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Improving School Connectedness in Middle and High Schools

A. Significance

In this project, which meets **Absolute Priorities 1 and 4** and aligns with **Competitive Preference Priority 2**, we aim to develop, pilot, field test, and examine the impact of an integrated set of school and classroom interventions and actions, aligned professional development materials, and formative measures that middle and high schools serving high-need populations can use to increase their students' school connectedness. Research shows, and we aim to further validate, that improvement in school connectedness will lead to gains in student engagement and reductions in chronic absenteeism. At a time when schools face historically high levels of absenteeism and student disengagement (NCES, 2024), it is essential that schools have effective and implementable means to address those issues.

A.1. Urgent Challenges with Student Disengagement

Post pandemic, our nation's schools have seen dramatic increases in chronic absenteeism—students missing ten percent or more of the school year. Chronic absenteeism rates doubled from 2019 to 2022, resulting in two-thirds of students attending schools in which twenty percent or more of the students were chronically absent ([redacted], 2023). Chronic absenteeism at these levels impacts not only the absent students, but all students in the school, as it slows instructional pace and undermines social cohesion. These changes, in turn, can lead to an increase in problematic student behaviors (Gottfried, 2014). Chronic absenteeism is the most widespread and noticeable indication that the nation's schools are currently experiencing a significant rise in student disengagement (NCES, 2024). Given the longstanding and continuing relationship between educational attainment and individual and social prosperity and well-being, student detachment from schooling at current levels is deeply problematic (Baum et al, 2013; Center on Society and Health, 2014).

One of the challenges of responding to increased levels of student disengagement from schooling is that the sheer number of students currently exhibiting these behaviors, through chronic absenteeism or behavioral challenges, for example, can overwhelm the capacity of a

school's existing student support systems. Student support efforts like Multi-Tiered Support Systems (MTSS), positive behavioral interventions and supports (PBIS) teams, or well-being teams are scaled to provide customized support to relatively small subsets of students who need extra help with academic, social-emotional, well-being, or life challenges. However, significant numbers of middle and high schools now find themselves with 150 or more chronically absent students—well beyond what most existing student support teams can effectively address ([redacted], 2024).

The scale and scope of the post-pandemic student disengagement challenge calls for more universal, school-wide efforts, which can proactively engage students in schooling (Kurtz et al., 2021; Montero-Sieburth & Turcatti 2022). When a middle or high school has 150 or more chronically absent students, they rarely have—nor can they readily obtain—the capacity to solve each student's challenge. Schools need a set of implementable and customizable evidence-based actions and interventions, with associated professional learning and improvement measures, to help make school a place all students want to be every day.

A.2. School Connectedness

Fortunately, a means to increase student's educational motivation and classroom engagement exists. Just over twenty years ago, a group of leading education and health sector researchers, under the auspices of the U.S. Centers for Disease Control and Prevention's Adolescent and School Health division, gathered at the University of Minnesota to synthesize research on student engagement, school climate, children's mental health, peer bonding, and student-teacher relationships. They concluded that these multiple bodies of research all supported the same conclusion: "Students are more likely to succeed when they feel connected to school." This led the group to develop the Wingspread Declaration: A National Strategy for Improving School Connectedness. The Declaration begins, "These insights and strategies are based on empirical evidence and should form the basis for creating school and classroom environments where all students, independent of academic capacity, are engaged and feel a part of the educational endeavor," (Achrekar et al., 2004).

In the Declaration, the conference attendees lay out a conceptual model detailing how school connectedness affects important school outcomes. They state that, "Strong scientific evidence demonstrates that increased student connection to school promotes: educational motivation, classroom engagement, and improved school attendance." They add that evidence indicates that improvements in these factors then lead to gains in academic achievement, school completion rates, and declines in fighting, bullying, or vandalism (Achrekar et al., 2004). Moreover, this is true across racial, ethnic, and income groups.

Research over the next decade further validated and extended the Wingspread conceptual model, demonstrating that school connectedness is also related to better mental health (Hertz, et al., 2021; Malika, et al., 2021; Raniti et al., 2022), including during the pandemic, identifying critical components of school connectedness, and beginning to provide schools with some general strategies to improve it ([redacted], 2023; CDC, 2022; McKellar & Wang, 2022; Wilkins et al., 2023). In 2009, the CDC published *School Connectedness: Strategies for Increasing Protective Factors Among Youth* (U.S. Department of Health and Human Services, 2009) where it applied an updated synthesis of school connectedness research to further identify its key components and create an educator's guide to the importance of school connectedness and how to improve it. This was one of the first attempts to describe school connectedness to educators and, most notably, break down the concept of school connectedness into more actionable components. The CDC guide told educators that students are connected to school when:

1. They have **supportive relationships with adults in the school** and believe adults in school cared about them as people and about their academic success (Quin, 2017; Roorda et al., 2017; Vandenbroucke et al., 2018);
2. They belong to a **positive peer group (**Gowing; 2019; Gristy; 2012; Jørgensen; 2016; Yuen et al., 2012);
3. They have a commitment to education/schooling which is strengthened through engagement in **meaningful and pro-social learning activities** (Brown & Evens, 2002; Liu et al, 2021; Preston & Rew, 2022); and

4. The **school environment is healthy, safe, and welcoming**, making students feel accepted in school as they are ([redacted], 2023; McKellar & Wang; 2023; McNeely et al., 2002; Wilkins et al., 2023a).

