of whom are former educators, with a range of expertise that PAL Classrooms 2.0 can draw upon. The lab director is co-founder of the Network for Educator Effectiveness, which has 302 member school districts (see [needadvantage.com](http://needadvantage.com)). American Institute for Research (AIR) is our external evaluator. We have worked effectively together on several large, complex, successful projects. **Between eMINTS, ProLab and AIR, our team has positive relationships with LEAs in Missouri, Kansas, Arkansas, Utah, Oklahoma, and Alabama.** Thus, we do not anticipate difficulty recruiting 80 schools.

B.3.i. Leadership Team. **PI** [REDACTED] (EdD, MU) is a senior program coordinator for the eMINTS National Center. She has 12 years' experience working on large federally-funded efficacy studies, overseeing implementation fidelity. Personally, she serves on the local school board in a remote rural high-poverty community. [REDACTED] will contribute 75% FTE as Project Director, monitoring the project teams, implementation, spending, and timelines.

**Co-PI** [REDACTED] (PhD, Stanford University) is Associate Dean for Research & Innovation in the College of Education and Human Development at MU. She is director of the Prosocial Development and Education Research Laboratory (ProLab). She is experienced in leading complex, multi-year research projects, having received with colleagues over \$52 million in grants from DHHS, CDC, NSF, ED and other agencies including field-based RCTs. She is a leading expert on prosocial education. She is president-elect of the SEL Special Interest Group in AERA. She has written a book, *Designing a Prosocial Classroom*, for teachers (2018; published by Norton). She is co-founder of the *Network for Educator Effectiveness* that has grown from 9 to 302 school districts. Thus, she has experience scaling and sustaining an innovation

successfully. [REDACTED] will contribute 15% FTE on the project, overseeing the prosocial education content and disseminating results.

**Co-I** [REDACTED] (PhD, MU) is a postdoctoral fellow in the ProLab. She is an experienced school counselor and worked on the early-phase *PAL Classrooms* grant as a GRA while completing her doctoral degree in educational psychology at MU. She will contribute 30% FTE on the project, overseeing human subjects compliance, refining evaluation measures and tools, coordinating data collection with schools and AIR, and disseminating results.

**Superintendent** [REDACTED], of Plato School district. As our LEA partner and a leader of rural schools, he will contribute his time as an advisor on the project providing support and answering questions for other schools as needed.

B.3.ii Implementation Team. Four eMINTS National Center staff members will serve as the implementation team. They will work in coordination with the leadership team. All are PD Implementation Managers, with training in adult learning, experience delivering PD to educators, and are former teachers. They will all provide teacher PD in multiple districts and provide site support. Each will have an additional responsibility: [REDACTED] will focus on teacher-leader PD, [REDACTED] will focus on administrator PD; [REDACTED] will focus on the implementation teams and administrator PD; [REDACTED] will focus on train-the-trainer PD, and teacher-leader PD. They will each contribute 40% FTE on the project. [REDACTED] is a fiscal manager at eMINTS. He will manage sub-award contracts, MOU's, reimbursements, budgets, and fiscal communications. He will contribute 15% FTE on the project.

[REDACTED] (PhD, MU), is Managing Director of the Network for Educator Effectiveness (NEE) which trains over 2,000 principals and superintendents in the central U.S. to evaluate and promote the growth of teachers, personally knowing many of these administrators.

██████████ will contribute 5% FTE in Y1 & 2 advising development of PD for administrators.

B.3.iii Evaluation Team. ██████████ (PhD, Loyola University) is a principal researcher at the American Institute for Research. He has expertise in causal inference methods and leads analysis for large-scale program evaluations. He is the PI and Co-PI on his own IES grants. He will lead a rigorous evaluation of the project calling upon other AIR researchers as needed. AIR has 65 years of experience evaluating education interventions.

#### **B.4 Dissemination for Further Development and Replication**

We will engage in multiple activities to broadly disseminate findings and support replication.

