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Project Narrative

Introduction

RTI International, the SPARK Initiative, and Innate Health Research are pleased to submit the proposed project, "**Speak to the Potential, Ability, and Resilience Inside Every Kid (SPARK): A Mentoring Intervention for Middle School Students**" for an early-phase Education Innovation and Research (EIR) grant. SPARK is a universal, school-based intervention designed to help participants gain a better understanding of themselves and others, develop vital social and emotional regulation skills, access their creative intelligence, and cultivate their personal potential. SPARK is designed to serve *all* students but has been designed specifically to meet the needs of traditionally marginalized and underserved students (e.g., those who live in communities and/or attend schools that are underresourced). We propose to test the efficacy of SPARK in a multisite, cluster-randomized control trial (RCT) implementation and impact study designed to meet What Works Clearinghouse (WWC) standards without reservations.

Tailored to students in grades 6 through 8, **the SPARK Pre-Teen Mentoring Curriculum** is taught through a combination of highly interactive lessons and small-group mentoring sessions led by trained facilitators. It was developed in 2016, was updated in 2019, and has served approximately 5,000 participants in Title 1 and alternative schools, detention and rehabilitation centers, jails, and mainstream school settings. While preliminary studies of SPARK have shown its promise in helping youth develop healthier states of mind and deeper connections with others, a rigorous evaluation is needed to provide much-needed evidence of program efficacy.[1]

The project aims to achieve three goals: (1) to evaluate the implementation and impact of the SPARK pre-teen curriculum; (2) to expand SPARK delivery capacity by training teachers as facilitators; and (3) to learn how the SPARK pre-teen program impacts social emotional learning

(SEL) outcomes for historically underserved middle school students. Our project also includes an extensive dissemination plan to contribute to the currently scant body of knowledge about SEL intervention efficacy among middle-schoolers who are underserved by SEL opportunities.

Absolute Priorities

Absolute Priority 1—Demonstrates a Rationale. Participating in SPARK child (elementary grades) and pre-teen (middle grades) programs has been associated with positive changes in key measures of such SEL outcomes as growth in mental well-being, communication skills, resilience, and ability to regulate emotions.[1] The SPARK logic model, presented in Appendix G, illustrates the program elements and the underlying theory of action that explain how SPARK's resources, activities, and outputs are expected to achieve desired outcomes.

Absolute Priority 4—Field-Initiated Innovations. Our study design includes a pilot study to assess feasibility and program refinements before we conduct an impact study and assess implementation fidelity of a much-needed SEL intervention in middle schools.

Competitive Preference Priority 1—Promoting Equity in Student Access to Educational Resources and Opportunities. SPARK integrates diversity, inclusion, and equity principles into all elements of content and delivery. SPARK program developers have purposefully incorporated student feedback in program refinements to ensure that program content resonates with all students and creates an environment of safety and inclusion. Lessons and activities are driven by participant voices and experiences to foster a sense of community and connectedness and emphasize individual resilience and potential. SPARK's focus on honoring diversity and inclusion will improve equitable access to critically important SEL resources.

Competitive Preference Priority 2—Addressing the Impact of COVID-19 on Students, Educators, and Faculty. The COVID-19 pandemic has exacerbated and increased challenges

for middle-schoolers and will likely have lasting psychosocial consequences. In virtual

discussion groups to identify strategies to help address COVID-related disruptions to students,

educators and parents recommended providing mental health services for students as a key

strategy.[2] Our project directly addresses Competitive Priority 2 given the lack of evidence-based

SEL programs for middle school students and the associated demand for resources to serve them,

especially in the wake of COVID-19 trauma and disruptions.

A.   Significance

Mental health challenges, change, and transition during middle school. Even before the

COVID-19 pandemic, mental health challenges were the leading cause of disability and poor life

outcomes in young people. In the United States, up to 1 in 5 children ages 3 to 17 experiences

mental, emotional, developmental, and/or behavioral disorders. [3; 4] Mental health issues and

disruptions to schooling associated with COVID-19 are likely to be particularly acute for middle-

school students, as prolonged neural development leads to intense biological, cognitive, and

behavioral changes.[5] Early adolescents enter puberty, engage in more high-level thinking and

complex decision-making, expand their peer relationships, and begin to develop a sense of

identity.[6] The transition to middle school also poses challenges as students adjust to increasing

academic pressures and a more hands-off approach from teachers.[6]

Moreover, middle schools are woefully unprepared to serve these mental health needs.

Nearly 40% of all school districts, enrolling 5.4 million students, did not have a school

psychologist in the first full year of the pandemic. During the 2020–21 school year, fewer than

15% of schools met the recommended ratio of one school counselor to every 250 students, while

school districts with higher concentrations of minoritized students were even less likely to meet

the recommended counselor-to-student ratio.[7] The intense period of change during middle school

provides its own challenges in serving students; coupled with a pandemic, middle schools face an unprecedented mental health challenge.