While the CDC guide laid the foundations for educators to operationalize school connectedness, the suggestions provided to increase school connectedness in schools were at a general level, in many ways paralleling the broader school improvement guidance of the era. This generality and the CDC's lack of strong dissemination channels to school leaders and educators likely account for the limited attention paid by schools to the concept of school connectedness prior to the pandemic. That said, many schools have made and continue to make efforts to increase key components of school connectedness by improving student-teacher and student-to-student relationships, increasing pro-social activities, or creating positive school climates. Often, this has occurred as part of other school improvement efforts, such as the increased attention paid to students social-emotional outcomes in the middle 2010's (Allen et al., 2018; Korpershoek et al., 2020). Over the past decade, however, measures of school connectedness among youth and adolescents have shown that these efforts have either not been systematic or successful (Chapman et al., 2013; Raniti et al., 2022). In many cases, less than half of students are reporting one dimension of school connectedness, let alone all four components (Eklund et al., 2022; Rose et al., 2024). Furthermore, the lowest levels of school connectedness have been found among historically underserved populations (Wilkins et al., 2023b). Thus, substantial room exists for improving a school's ability to increase their students' school connectedness. Moreover, the evidence-based conceptual model advanced in the Wingspread Declaration and later extended and refined by work supported by the CDC, argues that the impacts associated with school connectedness will be most fully realized when schools have the tools needed to effectively implement strategies to address and measure all the key components of school connectedness.

Very recently, as schools and districts have become aware of the need for more proactive strategies to address student post-pandemic disengagement from schooling, school

connectedness has started to find its way into the educational improvement dialogue. This includes a recent special feature of Education Week and an EdResearch for Action Brief for school leaders from the Annenberg Institute at Brown University and Results for America, which synthesizes the current evidence base on school connectedness and how to improve each of its four components ([redacted] et al., 2024).

What is needed for school connectedness to become standard practice in schools with large numbers of disengaged and chronically absent students, and what this project aims to provide is: (1) collections of evidence-based interventions and actions customizable to local circumstances, (2) aligned professional learning materials, and (3) baseline and improvement measures schools can use to implement all of the key components of school connectedness together as a collective whole. The ultimate goal is to enable schools to use school connectedness, as defined by the Wingspread Declaration and the CDC, as an effective, evidence-based, universal prevention strategy for student disengagement and chronic absenteeism.

A.3. Field-Initiated Comprehensive School Connectedness Intervention Package

To accomplish this, the Center for Social Organization of Schools (CSOS)—an applied research, development and dissemination center at the School of Education, Johns Hopkins University—will collaborate with the Center for Excellence in Leadership for Learning (CELL) at Indianapolis University and its networks of urban, rural, and suburban schools, to partner with middle and high schools with significant levels of chronic absenteeism and student disengagement throughout the state of Indiana, to develop, pilot, field test, and through a third-party evaluation led by NORC at the University of Chicago, to demonstrate the impact of:

1. A set of evidence-based and practice-validated actions schools can take to increase each of the key components of school connectedness—supportive school staff-student relationships, positive peer groups, student participation in learning activities they find meaningful with pro-social components, and safe and healthy school environments which promote belonging by making students feel welcome in school as they are;
2. Practical measures of the four components of school connectedness that schools can use to

establish baselines for each component and then progress monitor improvements on a regular basis;

3. Professional learning materials available in or adoptable to a variety of media, such as electronic, video, and in-person workshops, professional learning communities (PLCs) and peer-to-peer learning to support school and district staff understanding of school connectedness, its core components, effective strategies to improve them, and measurement methods they can use to track school connectedness and improvement effort effectiveness over time.

Prior work on school improvement has shown that all these elements—evidence-based interventions, professional learning, and measurement tools—are needed to implement and sustain interventions or improvement strategies (Allen et al., 2018; Chapman, 2013; Eklund et al., 2022). Thus, this project aims to provide the necessary infrastructure to move school connectedness from a powerful concept to an implementable school practice. It seeks to do so at a time when schools are in desperate need of proactive strategies to prevent student disengagement and chronic absenteeism in the wake of the pandemic. Operationalizing the evidence-based theory of action, detailed in the Wingspread Declaration's: National Strategy for Improving School Connectedness, subsequently championed by the CDC, and improved by continuing research has the strong potential to achieve this. Our goal is to provide schools with a practical and implementable means of increasing their students' connection to school and, through it, their engagement with schooling and attendance at a time when it is greatly needed.

B. Quality of the Project Design

B.1. Conceptual Framework

The conceptual framework guiding the proposed study draws from *The Wingspread Declaration: A National Strategy for Improving School Connectedness,* CDC's *School Connectedness: Strategies for Increasing Protective Factors Among Youth,* and subsequent research identifying the interconnectedness of school connectedness, student well-being, and academic success. In 2003, the CDC's Division of Adolescent and School Health and the

Johnson Foundation brought together key researchers and representatives from the education and health sectors to examine school connectedness and its effects on students' health and educational outcomes. As a result of extensive reviews of research and in-depth conversations, the interdisciplinary group designed, *The Wingspread Declaration: A National Strategy for Improving School Connectedness,* where in they defined school connectedness as "the belief by students that adults in the school care about their learning as well as about them as individuals," and provided broad strategies for schools to increase it. Strategies emphasized the importance of maintaining high standards for students, applying fair, consistent, and co-designed disciplinary policies, building trusting student-to-adult and student-to-student relationships, and ensuring that every student feels close to at least one supportive adult at school.

In 2009, building on The Wingspread Declaration, a synthesis of school connectedness, and recommendations by expert researchers, public health practitioners, and educators, CDC published *School Connectedness: Strategies for Increasing Protective Factors Among Youth.* Based on increased evidence that students' feelings of being connected were influenced by peer-to-peer relationships, the publication expanded the definition of school connectedness to include peer influence. Authors identified four factors that contribute to increasing school connectedness: adult support, a supportive peer group, involvement in school activities, and a school environment that fosters belonging among all students.