B.4.i Personal Outreach. From experience we have learned that a powerful dissemination approach is to invite state legislators and state board of education members to visit participating schools, and have participants attend state school board meetings to talk about the transformation of their schools resulting from the project. We will personally engage with such key stakeholders to help them understand the project.

B.4.ii Social Media. We will develop an engaging, brief video describing the program and results in partnership with a professional agency, such as KindeaLabs, to place on YouTube. The MU communications office will disseminate project results through news releases with a link to the video. Our PI and co-PI are experienced at interviewing with print journalists, presenting on radio talk shows, and being guests on blogs. We will create a project website to share results with the public and to serve as a media hub for our diverse communications efforts, linked to (1) the eMINTS website and (2) the Network for Educator Effectiveness website which has 302 member districts and over 550,000 page views annually from educators. Collectively our project team has significant social media reach including Twitter chats, Facebook groups, LinkedIn (the project PI and co-PI have 500+ educator connections each) and eMINTS Google+

which has thousands of educator members.

B.4.iii Practitioner and Research Conferences & Publications. We will present at local, national, and international conferences for practitioners (e.g., CCSSO, Powerful Learning, Learning and the Brain, Assc. of Rural Education). Our team have been keynote speakers at such conferences. We will also host webinars and virtual regional workshops for practitioners. Our project will generate rich data that will be submitted to national and international practitioner and research journals and research conferences (e.g., AERA, SREE, SciPie, EARLI). Our team have extensive experience presenting through each of these venues.

B.4.iv Implementation Team Toolkit. A final product for *PAL Classrooms 2.0* will be an interactive digital guide that leads schools through steps to evaluate the alignment of their school policies and procedures with prosocial education. The guide will also provide recommendations for refining existing practices to enhance climate. It would provide districts with tools to assess their current climate, identify areas for improvement, and implement interventions. It will be available as an Open Education Resource for any interested school.

## **B.5 Utility of Products**

Three important products of *PAL Classrooms 2.0* are (1) Implementation Team Toolkit, which would be a resource for any school seeking to improve its climate (see Section B.4). (2) Presentations and peer-reviewed publication of data on the effectiveness of the program based on student, educator and school characteristics (see Section D), which we will disseminate widely. These will describe implementation sufficiently for others to replicate. We have already produced a book that can be used by individual teachers, or groups of teachers for a book study that is intended to be self-explanatory for implementing prosocial education strategies. (3) We will develop a train-the-trainer program that can be used by any participating LEA to replicate in

additional schools *PAL Classrooms 2.0* (see Section B.1 Strategy 3). Co-PI [REDACTED] has success in building self-sustaining revenue-generating products at reasonable costs that school districts seek out. She has won an innovation award for her success in scaling the *Network for Educator Effectiveness* (see <https://neeadvantage.com>). In addition, the eMINTS National Center has a robust online learning platform for educator's personalized learning. We will build on this experience to ensure our products are useful and engaging to educators.