Responding to the challenge with SEL Programs. Given these challenges, demand for SEL programming is surging. Nationwide, school district spending for SEL programs grew by about 45% in just one year,[8] and secondary school leaders are increasingly joining elementary school leaders in calling for evidence-based SEL programming in schools.[9] The interest in SEL programming is warranted. A sizeable research literature demonstrates that students' SEL skills affect behavior, psychological well-being, and academic achievement.[10-14] Specifically, SEL competencies promote students' well-being, foster more positive and fewer negative social behaviors and interactions,[3; 15; 16] and improve test scores and grades.[17] Students with positive social relationships at school (which SEL interventions support) are more likely to persevere against adversity and feel positive about their abilities.[18; 19]

  Limited evidence-based options for middle schools. SEL interventons provide an effective means to increase social-emotional competencies. Systematic reviews and meta-analyses have documented the effects of school-based SEL programs on such student outcomes as intra- and interpersonal competencies, mental health and well-being, substance use, academic achievement, and school climate and safety.[20-23] The overwhelming majority of SEL programs that meet the WWC quality and evidence standards are designed for elementary school students, however.[24]

  Only one program for middle grades, Lion's Quest for Adolescence, meets WWC evidence standards, and that program had impact on only one outcome (substance use).[25] No empirical study of SEL program impact on middle-schoolers has demonstrated efficacy on student self-awareness, self-management, responsible decision-making, social awareness, and relationship skills.[26; 27]

In an initial study of the pre-teen curriculum, the SPARK Initiative program has shown promise. An experimental study of 357 students in two middle schools found that SPARK had positive effects on communication, decision-making, and problem-solving skills; emotional regulation; and resilience.[1] In the proposed study, we will build upon those initial findings to advance knowledge in the field of SEL supports for middle-school students and generate evidence about the efficacy of SPARK that meets WWC standards without reservations.

B. Quality of the Project Design

B.1 Goals and Objectives

This project has three goals: (1) to evaluate the implementation and impact of the SPARK pre-teen curriculum using a multisite RCT design; (2) to expand SPARK delivery capacity by training teachers as facilitators; and (3) to understand how the SPARK pre-teen program impacts SEL outcomes for middle school students, especially those who are historically marginalized. To meet these goals, we have five associated objectives: (1) to conduct a pilot implementation and feasibility study and refine the curriculum; (2) to evaluate program implementation and fidelity; (3) to assess program impact on middle-school student SEL outcomes; (4) to refine the model for training teachers to implement SPARK and study variation in outcomes by facilitator type; and (5) to disseminate findings to researchers, practitioners, and program constituents.

B.2 Conceptual Framework

The SPARK pre-teen curriculum is based on the idea that awareness of the relationships between thoughts, feelings, and reactions gives them insight into the ways in which their psychological experience is created. With this insight, individuals can then use the power of thought to access and sustain inner resilience.[1; 28; 29]

The idea is to guide students to uncover the innate capacity within themselves to navigate

life's challenges. Emotion regulation, resilience, communication, problem-solving, and decision-making skills are guided by an individual's insight and awareness of the relationships between thoughts, feelings, and reactions.[1; 21] Individual's mindsets can be changed with the awareness of their thoughts and ability to re-frame them for a more positive outcome.[30] A central assertion of SPARK is that we all posses the capacity for positive development and mental well-being, and that the ability to navigate life experiences in a psychologically healthy way is strengthened through mindfulness and awareness of one's innate wisdom.[28; 29]

SPARK cultivates mindfulness, emphasizing that a quiet and reflective mindset supports the insight and wisdom needed to respond to difficult situations. Because these capacities are innate, they are always accessible, and therefore provide a constant source of wisdom and resilience. Rather than relying on a set of tools, strategies, and coping mechanisms to navigate difficulties, this inner resilience and wisdom generated by awareness of one's internal state of mind means that the solution is always accessible.

Development of specific SPARK programming (content, activities, etc.) has also been informed by the latest research on effective SEL programs. Researchers have identified four SAFE practices in successful SEL programs: (1) **sequenced activities** to support skill development; (2) **active forms of learning** to authentically practice and refine new skills; (3) **focused time** devoted to developing personal and social skills; and (4) **explicit learning objectives** that are clearly defined and target specific SEL skills.[20; 27; 31] *Exhibit 1* presents the SPARK lessons and objectives that were developed according to SAFE practices.

The SPARK Pre-Teen Mentoring Program

The SPARK pre-teen program aims to reduce risk factors, build resiliency, promote emotional well-being, and facilitate school success in youth between the ages of 10 to 13 years.

The program is delivered in 30-minute sessions covering one module per week (Exhibit 1). The core curriculum consists of 12 lessons that focus on practicing mindfulness, understanding the mind and human experience to uncover one's own resiliency and potential. There are also four supplemental, topic-specific modules that were created to connect the knowledge and skills to the participants' personal life experiences and circumstances. Between supplemental lessons students practice their new skills in real-life interactions, and they discuss those experiences in the next session.