The relationships students build at school matter. Students' perceptions about themselves and their abilities are intertwined with how they perceive adults in their lives and care about their well-being and academic success. **Students who feel supported by adults in school** are more likely to attend school regularly and be engaged in their learning ([redacted] et al, 2024; Blum et al., 2022; CDC, 2009; Cohen, Miller, Stonehill & Geddes, 2000; Resnick et al., 1997; Quin, 2017; Roorda et al., 2017; Vandenbroucke et al., 2018). **Positive peer-to-peer relationships** are also an important factor. Students' health and academic outcomes are influenced by the characteristics of their peers, such as how socially engaged they are in school activities, if they complete homework assignments, and their commitment to helping others (Furlong et al, 2003;

Gowing; 2019; Gristy; 2012; Jørgensen; 2016; Yuan et al., 2012). Conversely, when students' peer groups engage in socially irresponsible behaviors such as bullying, students sense of connectedness to school, achievement levels, and health behaviors can be significantly negatively impacted (CDC, 2009; Furlong et al., 2003; Pellegrini & Bartini, 2000). Students who are personally invested in school believe that education is important for them to reach their life goals, and they act on those beliefs. In addition to their **commitment to education, they actively seek out involvement in school activities** (Brown & Evens, 2002; Liu et al, 2021; Preston & Rew, 2022). Students engaged in and involved in their learning exhibit traits such as persistence, effort, and sustained attention to task (CDC, 2009) and are more likely to have an increased sense of school connectedness (Libbey, 2004). **Healthy and positive school environments** are characterized by welcoming, safe, and supportive school interactions that create a sense of belonging, opportunities to participate in school activities, and the ability to co-create shared norms, goals and values ([redacted], 2023; McKaller & Wang; 2023; McNeely et al., 2002; Wilkins et al., 2023a). While each of these are a key factor in school connectedness, increasingly, research suggests that it is when student's experience all four that school connectedness and its full impact on increasing student engagement and attendance is achieved ([redacted] et al., 2024). School connectedness is important in elementary, middle, and high school, as well as in institutions of higher education. In this project we focus on operationalizing and validating school connectedness as a universal prevention strategy for middle and high schools because of the large number of disengaged students they faced post-pandemic, and the necessity to keep middle and high school students engaged with schooling and to maintain and increase high school graduation and post-secondary attainment rates.

B.2. Measurable goals, objectives, and outcomes

The goal of the Increasing School Connectedness in Middle and High Schools project is to provide middle and high schools, especially those experiencing a high percentages of student disengagement, with the necessary infrastructure—evidence-informed interventions, professional learning, and measurement tools—to move school connectedness from a powerful concept to an

effective school practice to improve student engagement and decrease chronic absenteeism.

To enable this, the project we will develop is an integrated package of strategies and actions, their associated professional learnings, and practical measures for each of the four primary components of school connectedness: a) adult-student relationships b) positive peer relations, c) meaningful prosocial school activities; and d) safe and healthy school environments which build belonging and increase student connectedness. These activities will be organized around the following ***4 key objectives*** in 6 phases:

Objective 1. Design and co-develop with pilot schools, evidence-informed interventions, measurements, and professional development materials for each of the four key components of school connectedness to ensure they work for intended audiences. For each of the four components of school connectedness, the project will develop a collection of evidence and practice informed actions that school staff can employ across the school year, at the school, grade, and classroom levels. It will not be a prescriptive set lessons or measures but rather a playbook showing multiple ways schools can measure and increase the number of students with each component of school connectedness and create action plans to enable all students to achieve all four components. Professional learning materials will both introduce school staff to the idea and importance of school connectedness, as well provide guidance on how to implement the highlighted actions and measures and will be created in multiple modalities to enable wider use (e.g., trainer's guides and online mini-courses). The CSOS-JHU materials development team will create initial versions of the interventions, measures, and professional learning materials based on the existing research literature and then, during the pilot phase, work with our local partner CELL in Indiana to engage with 3 to 4 middle and high schools as co-developers, to create a set of evidence-informed and practice-validated materials to further improve through field tests **(phases 1 & 2).**

Objective 2. Iterate and improve the interventions, measures, and professional development materials through field tests and insights gained through formative evaluations to ensure they work across multiple schools. Working with our local partner CELL, we will recruit 8 to 10

schools to participate in two years of field testing, and make certain that this includes urban, suburban, and rural schools serving high needs populations with high rates of chronic absenteeism. The CSOS-JHU measurement and formative evaluation team and CELL will engage in structured data collection three times a year to gather feedback on the use and impact of the field test materials. The JHU development team will work closely with the evaluation team to test, revise, and refine project materials using Design Based Research (DBR) methods (Collin, 1990; Brown, 1992). The aim of DBR is to improve practice while increasing a general body of theory and knowledge. DBR methods will enable us to examine the context, iteratively design and test the program materials and make meaningful changes toward continuous improvement.

Objective 3. Engage a third-party evaluator (NORC) to conduct a randomized impact study of the school connectedness interventions, measures, and professional learning materials developed through the project during the 2028-2029 school year to examine their effectiveness. NORC will conduct an evaluation to identify the effect of the intervention on short- and medium-term student outcomes, measure **implementation fidelity** overall and for each of the intervention's **key components and** test the extent to which implementation fidelity **mediates** any program impacts on student outcomes **(Phase 5).**

Objective 4. Based on the learning from the pilot, field tests, and impact study prepare a final version of the interventions, measures, and professional learning materials for each component of school connectedness for wider dissemination **(Phase 6).**

Measurable project goals, objectives, and outcomes are detailed in Table 1.

B.3. Project will meet the needs of target population and other needs

The Increasing *School Connectedness in Middle and High Schools* project will be designed to support schools with: high numbers of students who are chronically absent; disconnected youth; students in high poverty communities; and racially and ethnically diverse students. Importantly, research shows other often marginalized students benefit from school connectedness, including students experiencing mental health disorders (e.g., Anxiety) (Hertz, et