## C. QUALITY OF PROJECT DESIGN

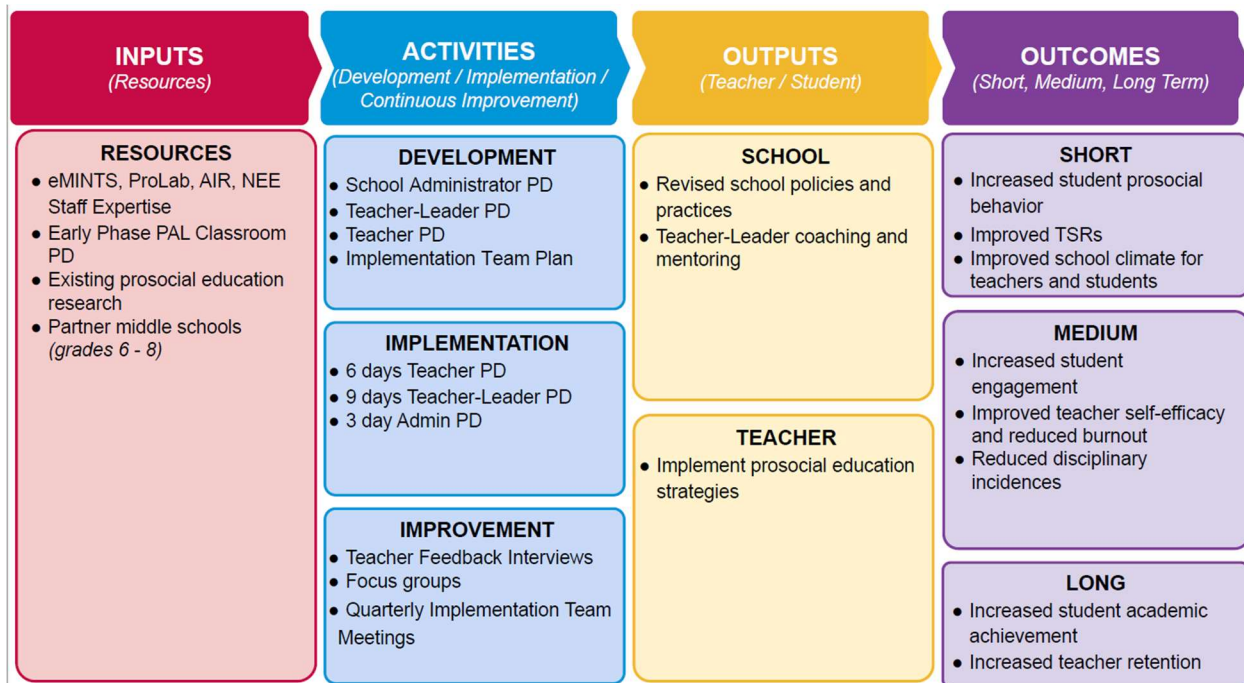
### C.1 Conceptual Framework Underlying the Proposed Research

Figure C1 provides the conceptual framework of PAL Classrooms 2.0. Research supports the linkages in the framework (see Section A.1 and Appendix G).

### C.2 Goals, Objectives, and Outcomes Are Specified and Measurable

PAL Classrooms 2.0 has three goals, with multiple objectives as presented in Table C1. Each objective is measured, with measurement details provided in Section D and Appendix J.

**Figure C1.** Logic Model for *PAL Classrooms 2.0*



**Table C1.** Goals and Objectives for PAL Classrooms 2.0

Goal 1. Implement <i>PAL Classrooms 2.0</i> with fidelity
Objective 1.1. Develop and deliver PD materials for teachers, teacher-leaders, and administrators
Objective 1.2. Establish school-based implementation teams to support project
Objective 1.3. Develop and deliver train-the-trainers program
Goal 2. Improve student outcomes
Objective 2.1. Increase students' prosocial behavior and reduce disciplinary incidents
Objective 2.2. Improve students' perceptions of TSRs and school climate
Objective 2.3. Increase students' academic engagement and achievement
Goal 3. Improve teacher outcomes
Objective 3.1. Increase teacher's use of prosocial education strategies (use of praise and induction, positive TSRs, and emotional support)
Objective 3.1. Improve teacher's well-being (greater self-efficacy, reduced burnout)
Objective 3.1. Increased teacher retention.

### C.3 *PAL Classrooms 2.0* Addresses the Needs of the Target Population

*PAL Classrooms 2.0* targets middle schools (grades 6 - 8) in the central U.S. At least 50% of participating schools will be high-poverty and/or rural schools. NCES defines high-poverty schools as those where more than 75% of the students are eligible for FRPL. We will emphasize, but not limit, recruitment in the Ozark region which has some of the hundred poorest rural counties in the U.S. Rural schools face acute shortages of qualified teachers (Ingersoll & Tran, 2023). Rural teacher stress is high because they not only report feeling unsupported by administrators, overwhelmed with extra duties, underpaid, under-appreciated and disrespected, but also feel social, cultural, and geographical isolation (Oyen & Schweinle, 2020; Rooks, 2018). Equity for rural teachers is a growing concern in SEL. Rural teachers have less opportunity for high-quality PD and limited access to SEL specialists (Nichols, et al., 2017; Zolkoski, et al.,

2021). Thus, their students are less likely to experience effective SEL. Additionally, students in high-poverty rural schools often experience a “revolving door” of underprepared teachers (Oyen & Schweinle, 2020). To connect teachers to high-quality PD and increase access to SEL specialists, *PAL Classrooms 2.0* will connect teachers to prosocial education experts on the project team and create a virtual peer learning network connecting all participants as they collaborate with others during PD to reflect on practices and share ideas and resources (Prenger et al., 2021).