Exhibit 1.   The SPARK Pre-Teen Mentoring Curriculum

SPARK Lesson	Objectives
Core curriculum (12 lessons)	
Connections and Goals	• Overview of the program • Identify personal short-term and long-term goals
Your Experience Unlocked	• Overview of how *thought* creates experiences • The meaning of SPARK as it relates to this program
Decision Making, The SPARK Highway	• Learn how the *Thought Chain* and *Thought Highway* support decision-making
Feeling the Rainbow	• Learn that *Thought* creates feeling, and feelings can change • Learn that *Thoughts* and feelings do not determine an individual's potential
Understanding Your SPARK	• Learn that an individual's SPARK is their own guidance system; it is always available and cannot be broken
Growing Your Creativity and Potential	• Learn that all *Thought* is neutral until given meaning • Learn that *Thought* is behind all creativity

SPARK Lesson	Objectives
Self-Confidence	• Learn that self-confidence is a natural state created from our innate SPARK Learn that self-confidence can sometimes be obscured by *Thoughts* • Learn that the less one judges themselves, the more their SPARK will shine through
Dealing With Stress and Anxiety	• Learn to define and identify stress and anxiety • Learn how thoughts relate to feelings of stress and anxiety • Learn that awareness of thoughts and feelings can help you decide how much power to give to stress and anxiety
Communication and Reactions	• Learn to define and identify different states of mind and understand how state of mind can impact reactions • Learn to use awareness of their state of mind as a navigation system when communicating and reacting
Appreciating the Diversity Among Us	• Learn that everyone has different views and preferences and that they are neither right nor wrong—they are just different
The Future Is Yours	• Summary and review • Student demonstrations of their use of their SPARK
Graduation	• Ceremony with teachers, staff, and parents where graduates receive completion certificates, individual awards, and share reflections

Supplemental Topic-Specific Modules (4 lessons)

Navigating Relationships	• Learn the importance of respecting the differences in others • Learn the correlation between separate realities and relationships • Identify the benefits of communication in times of conflict

SPARK Lesson	Objectives
Using Your SPARK to be a Good Role Model	• Learn what it means to be a positive role model • Learn how to use their SPARK to help those around them
Bullying, Inside-Out	• Identify the reasons why people bully others • Realize that even if they are feeling hurt, they are not damaged
Academic Stress to Academic Success	• Learn the correlation between thoughts, state of mind, and academic success • Understand that their academic potential is infinite

SPARK Is Designed to Meet the SEL Needs of Middle School Students

The SPARK pre-teen curriculum was developed based on the latest research regarding effective interventions for cultivating early adolescents' SEL and has key features that support educational equity. First, it emphasizes individual assets rather than deficits. A key principle that underlies all lessons is that everyone has *SPARK* (the program's metaphor for innate ability, potential, resilience, and mental well-being), it simply needs to be uncovered (learned). The program supports a growth mindset,[32] emphasizing the potential for development without blaming students for individual deficiencies. It accomplishes this by acknowledging the systems and processes that obstruct equitable access to SEL.

Additionally, the SPARK pre-teen mentoring curriculum is participant driven and includes strategies for customizing lessons and activities to reflect the lived experience of students and incorporating their voices into the program. The program is designed so that the facilitator learns SEL skills as they teach, which aligns to another key feature of SEL programs: adult SEL should be attended to as well as that of students.[27] The SPARK Initiative finds it essential to train facilitators to bring awareness to their own wellness and state of mind, and this awareness in turn

improves their abilities to build rapport and create connection with the youth they serve.

B.3   Overview of Project Design

For Objective 1 (Conduct a pilot implementation and feasibility study and refine curriculum) we will iteratively evaluate and refine the updated SPARK curriculum and the implementation fidelity matrix and assess feasibility and fidelity of implementation to inform program refinement. This occurs prior to conducting our implementation (Objective 2, RQ1 and 2), impact (Objective 3, RQ 3 and 4) and exploratory studies (Objective 4, RQ5). *Exhibit 2* highlights the research questions, outcome measures, mediators and moderators aligned with Objectives 2, 3, and 4. Objective 5 is addressed in our dissemination plan (Section B.4).