Table 1. Measurable Goals, Objectives, Sub-Objectives, and Outcomes

Project Goal: To develop, implement, test, and disseminate an integrated package of strategies and actions, their associated professional learnings, and practical measures for improvement for each of the four primary components of school connectedness.	
Objective 1. Design and pilot interventions for four SC components, measurements and professional development materials. January 2025-June 2026	
Sub-Objectives	**Outcomes**
1.1 Design interventions for 4 components of SC	1. Four SC intervention playbooks created (one per component) 2. One PD guide for Trainer of Teachers (TOT) & one PD teacher handbook and on-line min-course 3. School Connectedness measures school can use adapted for each component (Modified SC quantitative scales, focus group protocol) 4. Fidelity of implementation instrument adapted for SC activities (quant & qual items) 5. Recruitment materials produced 6. Site approval letters submitted by 3-4 school sites. 7. PD survey data from 3-4 schools 10. Formative outcomes and FOI data analyses for 3-4 schools 11. Formative evaluation reports written and distributed, areas of improvement identified
1.2 Design PD content and delivery	
1.3 Identify and adapt measures for 4 components	
1.4 Identify and recruit 3-4 schools for pilot testing	
1.5 Engage in co-design process with 3-4 schools	
1.6 Provide PD, intervention, materials to 3-4 schools	
1.7 Gather 2-3 rounds FOI & outcomes data	
1.8 Analyze data gathered from pilot schools	
1.9 Identify areas of improvement based on Pilot feedback and formative evaluation	
Objective 2. Conduct a field test to continue to iterate and improve to work across multiple school environments. January 2026-June 2028	
2.1 Identify and recruit 8-10 new schools for field test	1. Four revised SC intervention playbooks created (one per component) based on pilot findings 2. Revised PD TOT guide & PD teacher handbook and mini-course based on pilot findings 3. Site approval letters from 8-10 school sites. 4. PD survey data from 8-10 schools 5. Field test outcomes data and FOI analyses for 8-10 schools 6. Yearly field test reports written and distributed (2027 & 2028) and areas for improvement identified 7. SC Interventions playbooks, PD materials, and measures revised based on field test findings
2.2 Revise interventions, PD, and measures based on Pilot Test	
2.3 Provide PD and interventions to 8-10 schools	
2.4 Gather 2-3 rounds of FOI and outcomes data	
2.5 Analyze data gathered from field test schools	
2.6 Identiy areaa of improvement based on field test feedback and formative evaluation and revise materials based on it	
2.7 Identify & recruit 60 new schools for RCT	
Objective 3. Conduct a one-year randomized impact study of the school connectedness interventions, measures, and professional learning materials. January 2028-December 2029	
3.1 Recruit and Randomize Schools for Impact Study RCT	1. Site approval letters submitted by 60 school sites. 2. Randomization conducted 3. Implementing schools provide SC intervention, PD, and measurement materials 4. Survey, FOI, record data & qual data collected from 60 schools
3.2 Provide SC PD, intervention materials and materials to implementing schools	
3.3 Collect implementation and impact data	
Objective 4. Prepare final version of strategies, actions and measures for each component of SC for wider dissemination. January 2028-December 2029	
4.1 Analyze data gathered from RCT schools	1. RCT Study outcomes data and FOI analyses for 60 schools 2. Two RCT reports written and disseminated - technical report and policy briefing report 3. One Revised universal SC toolbox materials for wide-spread use: Intervention playbooks, PD guide, and PD teacher handbook and mini course and measures schools can use to establish baseline and monitor progress for each of SC four components.
4.2 Write reports on RCT with recommendations	
4.3 Create final intervention strategies, PD content, and materials for dissemination	

al., 2021; Malika, et al., 2021; Raniti et al., 2022), housing insecurity (Marçal, & Maguire-Jack, 2022), and students who self-identify as LBGTQI (CDC, 2022). Research on school connectedness shows that although connectedness benefits all students, all students are not equally connected to school ([redacted] et al., 2024; Nasir et al., 2011; Sosu et al., 2021). School connectedness is lower for ethnically and racially diverse students and students attending schools in high poverty communities (CDC, 2022; Lawrence et al., 2019; Sosu, 2021; Stempel et al.,

2017). Students from under-resourced communities and families with lower socioeconomic statuses (SES) and systemically lower access to employment opportunities—target populations in this study—are more likely to face social and financial stressors such as neighborhood violence and exposure to substance abuse, which often result in students feeling disconnected and chronically absent from school (CDC, 2022; Nasir et al., 2011; Sosu et al., 2021).

Students with minoritized ethnic identities (i.e., Black, Hispanic, Latine) and under-resourced students also benefit from protective factors, such as social support (Malika, et al., 2021), which is a crucial feature of the interventions in the *Increasing School Connectedness in Middle and High Schools* project. Interventions will provide adults in schools with strategies to develop supportive relationships with students, provide and support educators and school leaders with using specific actions to increase opportunities for students to build positive peer groups and engage in meaningful and pro-social learning activities that ameliorate the impacts of trauma. The *Increasing School Connectedness* project will also provide schools with evidence-informed, and practice-validated school wide and classroom level interventions to improve the physical and psychosocial school environment to make students feel accepted in school as they are and foster a sense of student belonging. In collaboration with our local partner CELL, who has longstanding relationships with 125 schools across the state of Indiana, CSOS-JHU will recruit schools with rates of chronic absenteeism of twenty percent or more whose populations are at least forty percent historically underserved students or at least forty percent students who receive free- or reduced-price lunch for the pilot, field test, and impact study.

Co-creating the interventions with our pilot schools is central to our strategy to ensure all interventions are beneficial for chronically absent students, disconnected youth, students in high poverty communities, and racially and ethnically diverse students. With the support of our local partner CELL we will work closely with three to four middle and high schools in Indiana serving high needs student populations during the pilot year, to select and, as needed, modify evidence-informed interventions for each of the four key components of school connectedness, so they are appropriate and effective for the school's student population and context.

C. Quality of Project Personnel

The PI, Co-PI's, and key personnel for this project, are researchers and educators (former teachers and school leaders) who work for the Center for Social Organization of School (CSOS) an applied research, development, and dissemination center at the School of Education, Johns Hopkins University. CSOS focuses on identifying and translating evidence-based improvement strategies into validated actions and tools, supported by professional learning, which schools can use to improve student outcomes. It also focuses its improvement efforts on historically underserved student populations and high-poverty communities. Thus, its team of researchers and educators are diverse in experience and background, having taught or led schools serving diverse, high poverty student populations or experienced life as a member of diverse racial and ethnic groups, as an English Language Learner, or as a student with disabilities.