#### D. PROJECT EVALUATION

AIR<sup>®</sup> will conduct an independent evaluation of *PAL Classrooms 2.0* to generate evidence of the program’s effectiveness that is eligible to receive the What Works Clearinghouse (WWC) rating *Meets WWC Standards without Reservations* (see Table D1). Research questions (RQs) 1–4 address the impact of *PAL Classrooms 2.0* on teacher and student outcomes. RQs 5–6 address implementation and sources of variation, providing immediate feedback to inform revisions and information for replication and scalability in other contexts.

**Table D1.** Research Questions and Data Sources

Research question	Alignment with project objectives	Primary data source(s)
<b>Impact evaluation (confirmatory/exploratory questions)</b>		
1. What is the impact of <i>PAL Classrooms 2.0</i> on <u>students</u> ’ (a) prosocial behavior, (b) classroom engagement, (c) perceptions of TSR, (d) perceptions and experience of school climate, (e)	2.1 Increase students’ prosocial behavior and reduce disciplinary incidents 2.2. Improve students’ perceptions and experience of TSRs and school climate	<ul style="list-style-type: none"> <li>• Observation using the CLASS-S</li> <li>• Student survey</li> <li>• District or state records</li> </ul>

Research question	Alignment with project objectives	Primary data source(s)
disciplinary incidents and (f) achievement? ( <b>Confirmatory</b> )	2.3. Increase students' academic engagement and achievement	
2. What is the impact of <i>PAL Classrooms 2.0</i> on <u>teachers</u> ' (a) use of praise, (b) use of induction, (c) positive TSRs, (d) provision of emotional support, (e) self-efficacy, (f) burnout and stress, (g) retention? ( <b>Confirmatory</b> )	3.1 Increase teacher's use of prosocial education strategies 3.2. Improve teacher's well-being 3.3. Increase teacher retention	<ul style="list-style-type: none"> <li>• Observation using the CLASS-S</li> <li>• Teacher survey</li> <li>• District or state records</li> </ul>
3. Is the impact of <i>PAL Classrooms 2.0</i> on student outcomes mediated by impacts on teachers' practices, well-being, and retention? ( <b>Exploratory</b> )	Same as RQs 1–2	All data sources for RQs 1–2
4. Does the impact of <i>PAL Classrooms 2.0</i> on student outcomes vary across school, teacher and classroom, and student characteristics? ( <b>Exploratory</b> )	Same as RQs 1–2	All data sources for RQs 1–2
<b>Implementation evaluation</b>		
5. To what extent are the key components of <i>PAL Classrooms 2.0</i> (PD, coaching, and collaborative activities) implemented with fidelity?	1.1. Develop and deliver PD materials for teachers, teacher-leaders, and administrators	<ul style="list-style-type: none"> <li>• Program records</li> <li>• Focus groups,</li> <li>• Interviews</li> </ul>

Research question	Alignment with project objectives	Primary data source(s)
	1.2. Establish school-based implementation teams to support project 1.3. Develop and deliver train-the-trainers program	<ul style="list-style-type: none"> <li>Study-generated participant feedback survey</li> </ul>
6. How does implementation of key components of <i>PAL Classrooms 2.0</i> vary across school, teacher and classroom characteristics? What factors influence implementation?	Same as RQs 1–2	

Note. CLASS-S = Classroom Assessment Scoring System-Secondary; RQs = research questions.