Exhibit 2.   SPARK Research Questions and Measures

Research Questions and Measures
RQ1. Is SPARK implemented as intended? How is implementation related to impact on students?
RQ2. What are the barriers and facilitators of SPARK implementation?
• Adherence to curriculum and quality of delivery • *SPARK Session Fidelity Rating Scale* (23 items) • Self-assessment completed by facilitators after each session • Supervisor assessment completed twice (randomly) during the program • Facilitator reports of student engagement and understanding after each session • Participant feedback on implementation (interviews, focus groups)
RQ3. What is the impact of SPARK on middle school student SEL outcomes?
RQ4. To what extent do student SEL outcomes vary by student, classroom, and school characteristics?
• **Students' facilitator ratings:** Mentor Processes Scale (MPS) youth report[33]

Research Questions and Measures
• **SEL Knowledge:** 3 Principles Inventory for Youth; Communication, Decision-Making, Problem-Solving (CDP), student version[34] • **Student SEL perceptions/beliefs:** *SSIS-SEL Student* (self-awareness, self-management, social awareness, relationship skills, responsible decision-making) (46 items) • **Student Engagement in Learning:** Student Engagement Instrument (SEI) Affective scale (family and peer supports for learning, teacher/student relationships)[35-38] • **Teacher ratings of student SEL:** *SSIS-SEL Teacher ratings* on same SSIS-SEL student measures, core skills, and academic competence • **Student discipline and attendance:** *School administrative data* measuring number and severity of disciplinary incidents; number of days absent from school • **SPARK implementation fidelity:** See measures for RQ1 • **Student characteristics:** *School administrative data* measuring Individualized Education Program status, English language learner status, age, sex, race/ethnicity, socioeconomic status • **School and classroom characteristics:** *School administrative data* measuring classroom size, grade level, teacher's years of experience, school size, school demographics • SPARK facilitator characteristics: years certified, race/ethnicity

RQ5. To what extent do student SEL outcomes differ when SPARK is implemented by a trained teacher or a SPARK-certified facilitator? To what extent is implementation fidelity related to variation in outcomes?

• Same student outcomes as **Objective 3, RQ3, RQ4** • Teacher SEL competencies: *SSIS-SEL Teacher Version*

    Study Measures. To measure fidelity of SPARK implementation, RTI will combine multiple measures to complete the fidelity matrix, which will be refined and finalized during the pilot

study, to score each key component of SPARK. The input measures will include the facilitator's Session Fidelity Scale ratings, completed immediately following each SPARK Curriculum session; the Supervisory Fidelity Scale, which includes the same items rated by the Supervisor during two randomly chosen session observations; and the Annual Program Fidelity Scale, completed by the facilitator and supervisor upon completion of a full SPARK Curriculum session series. RTI will supplement these ratings with feedback on implementation quality through interviews with a subsample of facilitators and teachers, focus groups with a subsample of students, and student survey items.[28]

To measure impact on targeted student SEL outcomes, treatment and control students will complete the Social Skills Improvement System (**SSIS-SEL [Student]**)[39-41] at the beginning and end of each 16-week SPARK implementation. The SSIS-SEL is a successor to the widely used Social Skills Rating Scale[41] and assesses students along the five SEL competencies identified by the Collaborative for Social and Emotional Learning (CASEL): self-awareness, self-management, social awareness, relationship skills, and responsible decision-making skills. On a four-point Likert scale, students rate the extent to which each of 46 behavioral statements apply to them. Validation and reliability studies[40] indicate acceptable to high internal consistency of the five subscales, ranging from .72 to .88. Test-retest reliability ranged from .73 to .81 on the five subscales, with a mean retest interval of 66 days. Confirmatory factor analysis against the five CASEL SEL competencies demonstrated adequate fit.

SSIS-SEL (Teacher). The SSIS SELb-T[39] is a brief version of the SSIS-SEL Edition Rating Form–Teacher (SSIS-SEL RF-T). The SSIS SELb-T is validated for use in middle schools and takes about 5–8 minutes per student for a teacher to complete.[39] The SSIS SELb-T consists of 20 items rated on a four-point Likert scale resulting in five scores aligned with the CASEL

competence domains. Reliability and validity studies[39] included 750 teachers and found internal consistency ranging from .79 to .93. Test-retest reliabilities ($n = 144$) ranged from .75 to .84 and interrater reliabilities ($n = 54$) ranged from .47 to .65. Factor analysis demonstrated good fit with the five CASEL outcomes.[40]

District and school partners. To date, the research team has received letters of support from middle schools in Illinois, Texas, and Virginia. Across these sites, 176 classrooms will be included in the study. Specifically, we will be partnering with Charles City and Puquoson, Virginia (25 eligible classrooms); Ashland, Virginia (130 eligible classrooms); Chicago, Illinois (3 schools with 12 eligible classrooms serving majority low income populations); and Houston, Texas (2 eligible classrooms). We are aiming to recruit a total of 200 classrooms to compensate for potential study attrition.