[redacted], will be the PI for the project and serve as project director, coordinating the work of the CSOS materials development and measurement and formative evaluation groups, local partners, managing the budget, and interfacing with the US Department of Education. He is a Co-Director of CSOS, Director of the Everyone Graduates Center and a Distinguished Professor at the School of Education Johns Hopkins University. He has been an investigator on 10 federally funded grants; these include a large-scale I3 randomized validation study of whole-school improvement combined with enhanced student supports guided by an early warning system and an EIR Mid-Phase grant focused on improving and validating a series of middle grades learning experiences designed to build student's self-directed learning and ability to make a successful transition to high school. He is a national leader in the development of early warning systems, reducing chronic absenteeism, instructional interventions, and increasing high school graduation and college readiness rates.

[redacted] will be a Co-PI for the project and will lead the materials development group and the qualitative research aspects of the formative evaluations. She is an Assistant Research Scientist at the CSOS, a former PK-12 educator, and an interdisciplinary scholar of organizational studies, educational policy, secondary and higher education, and gender and

women's studies. Her qualitative research broadly examines how educational and institutional policies and practices shape students' sense of belonging, and academic outcomes in PK–20. Her most recent work examined interpersonal strategies AmeriCorps members working to provide student supports in middle and high schools used to build trust and form positive relationships with students and foster learning environments that promote student belonging.

[redacted] will be a Co-PI for the project and will lead the measurement and formative evaluation group and be the lead for the quantitative aspects of the formative evaluation. He will be the project liaison with the third-party evaluator and assist the PI in interfacing with CELL at Indianapolis University, a local partner for their project in Indiana, where the pilot, field test, and impact work will be conducted among its networks of over 125 schools. He is an Assistant Research Scientist at the EGC with expertise in data analytics, evaluation, and implementation science. His research focus includes school improvement, high school graduation, college and career pathways, and the interplay between poverty and schooling. Prior to joining CSOS, he worked at SRI where designed, led and executed multiple large scale education evaluations and research studies, and in the Research and Evaluation Office of Montgomery County Public Schools in Maryland where helped education leaders use data to make informed decisions.

[redacted] is key personnel and will lead the professional learning development group and be a key member of the materials development group. She is an Associate Clinical Professor at the School of Education, Johns Hopkins University, a former K-12 teacher. Her research and practice focus includes professional learning, culturally relevant neuroeducation, teacher self-efficacy, cultural competence, and arts-integration pedagogy.

[redacted] is key personnel and will be a key member of the materials development and measurement and formative evaluation groups. A Post-Doc at the CSOS, she has multiple years of experience working with schools to measure and analyze the impact of interventions of interest to the school through her work with research-practice partnerships.

[redacted] is key personnel and will lead the independent, external evaluation, including

randomization, data collection, analysis, and reporting. [redacted], Associate Director of Education and Child Development at NORC at the University of Chicago has decades of experience in education research and evaluation. He has worked on six EIR projects and has supported the U.S. Department of Education's What Works Clearinghouse (WWC)—including four years as project director and co-principal investigator.

[redacted], [redacted], and [redacted] are experienced teachers and school leaders with decades of experience working in and with middle and high schools that serve historically underserved and high poverty student populations. They bring diverse life experiences to the project and will serve as the primary liaisons with participating schools working with our local partner CELL to provide professional learning and implementation support to participating schools during the pilot and field tests, as well as working with them to further develop, customize, and improve evidence-based interventions and actions to increase school connectedness.

The School of Education (SOE) at Johns Hopkins University has demonstrated its commitment to increasing employment representation of persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, age, or disability by pledging to implement accountability measures that will guarantee alignment with university commitments to equity and inclusion (DEI) (https://diversity.jhu.edu/roadmap-on-diversity-and-inclusion/). In particular, SOE has demonstrated investment in DEI initiatives by expanding the Office of Faculty Development to the Office of Diversity and Faculty Development (ODFD). A major priority for the office involves the implementation of strategic diversity efforts geared towards faculty, students, staff, and alumni (https://education.jhu.edu/about-us/diversity-and-inclusion/).

D. Quality of the Management Plan

D.1. Organization Strengths

The Center for the Social Organization of Schools, Johns Hopkins University has been successfully completing large scale federal research, development, and dissemination grants for

58 years. The PI, [redacted] and project CO-Pi's and key personnel have successfully managed major grant-funded projects on time and within budget including, IES, I3 and EIR grants and worked with multiple partners on them. Supported by the university-wide offices of research administration and finance, CSOS has its own dedicated finance and grant management staff, with deep experience successfully managing multi-year, multi-partner, federal research, and development grants. A dedicated communications staff will broadly disseminate findings.

D.2. Responsibilities, Timelines, and Milestones.

The PI, [redacted], will coordinate the efforts of the CSOS-JHU Materials Development, Formative Evaluation and Measurement, and Pilot and Field Test Teams, as well as those of the project's local partner in Indiana, CELL and lead bi-weekly all team meetings to review progress against project timelines and milestones. He will conduct final reviews of the materials developed during each phase of the project, have fiscal responsibility and meet monthly with the CSOS business office to review the fiscal operations of the project, and serve as the main point of contact for the US Department of Education.

[redacted], Co-Pi, will lead the JHU-CSOS materials development group and oversee the development of the intervention playbooks for each of the four components of school connectedness, through the pilot, field tests, and final dissemination phases, she will be supported by [redacted] who will be responsible on-going interface with our local partner in Indiana, CELL and leading the JHU-CSOS school facilitators who will support the Pilot and Field Test schools. They will hold bi-weekly team meetings and share updates with the Project PI.

[redacted] will lead the JHU Formative Evaluation and Measurement group and oversee the development of practical measures schools can use to establish baselines and measure progress for each of the four components of school connectedness through all phases of the project. He will lead the team involved with the annual formative evaluation during the pilot and field test years which will be used to inform materials and program improvement. He will also serve as the project liaison with the third-party evaluator, NORC, and take the lead in

securing on-going HIRB approval. He will hold bi-weekly team meetings and share updates with Project PI.

[redacted], from NORC, will lead the third-party impact evaluation work following the timeline and objectives outlined in the proposal. He will interface with [redacted] from CSOS-JHU, and our local partner CELL who will assist with school recruitment during quarterly planning meetings, and in-between as needed.