## D.1 Evidence to Meet WWC Standards Without Reservations

D.1.i Impact Evaluation. To address RQ1, AIR will measure three groups of student outcomes at the beginning and the end of the academic year. Students will rate their classmates' **prosocial behavior** using the 10-item Prosocial Behavior Scale (Bergin et al., 2013), self-report their level of **engagement** across three dimensions (cognitive, affective, and behavioral) using the Classroom Engagement Inventory (Wang et al., 2014), quality of TSRs using the student version of the Student Teacher Relationship Scale (Pianta, 2001), and their perceptions of **school and classroom climate outcome**, using the ED School Climate Surveys student form (Wang et al., 2016). AIR will collect local and/or state administrative records (depending on availability) of **disciplinary incidents** (office referrals and suspensions). AIR will use mathematics, science, and ELA scores from each grade's end-of-year state assessment to measure **academic achievement**. Scaled scores will be standardized within grade, subject, and state to ensure scale comparability. Standardized state assessments are considered valid and reliable by WWC

standards.

To address RQ2, AIR will measure three groups of teacher outcomes at the beginning and the end of the academic year. For the **prosocial education strategies**, AIR will collect video-based classroom observations of two lesson(s) in fall and spring of Year 3 and code them using the CLASS-S instrument modified to add prosocial strategies (i.e., *praise*, *induction*). Video-based observations using the CLASS are comparable to live observations (Curley et al., 2106). Additionally, teachers will self-report use of praise and induction using a study-developed survey and quality of TSRs using the Student Teacher Relationship Scale (Pianta, 2001). They will also self-report **teacher well-being**, including *self-efficacy* using the Teacher Sense of Self Efficacy Scale (Tschannen-Moran & Hoy, 2001), *burnout* using the Maslach Burnout Inventory (Maslach & Jackson, 1981), and *stress and coping* using the Eddy Stress and Coping Scale (Eddy et al., 2019). For the **teacher retention outcome**, AIR will collect retention data from district and state administrative records.

In Year 2, AIR will pilot test outcome and implementation measures and indicators with schools participating in the program. These data will inform the measures and methods used at scale during the RCT. See Appendix J1 for additional measurement details.

Experimental Design. The impact evaluation on teacher and student outcomes will use a school-level blocked randomized control trial (RCT) design during project Year 3 & 4. Schools are the appropriate units of random assignment for this evaluation because collaboration among teachers in the same building is encouraged by *PAL Classrooms 2.0*. A school-level design mitigates contamination effects across conditions, which could attenuate results. Blocks will be defined by state, district (or geographic regions), and grades served to ensure balance across regions and grades. AIR will randomly assign 80 middle schools to treatment or control group. All teachers

in schools assigned to *PAL Classrooms 2.0*, including core and noncore subjects, will participate in the program. The wait-list control group will conduct business-as-usual in Year 3 and participate in *PAL Classrooms 2.0* in Year 4.

This impact evaluation is likely to be eligible for the *Meets WWC Standards without Reservations* rating due to: (1) low cluster-level attrition, (2) low individual-level attrition, and (3) low risk of bias due to joiners. Based on prior experience with school-level RCTs, including the early-phase *PAL Classrooms*, we expect school-level attrition to be below 10% and minimal risk of bias due to change (joining or leaving) at the student- or teacher-level. Assuming 5% school-level attrition, we still anticipate a well powered study of 0.14 for student outcomes and 0.25 for teacher outcomes. There is especially low risk of bias due to students joining or leaving study schools, because assignment is school-level and unit of measurement is the student; it is unlikely that a teacher PD would plausibly affect student mobility decisions made by parents and families (*WWC Procedures and Standards Handbook*, 2022, p. 46).