Costs. The SPARK pre-teen curriculum and online membership for students aged 10–13 costs $495 for a 1-year membership for approximately 5–6 classes of 25 students and a facilitator. Membership includes immediate access to the complete curriculum, prerecorded training videos, quarterly content updates, personalized customer support, and access to a private Facebook group to promote connection with colleagues and peers. The cost is comparable to or less expensive than other popular SEL programs offered to schools.[a]

B.4   Dissemination Plan

The key to effective dissemination is sharing actionable information in a way that is relevant, timely, and accessible to the appropriate audiences.This project provides an important

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[a] See, for example, Second Step, WhyTry, MovethisWorld, Growing Leaders, Positive Action, and CharacterStrong.

opportunity to generate and share much-needed evidence about the efficacy of a SEL intervention that serves middle school students, a population that has not had sufficient or equitable access to SEL support programs. Our dissemination plan, which addresses **Objective 5**, is designed to make key information accessible to students, their families, educators, and researchers and practitioners. We will share preliminary results (deidentified aggregated summaries) with school partners by holding a series of sense-making sessions to co-interpret results. We will reach relevant, high-visibility media outlets (e.g., Greater Good Education) by preparing quarterly blogs that describe insights gained during the study. To reach a national audience, the research team will publish research or policy briefs about the study through RTI Press. RTI Press is open access and peer reviewed, bringing RTI research, analytic tools, and technical expertise to national and international attention through several publication vehicles. Dissemination to academic audiences will include presentations at key conferences such as the Society for Research on Educational Effectiveness and publication in journals such as *American Educational Research Journal*, *Psychology in the Schools*, and *AERA Open*.

C.   Project Personnel

Each partner involved in this project brings key personnel with strong qualifications (see **Appendix B** for résumés). ████████████████ (RTI), who has expertise in quantitative and qualitative data collection and analysis and experience leading large SEL evaluation projects, will lead the project. She is currently serving as co-investigator on the IES Efficacy study of the SEL ZooU program. Associate Project Director ████████████ (RTI) will be responsible for data management. ██ ██████ has over 20 years of experience in education research and expertise in the development of social-emotional skills, survey methodology, and research design. He is currently co-investigator on the IES Efficacy study of the ZooU SEL program. ███████

██████████ president and CEO of the SPARK Initiative, will oversee implementation of the SPARK program and teacher training. Before working with the SPARK Initiative, she was a national trainer for Too Good for Drugs and Violence. ████████████████ (RTI), Evaluation Study Lead, has over 25 years of experience as an education researcher and program evaluator. She is the independent evaluator for the Supporting Teachers Across Rural/Remote Regions (STARR) study, a midphase EIR project with a multisite, cluster-randomized control study design. ██████████████ (RTI) will lead the implementation study. ███ █████ has been directing education studies that involve mixed-methods data collection and analysis for over 20 years. ███████████ (RTI) will serve as the Data Collection and Logistics Task Lead. She leads data collection for an SEL program evaluation in 19 school districts in Indiana, collecting student and teacher survey data as well as classroom observation data. She has over 25 years of experience working with schools. █████████████ CEO of Innate Health Research, will serve as Dissemination Lead. ███ █████ brings expertise in how science and data improve education. As an associate professor at the University of Virginia, she worked with teachers to improve the use of evidence- and data-based instructional practices. ███ █████ was the IES pre-doctoral fellow of the year in 2009.

D. Management Plan

RTI's Education and Workforce Development division, where the project will be housed, leads numerous multiyear studies funded by the Department of Education. RTI's Office of Research Protection reviews all RTI research involving human subjects and will oversee all proposed research activities. RTI will manage the project and lead the evaluation, with RTI staff conducting all data collection.

The SPARK Initiative is a nonprofit organization focused on cultivating human potential and

resilience by providing education, mentoring, and coaching that increases individuals' understanding of the mind and promotes emotional well-being and academic success. President and CEO ███ ██████ █████████████ created and coauthored the SPARK mentoring programs and will oversee all aspects of the program. ██████ ████ Director of Programs and Development and co-creator and co-author of the curricula, will lead program implementation and mentor training. ████████ ███ director of education, will lead the training of school staff.

Innate Health Research (IHR) is a nonprofit whose mission is to drive visibility and scaling of social-emotional education innovations through research, education and outreach, and program improvement. In addition to its strong track record of independent scholarship (150 academic publications), the IHR team brings their capacity to blend traditional scholarship with action-oriented research and stakeholder data engagement.

The project team will meet weekly to discuss the project tasks and activities to keep them on schedule and within budget. Responsible parties for each milestone are described in *Exhibit 3*. Year 1 of the project will be a planning and pilot year and will include submitting an Institutional Review Board (IRB) package to RTI's internal IRB. In each year of the impact study, we will randomize classrooms, obtain letters of agreement from schools before program implementation, and obtain teacher and parent consent before data collection. We will administer measures and collect data as described in Section B. In Year 4, the SPARK team will train teachers to implement the SPARK program to address **Objective 4**. Teachers who are trained to implement the program will complete a survey before and after teaching the lessons to measure teacher SEL outcomes. Administrative data will be collected at the end of each implementation year. Data analysis and dissemintation will be ongoing throughout the project.