Table 2. Milestones, Timeline, and Responsibilities

	Development	Pilot SchoolYr1 25-26		Field Test SchoolYr2 26-27		Field Test SchoolYr3 27-28		Impact SchoolYr4 28-29		Analysis & Reporting	
MILESTONE	1/25-6/25	7/25-12/25	1/26-6/26	7/26-12/26	1/27-6/27	7/27-12/27	1/28-6/28	7/28-12/28	1/29-6/29	7/29-12/29	**Personnel**
Objective 1. Design and pilot interventions for four SC components, measurements and professional development materials.											
1.1 Design intervention playbooks for 4 components of SC	X										***JHU DT**
1.2 Design professional development content and delivery	X										**JHU DT**
1.3 Identify and adapt measures schools can use for 4 components	X										**JHU ET**
1.4 Identify and recruit 3-4 partner schools pilot testing	X										**CELL**, JHU DT
1.5 Engage in co-design process with 3-4 schools		X	X								**JHU DT,** CELL
1.6 Provide PD, intervention, materials to 3-4 schools		X									**JHU DT**
1.7 Gather 2-3 rounds of fidelity of implementation (FOI) feedback & outcomes data		X	X								**JHU ET,** CELL
1.8 Analyze data and feedback gathered from pilot schools		X	X								**JHU ET,** NORC
1.9 Identify where improvements needed			X								**JHU ET**
Objective 2. Conduct a field test to continue to iterate and improve to work across multiple school environments.											
2.1 Identify and recruit 8-10 new schools for field test			X								**CELL**
2.2 Revise and refine interventions, PD, and measures based on Pilot test findings			X								**JHU DT**
2.3 Provide PD and intervention materials to 8-10 schools				X	X	X	X				**JHU DT**
2.4 Gather 2-3 rounds of FOI feedback and outcomes data				X	X	X	X				**JHU ET,** CELL
2.5 Analyze data and feedback gathered from pilot schools				X	X	X	X				**JHU ET,**
2.6 Identify where improvements needed					X	X	X				**JHU ET**
2.7 Identify & recruit 60 new schools for RCT							X				**CELL,** NORC
Objective 3. Conduct a one-year randomized impact study of the school connectedness interventions, measures, and professional learning materials											
3.1 Revise and refine interventions, PD, and measures based on Field test findings							X				**JHU DT**, JHU ET
3.2 Collect baseline data							X				**CELL,** NORC
3.3 Obtain parental and student consent, Randomize schools, Check baseline equivalence							X				**NORC**
3.2 Provide RCT PD & intervention to 60 schools								X	X		**JHU DT**
3.3 Collect implementation and impact data								X	X		**NORC,** CELL
Objective 4. Prepare final version of strategies, actions and measures for each component of SC for wider dissemination.											
4.1 Perform implementation and impact analysis								X	X	X	**NORC**
4.2 Write reports on RCT with recommendations									X	X	**NORC**
4.3 Create final intervention strategies, PD content, and materials for dissemination										X	**JHU DT**
KEY											
*Bolded - teams lead, unbolded- teams support											
JHU DT = JHU Development Team JHU FET = JHU Evaluation Team	NORC = NORC evaluation organization at the University of Chicago CELL = Center of Excellence in Leadership of Learning at U of Indianapolis										

In table 2, above, a high-level overview of the milestones, timelines and responsibilities are delineated. The **Detailed Management Plan** can be found in **Appendix J-1,** which includes activities, timelines, responsibilities, and measured outcomes aligned to each objective.

D.3. Extent to Which Costs are Reasonable and Adequate

The costs outlined in the budget are reasonable and appropriate for a field-generated innovation project intended to provide an adaptable and universal toolbox for improving school connectedness from pilot to field test to RCT study. Four full-time experienced faculty members and one postdoctoral fellow will each dedicate between .20-.35 full-time-equivalents (FTE) to this work. Seven additional experienced educators, data managers, materials developers and staff also will dedicate .20-.50 FTE effort to support this project. The collaborative work has been clearly outlined for each of the partners (CELL & NORC), and the associated costs are adequate for their contributions to this project, which have been informed by previous collaborations and grant-funded studies.

E. Quality of the Project Evaluation

The project evaluation will proceed in two phases. **Phase 1 will be formative** in nature, conducted during the pilot (school year 1) and field tests (school years 2-3) by the JHU Center for the Social Organization of Schools (CSOS) evaluation team to provide program developers with just-in-time feedback regarding the performance of the intervention package (and associated professional development materials and formative measures) and progress toward achieving intended project outcomes. **Phase 2 will be an implementation and impact evaluation** conducted during school year 4 by the National Opinion Research Center (NORC) at the University of Chicago, an **independent, third-party evaluator**.

E.1. The evaluation will meet WWC standards without reservations

The phase 2 evaluation will be a **60-school cluster randomized controlled trial designed to meet What Works Clearinghouse (WWC) standards without reservations**, identify the effect of the intervention on short- medium-term student outcomes, measure **implementation fidelity** overall and for each of the intervention's **key components**, and test the extent to which

implementation fidelity **mediated** any program impacts on short-term student outcomes and whether short-term outcomes mediated medium-term outcomes. NORC will execute a multi-site, cluster-level randomized controlled trial (RCT) in which **middle and high schools will be randomly assigned to treatment and "business-as-usual" control groups.** Prior to random assignment, each of the participating schools will have a 50 percent chance of being assigned to treatment. NORC will preregister the impact study in the Registry of Efficacy and Effectiveness Studies (REES) to increase transparency and access to study information, while ensuring the confirmatory nature of the study. The research questions driving the phase 2 study align with the logic model (Appendix G) and cover: short- and medium-term intervention package impacts; mediators; implementation fidelity, barriers, and facilitators; and moderation effects (Table 3).