The WWC routinely assumes high risk of bias due to teachers joining or leaving the study schools. To mitigate this risk, analyses will estimate intent-to-treat effects among students and teachers in the study schools at the time of random assignment (i.e., we will exclude joiners as defined by WWC), collecting outcome data on all students and teachers originally assigned to study conditions, regardless of their continued participation, thus keeping the initial design intact. Within each participating school, the evaluation will focus on all Grades 6–8 teachers and their students. We will collect rosters of grades 6-8 students at the start of AY25-26 to identify students in the intent-to-treat sample. Additionally, analyses will statistically adjust for pre-intervention measures of outcomes and other required covariates specified by the WWC. If any outcome measures do not meet WWC attrition thresholds, AIR will assess and demonstrate the

baseline equivalence of the two groups on required covariates in addition to statistical adjustment. Achievement outcomes are assumed to have low attrition due to missing data, increasing the likelihood this study will produce policy-relevant evidence that will be rated as *Meets WWC Standards without Reservations*.

We will evaluate program impacts on teacher and student outcomes using two-level models with students and teachers nested in schools and schools in randomization blocks, adjusting for student, teacher, classroom, school characteristics, and randomization block indicators. Confirmatory impact models (for RQs 1–2) will adjust for pre-intervention measures of student and teacher outcomes. Our team will expand the confirmatory impact models to address sources of impact mediation (RQ 3) and moderation (RQ 4). See Appendix J1 for details.

Sample and Statistical Power. To the extent that school size and average achievement (based on the prior year’s middle-grade test scores) vary substantially within district/region, we will incorporate these factors into the blocking process to create more homogeneous blocks. Once districts have signed on for the study, the project team will work with the district to recruit schools that serve students in Grades 6–8 with emphasis on high-poverty and/or rural schools. School participation will be voluntary.

The evaluation has sufficient power to detect meaningful confirmatory effects on policy-relevant student and teacher outcomes. A power analysis estimated that the minimum detectable effect size (MDES) for student outcomes is 0.14 using a two-level (students in schools) model. This is based on a highly conservative “worst-case” estimate of just 4 teachers and 80 students per school (a total of 320 teachers and 6,400 students, whereas we expect to serve four times as many teachers and students). This estimated MDES is comparable to results from research syntheses of middle school interventions using standardized achievement measures, even

accounting for 5% school-level attrition (Hill et al., 2008). Further, meta-analyses (e.g., Piquero et al., 2016; Uttal et al., 2013) indicate that students' social and behavioral outcomes may be more responsive to intervention than achievement outcomes. The MDES for teacher outcomes is 0.25, smaller than recent meta-analytic estimates of program effects on teacher practices, which tend to be around 0.28 to 0.56 standard deviations (Garrett et al., 2019). The statistical power for the impact evaluation is robust to attrition or recruitment limits; with a final analytic sample size as small as 60 schools (75% of the target sample), the estimated MDES for student outcomes is 0.16, and the estimated MDES for teacher outcomes is 0.28. See Appendix J1 for details about the power analysis and statistical models for the confirmatory impact analyses.

D.1.ii Implementation Evaluation. AIR will use a descriptive phenomenological approach to understand how teachers, teacher-leaders, and administrators implement the program and obtain their perspectives on the program and its potential for change. Quantitative indicators of implementation will include professional development attendance records (including participation in synchronous, asynchronous, and small-group activities), and participation in program-wide implementation meetings. AIR will conduct up to three focus groups with teachers, teacher-leaders, and administrators regarding (a) experiences with the training and supports, (b) experiences implementing prosocial strategies, (c) barriers to and facilitators of implementation, and (d) working as a school-wide team. AIR will also conduct interviews with a purposive sample of up to 20 teachers, up to 10 teacher-leaders, and up to 10 administrators in schools implementing *PAL Classrooms 2.0* in Year 3 (RCT). These interviews will focus on individuals' experiences with the program over the academic year. This implementation data will provide immediate feedback for program improvement as well as suggestions for replication and scaling in additional schools.

D.1.iii Cost Analysis for Feasibility of Replication of PAL Classrooms 2.0. AIR will conduct a cost analysis based on the Resource Cost Model (Levin & McEwan, 2002), which describes the costs of a program’s ingredients (e.g., time, labor, and materials). We will identify the costs of implementing each component of the program, distinguish start-up costs from ongoing costs, and convert total costs to per-student costs. We will then combine the costs and effect size estimates to describe the effect of *PAL Classrooms 2.0* on a per-dollar basis.