Exhibit 3. Milestones, Timelines, and Responsibilities

Milestone	Timeline	Responsible Party
Institutional Review Board package	March 2023	RTI
Updated school letters of support	Jan–July 2023, 2024, 2025, 2026	RTI, SPARK
Diversity, Equity, and Inclusion assessment of and revisions to pre-teen curriculum and teacher training protocols	Jan 2023–July 2024	SPARK
Feasibility and implementation pilot	Sept 2023–Jul 2024	RTI, SPARK
Facilitator training	July 2023, 2024, 2025	SPARK
Random assignment of classes (impact study)	July 2024, 2025	RTI
Collection of parent permission	Sept 2024, 2025, 2026	RTI
Implementation and Impact Studies	Sept–Jan 2024/25 and 2025/26	RTI
Student pre- test, post- test	Oct 2024, 2025, 2026, Jan 2025, 2026, 2027	RTI
Teacher pre-, post- rating form	Oct 2024, 2025 Jan 2025, 2026	RTI
Interviews with SPARK facilitators and teacher & student focus groups	Jan 2024, 2025, 2026, 2027	RTI
SPARK facilitator/teacher logs	Oct 2023, 2024, 2025, 2026 Jan 2024, 2025, 2026, 2027	RTI
Teacher survey (pre- and post- program implementation in exploratory study)	Oct 2026 and Jan 2027	RTI

Milestone	Timeline	Responsible Party
Collection of administrative data	Jun 2025, 2026, 2027	RTI
Analysis and data-sharing meetings with schools	Ongoing in 2023, 2024, 2025, 2026, 2027	RTI/SPARK
Dissemination of findings	Ongoing in 2023 -2027	Innate Health
SPARK teacher training	July–Sept 2026	SPARK
Exploratory study	Aug 2026–Jan 2027	RTI, SPARK
Final data analyses	Jan–Sept 2027	RTI
Dissemination of overall results	Oct–Dec 2027	Innate Health

Separation between the data collection staff and the implementation staff will be maintained at all times so that the program developer does not influence the data collection or evaluation. RTI has no financial investment or interest in the SPARK program.

E.   Project Evaluation

RTI will conduct a mixed-methods evaluation of SPARK to assess progress and outcomes related to four of the five project objectives addressing five corresponding high-level evaluation questions. *Exhibit 1 (Section B)* highlights the study design and measures aligned with each of the five RQs. The following describes our evaluation approach.

E.1   Pilot Test (Objective 1) and Assess SPARK Implementation (Objective 2)

To meet project Objective 1, RTI will conduct a pilot study of SPARK implementation with 20 middle school classrooms in school year 2023–24 to assess the degree to which SPARK is implemented as intended and the challenges and features of successful implementation. This study will help to refine the fidelity matrix to be used in the impact analysis and will provide ongoing feedback to SPARK staff for program refinements before the impact study. RTI will

interview facilitators and hold focus groups with SPARK students and teachers to understand

implementation strengths and challenges.

E.1.1 Collection of Implementation Fidelity Measures. For the implementation study

(Objective 2, RQ1, RQ2), RTI will measure program fidelity using SPARK's Session Fidelity

Rating Scale (additional details in Appendix J) completed by the facilitator via an online session

log after each session. Supervisors will observe each classroom twice for each SPARK

implementation, using the same session log to supplement and validate facilitators' logs. In

spring 2023, SPARK staff will finalize the matrix to ensure alignment with the logic model.

SPARK staff will determine thresholds for low (0), adequate (1), and ideal (2) implementation

for each key program component (e.g., following lesson content, student participation). RTI will

obtain data for each component from facilitators' Session Fidelity ratings as well as the

supervisor ratings. RTI will score the session logs per the predetermined thresholds. RTI will use

the interview and focus groups protocols from the pilot study to understand implementation

strengths and challenges.

E.1.2 Implementation Study Analysis Plan. RTI will statistically model relationships

between each key component fidelity score and student SEL outcomes collected from the impact

study. We will use multilevel statistical models to account for clustering of students within

classrooms. Models will include program moderators to evaluate the extent to which classroom,

student, and facilitator characteristics influence implementation and outcomes. Results will

provide insights about the extent to which SPARK was implemented with fidelity; the effect of

implementation fidelity on student SEL outcomes; and the extent to which different program

components impact student SEL outcomes and interact with different groups of students.

E.2 **Evaluate the Impact of SPARK on Student SEL Outcomes (Objective 3)**

E.2.1 Impact Study Design to Meet WWC Standards WITHOUT Reservations. To meet
WWC group design standards without reservations, RTI will conduct a multisite, cluster-
randomized control design to assign classrooms to receive the 16-week SPARK program from a
certified SPARK facilitator or to serve as a control classroom. Blocking will be done based on
district and school, in which half of the grades 6–8 classrooms within participating schools
within each district will be assigned to receive SPARK and the other half will serve as the
control group. Using district and school as a block will help to ensure comparability between
classrooms on school and district characteristics. All families with students in the randomly
assigned classrooms will be invited to participate in the evaluation and consent to their child's
participation. To incentivize classrooms in the control condition, schools will receive a stipend
and the SPARK program after the impact study has been completed in their school. To address
RQ3 and **RQ4**, RTI will administer student SEL outcome measures before the start (October)
and at the end (January) of the 16-week program in all randomly assigned treatment and control
classrooms, as well as measures of moderators and mediators (see *Figure 1*). This study design
will produce causal estimates of the impact of SPARK on student SEL outcomes.