Table 3. Research questions for impact and implementation study

Research questions	Logic model component
Impact: Short-term outcomes	
RQ1. What is the impact of the school connectedness intervention package on secondary school students' student-staff relationships?	Improved student-teacher relationships
RQ2. What is the impact of the school connectedness intervention package on secondary school students' peer relationships?	Improved student-peer relationships
RQ3. What is the impact of the school connectedness intervention package on secondary school students' participation in meaningful, pro-social learning activities?	Participation in meaningful, prosocial activities increases
RQ4. What is the impact of the school connectedness intervention package on secondary school students' perceptions of the extent to which their school environments foster belonging?	Improved student ratings of personal acceptance within school community
Impact: Medium-term outcomes	
RQ5. What is the impact of the school connectedness intervention package on secondary school students' school attendance, as measured by school attendance rate and chronic absence (missing 10% or more of school days)?	Increased student attendance, decreased chronic absence
RQ6. What is the impact of the school connectedness intervention package on secondary school student discipline, as measured by suspension rates?	Reduced student disciplinary incidents
RQ7. What is the impact of the school connectedness intervention package on secondary school students' secondary school course performance, as measured by core course GPA and any course failure?	Improved secondary school course performance
RQ8. What is the impact of the school connectedness intervention package on secondary school students' mental health and well-being, as measured by anxiety, depression, and loneliness survey scales?	Improved mental health and wellbeing
RQ9. What is the impact of the school connectedness intervention package on secondary school students' progression in education, as measured by promotion to the next grade?	Increased promotion rates
Mediation	

RQ10. To what extent did any effects on each of the short-term outcomes (student-staff relationships, student-peer relationships, participation in meaningful and prosocial learning activities, and perceived personal acceptance within school) mediate any effects of the school connectedness intervention package on medium-term outcomes?	Medium-term outcomes mediated by short-term outcomes
RQ11. To what extent did implementation fidelity mediate the effects of the school connectedness intervention package on short- and medium-term student outcomes?	Student outcomes mediated by implementation fidelity
Implementation	
RQ12. Was the school connectedness intervention package implemented with fidelity?	Implementation fidelity
RQ13. What were the barriers and facilitators to successful 4S implementation?	Implementation context
Exploratory research questions: Moderation effects	
ERQ1. Did the effects of the school connectedness intervention package on student outcomes vary by whether students were from low-income families, were English Learners, or by race/ethnicity?	Implementation context
ERQ2. Did the effects of the school connectedness intervention package on student outcomes vary by school locale (urban, suburban, rural) or level of school poverty (percent of students eligible for free- or reduced-price lunch)?	Implementation context

The impact study's analytic sample will include Indiana public (traditional and charter) middle and high school students enrolled in participating schools at the time of cluster random assignment (the summer before School Year 4) with baseline data collected in the Spring of the prior school year.

Several factors underscore the strength of the impact study design. Both the **short- and medium-term outcomes measures meet WWC standards** because they have face validity, they are reliable, they are not over-aligned with the intervention package, and they will be collected consistently in both treatment and control schools. Furthermore, because the impact study will be an **intent-to-treat (ITT) analysis**; that is, student outcomes will be analyzed according to whether students' schools were assigned to treatment or control status at the time of random assignment, regardless of whether students or schools later crossed over to other conditions (i.e., a student moving from a treatment to a control school or a treatment school failing to implement the intervention). Additionally, students that were not enrolled in schools at the time of random assignment will be excluded from the study; that is, **joiners will be excluded from the study** to minimize compositional change from randomization to outcomes data collection.

The impact study will have low attrition at both the school (cluster) and student

level. To minimize overall cluster-level attrition the evaluation team will rely on the local recruitment partner CELL to help facilitate strong engagement and buy-in, provide ongoing updates about study progress, and offer a clear point-of-contact to address study questions or concerns. Small stipends will be offered as incentives to both treatment and control schools to participate in the study, and data collection burdens will be minimized by providing short, easy-to-administer surveys. To eliminate the possibility of differential cluster-level attrition, schools will be blocked with similar schools (in 4-school blocks) prior to cluster-level random assignment. As a result, in the unlikely case that a school attrits from the study, other schools in its block will also be excluded from the analysis, as approved by the WWC standards. As a result, differential cluster-level attrition will be non-existent. At the student level, we will minimize attrition by: (1) obtaining parental consent and student assent prior to randomization so that those who opt out do not count as attrition; (2) collecting student survey outcomes data during regularly scheduled class time, and providing multiple completion opportunities (to account for potential student absences); (3) monitoring survey data collections to rapidly identify and mitigate student or classroom-level nonresponse; and (4) basing medium-term outcomes on commonly collected administrative data that typically have low levels of missingness (i.e., attendance rates, suspension rates, core course GPA, promotion rates).

We will assess baseline equivalence both at the time of randomization (the summer before School Year 4), as well as at the time of analysis for each analytic sample after any cluster- or student-level attrition. For each student outcome measure, baseline measures using the same metric will be collected in Spring of the prior school year. In addition to examining baseline measure equivalence, we will also examine whether there is balance between treatment and control groups on student- and school-level covariates.

We will determine the impact of the school connectedness intervention on package student outcomes by fitting a **series of multilevel models** where each student outcome of interest will be a function of: **at level-1,** baseline (prior year) measure of the outcome of

interest, demographic variables (dummy variables for black and Hispanic with white and other as the reference category, a dummy variable for male, and grade level), service receipt variables (eligibility for free- or reduced-price lunch, English Language Learner [ELL] status, and Individualized Education Plan [IEP] status); and **at level-2,** a treatment status indicator (treatment or control group school), a middle-school flag, school-level demographic variables (percent black, percent Hispanic, percent male, average grade), and school-level service receipt variables (percent eligible for free- or reduced-price lunch, percent ELL, and percent IEP; and **at level-3,** block fixed effects (that is, a set of indicator variables for groups of schools). These multilevel models will **increase the precision** of estimates of the impact of the school connectedness intervention and will **account for the nesting of students in schools**, and schools in randomization blocks. We will test for mediation effects using multilevel structural equation modeling, and we will examine moderation effects either by including interaction terms or running subsample analyses.