## **D.2 Guidance on Effective Strategies Suitable for Replication or Testing**

The proposed evaluation will generate useful guidance for implementing and scaling *PAL Classrooms 2.0* in other settings in four ways:

1. Involving a large, diverse sample across diverse state and local contexts that reflect variation in school size and student-body composition, emphasizing high-poverty and rural schools but including suburban or urban settings.
2. Analyzing rich implementation data from multiple sources that will capture suggestions for programmatic improvement for implementation in broader contexts.
3. Conducting a cost analysis to provide information about the program’s cost effectiveness.
4. Conducting a differential impact analysis (RQ 4) that examines whether effects of *PAL Classrooms 2.0* are moderated by the characteristics of students, teachers/classrooms, and schools (see Table D2). These analyses will build on the analytic models for RQs 1–2 by adding interaction terms (see Appendix J1 for details on the modeling strategies). Results from these exploratory analyses will inform future efforts to scale *PAL Classrooms 2.0*, as they may identify settings and populations where the program is more or less effective.

5. Using open science principles throughout the evaluation that provide clear, detailed descriptions of the intended evaluation and implementation plan, as well as documenting any changes. AIR will register the study design, analysis plan, confirmatory and exploratory RQs, measures, and methods for measuring implementation fidelity with the Registry of Efficacy and Effectiveness Studies. Any changes to the evaluation plan or program implementation will be thoroughly documented for future replication activities. Study reports will be made publicly available to maximize impact.

**Table D2.** Potential Moderators: Student, Teacher/Classroom, and School Characteristics

Student characteristics	Teacher/classroom characteristics	School/district characteristics
<ul style="list-style-type: none"> <li>• Eligibility for F/RPL</li> <li>• Grade level</li> <li>• Prior academic achievement</li> </ul>	<ul style="list-style-type: none"> <li>• Years of teaching experience</li> <li>• Class size</li> <li>• Classroom average of prior academic achievement</li> <li>• Implementation fidelity</li> </ul>	<ul style="list-style-type: none"> <li>• State</li> <li>• Locale (urban, suburban, rural, remote rural)</li> <li>• School size</li> <li>• School average of prior math achievement</li> <li>• Percentage of students of color</li> <li>• Percentage of students eligible for F/RPL</li> </ul>

Note. F/RPL is free or reduced price lunch

### D.3 Articulation of Components, Mediators, Outcomes, and Measurable Threshold

The design of the proposed evaluation is informed by clearly articulated key components, mediators, and outcomes of *PAL Classrooms 2.0* as depicted in the logic model (see Figure C1). Key components include PD and mentoring support for educators, designed to increase use of prosocial education strategies, which increases student engagement, which in turn, **mediates** the

impact on students' achievement. The evaluation will include mediation analyses (RQ 3) and moderation analyses (RQ 4) to explore the relationships among implementation context, changes in teacher and student behavior and achievement outcomes. Key components of the implementation evaluation (see Section D1) have measurable thresholds: participation in professional development, completion of *PAL Classrooms 2.0* book study for teachers, and creation of a prosocial school plan by the implementation team. Teacher use of prosocial strategies also have measurable thresholds (see Table D1). In addition, a draft fidelity of implementation matrix and threshold defining adequate implementation at the indicator, component, and program levels are included in Appendix J1.

#### **D.4 Procedures for Ensuring Feedback and Periodic Assessment of Progress**

Throughout the 5-year project, the AIR evaluation team will meet with the leadership and implementation teams on a bi-weekly basis to report and discuss findings from the implementation evaluation (see Section D.1.ii). During the pilot phase AIR will provide feedback from program participants to the leadership team. They will discuss psychometric summaries of measure performance and possible changes. During the efficacy phase they will discuss implementation and impact data. AIR will provide biannual evidence briefs and presentations of interim findings, and contribute to annual evaluation findings and progress reports. This will support program optimization for implementation in broader contexts.