E.2.1.1 Treatment Contamination and Differential Attrition. A potential threat to internal
validity for the impact study is treatment contamination due to teachers in treatment classrooms
sharing SPARK strategies. To minimize the probability of treatment contamination, SPARK
staff will ask all teachers not to share information about SPARK until the impact study at their
school is complete. Again, SPARK facilitators will offer the program to all control classrooms
after the impact study as incentive.

Figure 1. Data Collection Timelines for Study Measures and Cohorts

	2023 Jan – Aug	SY 2023-24 Fall – Spring	SY 2024-25 Fall – Spring	SY 2025-26 Fall – Spring	SY 2026-27 Fall – Spring
Implementation Pilot Study (*20 classrooms*)					
Fidelity logs, supervisor observations, participant interviews, focus groups	**Pilot** Ongoing Sept-Jan	**Analysis & Refinement**			
Implementation and Impact Study Outcomes (*176 classrooms*)					
Fidelity logs, supervisor observations, paricipant interviews, focus groups			**S1** Sept	**S2** Jan	
Student engagement in learning, Student SEL knowledge, perceptions/beliefs; teacher ratings			**S1, C1** Sept, Jan	**S2, C2** Sept, Jan	
Student discipline, attendance			**S1, C1** Sept, May	**S2, C2** Sept, May	
School administrative data			**S1** Sept	**S1** Sept	
Exploratory Study Outcomes (*12 to 15 6th-grade classrooms, teacher-led SPARK*)					
Student SEL knowledge, perceptions/beliefs					**St2** Sept, Jan
Student discipline, attendance					**St2** Sept, May
Student ratings of teacher as facilitator					**St2** Jan
Mediators					
Treatment components (*fidelity matrix data*)			**S1** ongoing	**S2** ongoing	**St2** ongoing
Moderators					
School, classroom characteristics			**S1, C1** Sept	**S2, C2** Sept	**St2** Sept
Student characteristics			**S1, C1** Sept	**S2, C2** Sept	**St2** Sept
SPARK facilitator characteristics			**S1** Sept	**S2** Sept	
Teacher SEL pre-/ post- SPARK training					**St2** Sept, Jan

S1, S2: SPARK (*facilitator-led*) classrooms, Cohorts 1 and 2, grades 6–8
C1, C2: Control classrooms, Cohorts 1 and 2, grades 6–8
St2: SPARK (*teacher-led*) classrooms, treatment classrooms from Cohort 2, grade 6 only

Another potential threat to internal validity is selection bias due to sample attrition. Following WWC guidelines, we will assess the comparability of treatment and control groups in the analysis sample based on student demographic characteristics and baseline SEL measures. If groups remain nonequivalent despite randomization, we will statistically adjust the analysis by

including nonequivalent characteristics as predictors in the outcome models. We will not include data for students who join classrooms after randomization and baseline data collection in the impact analyses, per WWC guidelines. We will minimize potential attrition of schools and teachers through ongoing communication before randomization. Schools and teachers will also receive stipends to compensate for the burden of study participation in both treatment and control classrooms.

E.2.1.2 Impact Study Sample. RTI and SPARK will recruit schools in districts in Virginia, Texas, and Chicago to participate in this study in two cohorts (see Figure 1) starting in fall 2024. We will randomize half of the grade 6–8 classrooms in each participating school into one of two conditions—treatment (SPARK instruction with certified facilitator) or control (usual instruction with regular teacher)—in the summer before each study school year. Only classes held during the same school period will be assigned to either condition so no student is assigned to both conditions. Cohorts 1 and 2 will include 44 classrooms each, for a total of **176 classrooms (88 SPARK, 88 Control) over the 2-year impact study**.

E.2.1.3. Power Analyses. To determine the number of classrooms needed for the study, we conducted power analyses using PowerUp! for a two-level (students nested within classrooms) cluster-randomized trial. The assumptions used to conduct power analyses are provided in Appendix J. We estimated a range of minimum detectable effect sizes for 180 classrooms (0.13) down to 100 classrooms (0.17), which is commensurate with a mean effect size of .17 for SEL interventions per Taylor et al.'s meta-analysis.[42] Figure 1 includes detail on classroom sample sizes for each study component.