The analyses will be sufficiently powered to detect meaningful effects of the school connectedness intervention. To be conservative, our power analysis estimates assumed the loss of one block of schools due to cluster-level attrition, as well as a student attrition rate of about 10 percent. Given the additional assumptions detailed in Appendix J-9, our estimated Minimum Detectable Effect Sizes ranged from 0.13 to 0.26 standard deviations across our student outcomes of interest (midpoint of 0.20). By way of comparison, small-scale RCT studies of interventions to strengthen student-teacher relationships have found effect sizes on the order of 0.47 to 0.74 (Capella et al., 2012; Holt et al., 2008).

In alignment with the Institute of Education Sciences' Public Access Plan (U.S. Department of Education, 2024), **NORC will publicly publish the final evaluation report and its associated anonymized and deidentified dataset** on its website along with digital object identifiers and will submit it to the Education Resources Information Center.

E.2. Evaluation will Provide Performance Feedback and Assessment of Progress

In phase 2 of the evaluation, the formative evaluation team at CSOS will provide

performance feedback to program developers, drawing on best practices from improvement science and educational design research (e.g., Bryk, 2020; Bryk et al., 2015; McKenney & Reeves, 2018). During the pilot (school year 1) and field test (school years 2-3), **the formative evaluation team will periodically assess the extent to which the school connectedness intervention is progressing towards achieving its intended outcomes.** To do so, the formative evaluation will conduct **3 rapid evaluation cycles per school year**, each of which will consist of collecting and analyzing both qualitative and quantitative data and reporting back to program developers on program implementation and **progress toward achieving interim outcomes**. Quantitative data will be based on formative assessment data collected by school teams, and qualitative data will be collected via interviews with school team members, surveys of teachers and school staff, observational site visits, and student focus groups.

Each rapid evaluation cycle will address what is working well and what could be working better with respect to each of the three core components of the intervention package: the intervention, associated professional development, and formative assessment measures used by schools. Each year, cycle 1 will focus on summer teacher trainings, intervention materials, early-school-year intervention implementation, and baseline formative assessment data collection; cycle 2 will focus on ongoing professional development (Professional Learning Community participation) during the first half of the school year, mid-year intervention implementation, and mid-year formative assessment data; and cycle 3 will emphasize professional development and intervention implementation during the second half of the school year, as well as end-of-year formative assessment data, and final recommendations for program improvement and development to be pursued during early summer. Throughout the rapid evaluation cycles, the formative evaluation team will emphasize documenting intervention strengths and challenges, identifying and seeking to overcome barriers to implementation, detailing opportunities for improvement, synthesizing student and staff feedback, and suggesting intervention revisions to better achieve intended outcomes.

At the close of each rapid evaluation cycle, the formative evaluation team will provide

performance feedback to the development team—specifically, the team will deliver a written report to the development team, present report findings, and debrief with the development team, reviewing the formative assessment data collected by schools and analyzed by the formative evaluation team and discussing ways to address challenges and strengthen the intervention moving forward drawing upon evidence-based programs and practices.

E.3. Project Components, Mediators, Outcomes, & Implementation Thresholds

The evaluation team designed the evaluation in alignment with the school connectedness intervention package project components, mediators, and outcomes described in the project logic model (Appendix G).

Project components. There are three primary components of the school connectedness intervention package: (1) the school connectedness interventions themselves; (2) associated professional development materials, trainings, constructs, and procedures; and (3) formative assessments for school staff to use to measure the four elements of school connectedness. The Everyone Graduates Center Design and Development Group will draw on extant literature and evidence-based practices to develop the initial intervention package and will refine the intervention package through the pilot test and field test drawing on contributions from staff at pilot and field test schools and feedback from the formative evaluation team.

Outcomes. The four elements of school connectedness are aligned with the short-term outcomes to be assessed in the evaluation: (1) student-staff relationships, (2) student peer relationships, (3) participation in meaningful prosocial activities, and (4) students' perceptions of personal acceptance within the school community. For medium-term outcomes, the study will examine changes in school attendance rates, chronic absence rates, student discipline incidents, course performance, mental health and well-being, and promotion rates. Expected long-term outcomes (improved graduation rates and increased postsecondary attainment) are outside the scope of the impact evaluation given available time in the grant period.

Outcome measures. The evaluation design will use research-validated and reliable measures to capture student outcomes. We will use sub-scales drawn from the Child and Adolescent Social

Support Scale (Malecki et al., 2014) to measure student-staff and student peer relationships. We will use the Prosocial Trends Measure (Carlo et al., 2003) to assess students' participation in six types of prosocial activities. To measure perceptions of personal acceptance within the school community we will use items from the School Belongingness Scale (Arslan & Duru, 2017), which captures students' perceptions of acceptance and exclusion by the school community. These validated measurements have demonstrated high levels of reliability, with Cronbach's alpha internal consistency measures ranging from 0.75 to 0.96. For medium-term outcomes, we will obtain measures from school administrative records and the strengths and difficulties questionnaire (SDQ) for mental health questions (Goodman, 1997). Note that student outcome measures will be different than formative measures that are part of the intervention to avoid over-alignment. Appendices J-3 and J-4 present additional information on student outcome scales.

Mediators and moderators. The evaluation will investigate how fidelity of implementation mediates the effect of the intervention package on student outcomes and how short-term outcomes mediate the effect of the intervention package on medium-term outcomes. Exploratory research questions will determine whether intervention impacts vary by student family economic disadvantage, English Learner status, race/ethnicity, and school locale and poverty level.

Implementation thresholds. The team designed an initial framework for measuring fidelity of implementation (Appendix J-5) in alignment with the three key project components (interventions, professional development, and formative assessment). Each component has two sub-component indicators; for example, the professional development component has an indicator tied to summer training, and an indicator of ongoing professional learning. Each indicator can be rated 1 (low), 2 (adequate), or 3 (high). For example, for the summer training indicator, 50-74% of relevant staff must receive the required amount of training to earn a score of 2. To implement the intervention with fidelity, schools must receive a rating of 2 or higher on each indicator for each component (details in Appendix J-5, Implementation Thresholds).

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