We set statistical power at 0.80 and significance levels at 0.05. We assumed 53% of student outcomes to be explained by student pretest data and a classroom-level intraclass correlation

(ICC) of 0.15 based on empirical reference values derived by Dong et al.[43] from multilevel school intervention studies. Assuming an average class size of 25 students and 200 classrooms, we estimated a minimum detectable effect size (MDES) of **0.12**. Assuming 100 classrooms, the MDES would be **0.17**. Taylor and colleagues' recent meta-analysis[42] of 82 universal SEL programs found a mean effect size of **0.17** for student SEL outcomes similar to those we propose for this study (e.g., school engagement, self-efficacy, self-regulation).

E.2.1.4. Data Collection: SPARK Outcomes, Mediators, and Moderators for Impact Analysis. RTI will collect and analyze qualitative and quantitative data on SPARK program components and outcomes identified in the SPARK logic model (see Appendix G). Study measures are shown in *Exhibit 2*, and *Figure 1* shows the data collection timing for study **outcomes, mediators, and moderators.** Key study **outcomes** include student knowledge of SEL concepts covered in SPARK, student and teacher ratings of student SEL competencies, and student attendance and discipline. RTI will also collect a variety of school, classroom, and student characteristics as program **moderators** for statistical controls and sensitivity analyses. We will collect these measures as well as baseline measures of SEL outcomes at the beginning of each school year. Key program components, including student participation and engagement measured by the SPARK fidelity scale, will serve as **mediators** in analyses of program impacts.

E.2.1.5. Analysis Plan. Our impact study analysis plan includes estimation of program impacts and mediator/moderator effects. To estimate the impacts of SPARK on student outcomes, multilevel models will account for clustering of students within classrooms. We will use a model-based, multilevel imputation procedure to impute missing data using relevant variables.[44] Analyses will focus on the overall impact of SPARK on student SEL outcomes as well as differential **moderator** effects on students and classrooms with different characteristics.

For our **mediator** analysis, statistical models will examine indirect effects of SPARK program components on student SEL outcomes through each mediator, as well as the direct program effects while controlling for the mediators.

E.3   Exploratory Study of Teacher-Delivered SPARK (Objective 4)

In the exploratory study component in the last year of the study, SPARK staff will train teachers from Cohort 2 whose classrooms received SPARK from a certified facilitator. We will train 6th-grade teachers only because their students will be new to SPARK. Teachers will receive training in the summer before the 2026–27 school year and implement the 16-week SPARK program that was delivered by SPARK-certified facilitators in the impact study. Exploratory study data collection will follow the impact study's and include additional pre- and post-SPARK measures of teacher SEL to assess whether student outcomes vary by facilitator type.

E.3.1 Exploratory Study Analysis Plan. RTI will use a difference-in-differences approach to compare the change in SEL outcomes from pre- to post-SPARK for 6th-grade students in classrooms receiving SPARK from their teacher (St2 in Figure 1) vs. from a certified SPARK facilitator (S2 in Figure 1). We will estimate the change in score from pre- to post-SPARK for both groups (facilitator-led vs. teacher-led), adjusting for pre-test scores and student characteristics. Sixth-grade students from S2 are hypothesized to be a suitable exploratory comparison group for those in the teacher-led SPARK condition because they come from the same classrooms, with the understanding that these are different cohorts and, therefore, results will be regarded as exploratory and preliminary. Given the relatively small sample size (12–15 classrooms) and the nested nature of the data (students in classrooms), RTI will use linear mixed effects models per McNeish and Harring.[45] Models will include a treatment indicator (facilitator- vs. teacher-led SPARK) and program moderators to estimate the extent to which student and

teacher characteristics influence student SEL outcomes. These findings will provide initial insights regarding the feasibility of training teachers to deliver SPARK and whether teacher delivery results in impacts comparable to those observed with SPARK-certified facilitators. The exploratory study findings will guide future research about scaling the teacher training program to expand the capacity to deliver SPARK to more middle school students, especially the historically underserved.

E.4   The Extent to Which Evaluation Methods Will Provide Performance Feedback

To facilitate ongoing learning and progress monitoring, the evaluation plan includes formative and summative components with feedback loops, providing real-time opportunity to learn from a variety of rich data sources. SPARK staff use fidelity measures and hold weekly SPARK mentor debrief meetings to help ensure that SPARK is delivered in classrooms as intended. This project's three studies (implementation, impact, and exploratory) will use multiple sources of data—measures of fidelity, school and classroom demographics, facilitator feedback, teacher and student focus groups and interviews, school administrative data (disciplinary actions, attendance), and teacher and student ratings of key SEL outcomes—to provide performance feedback in the interim and annually. The project will involve an Evaluation Learning Team (ELT) that will include staff from RTI, SPARK, and Innate Health and representatives from participating schools (including teachers and students). The ELT will meet monthly to discuss insights regarding implementation and outcomes as data are collected and analyzed. The ELT will be guided by a set of learning questions that the ELT and student and teacher representatives determine collaboratively at the start of the project and will be updated regularly. Including school staff in the ELT will help to make findings relevant and meaningful to educators and the families they serve.

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