SPARK CENTER: SCALING AND VALIDATING A RESEARCH-BASED COST EFFECTIVE LITERACY INTERVENTION

EDUCATION INNOVATION AND RESEARCH (EIR) MID-PHASE GRANT (SOLICITATION NO.: CFDA 84.411B)

EDUCATION ANALYTICS, INC.

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ABSOLUTE PRIORITIES

Through an Education Innovation and Research (EIR) Mid-Phase Grant award, Education Analytics (EA), in partnership with Boys & Girls Clubs of Greater Milwaukee (BGCGM), five Boys & Girls Club (BGC) affiliate organizations, and one local education agency (LEA) will address **Absolute Priority 1: Supporting high-need students** and **Absolute Priority 4: Improving low-performing schools** which takes the research based SPARK Early Literacy Program to scale across a tri-state network of 15 high-need, low-performing schools (Absolute Priorities 1 & 4) across 7 LEAs through a technology-enabled SPARK Center. This project design intends to further test the effect of the SPARK intervention by evaluating its impact, replicability, and sustainability in this network of rural and urban communities, with 8 of the 15 SPARK sites (53%) in rural schools.[1]

A. SIGNIFICANCE
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A.1 MAGNITUDE OR SEVERITY

The magnitude or severity of the problem to be addressed by the proposed project.

Learning to read is a skill; the ability to access, comprehend, and apply written instructions is essential to functioning effectively in an information-based society. Third grade is a critical benchmark that marks the shift from students learning to read to students reading to learn. Students without a basic level of reading competency by third grade are more likely to struggle academically as well as to have social and behavioral issues in subsequent grades (Fiester, 2010). Research demonstrates that these students are four times as likely to drop out of high school than proficient readers, and dropouts are more likely to experience negative

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[1] As designated by the National Center for Education Statistics School District databasewith urban-centric locale code of 32, 33, 41, 42, or 43

outcomes than their counterparts, including lower annual earnings and higher potential for mental and physical health problems (Center for Labor Market Studies, 2007; Fiester, 2013). Furthermore, early intervention is key: the likelihood of student dropout can be predicted with up to 70% accuracy by third grade, based on reading ability and prior retention (Hernandez, 2012). Given the potential negative long-term consequences of low reading proficiency, the fact that only 36% of fourth graders across the country are proficient in reading underscores the magnitude of the problem on a national scale (U.S. Department of Education, 1990-2015).

Research from the field also shows us that struggling students are disproportionately students of color and lower socioeconomic status. National Assessment of Educational Progress (NAEP) reading test scores reflect persistent achievement gaps between students eligible for the National School Lunch Program (NSLP) and their non-NSLP counterparts. Fifty-two percent of fourth-grade and 48% of eighth-grade students who took the NAEP in 2015 were eligible to receive free or reduced-price lunches through the NSLP based on their families' low levels of income (U.S. Department of Education, 1990–2015). These students demonstrated lower proficiency levels in fourth- and eighth-grade reading than their higher-income peers; 80% of NSLP-eligible 4th and 8th graders were rated below Proficient, as compared to 50% of their higher-income counterparts. (U.S. Department of Education, 1990–2015). With poverty rates rising among public school students, there is a clear and urgent need for cost-effective, research-based interventions that promote positive literacy outcomes for all students.

A.2 NATIONAL SIGNIFICANCE

The national significance of the proposed project.

As described above, there is a national need for high-quality early literacy interventions.

SPARK is a cost-effective, K–2 early reading intervention that answers this need by improving student reading achievement through research-based literacy programming in three spheres—school, family, and community. First piloted by BGCGM in 2005 and launched in 2006, SPARK meets the U.S. Department of Education's What Works Clearinghouse (WWC) standards without reservations based on an i3-funded randomized control trial in seven Milwaukee Public Schools (MPS). The evaluation found that (1) SPARK had statistically significant positive effects on overall reading achievement, literacy development, and school attendance; (2) SPARK's effect was greater for students who started the program with greater need for literacy instruction[2]; and (3) SPARK reduced student absenteeism; participants were absent 5.8 fewer times and were 27% less likely to be chronically absent than control students. Furthermore, the positive impact of SPARK was shown to remain stable one year after the end of participation: former SPARK participants scored significantly better on the spring 2016 STAR Reading assessment compared to control students,[3] and former SPARK participants had 2.9 fewer school absences during the 2015–2016 school year compared to control students.[4] As such, SPARK has been classified by the Center for Research and Reform in Education (CRRE) at Johns Hopkins University as one of a small number of literacy interventions that both work and meet the "strong evidence definitions" laid out in the Every Student Achieves Act (ESSA).

A.3. EXCEPTIONAL APPROACH

The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

SPARK is both an exceptional and evidence-based approach that clearly addresses the

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[2] The magnitude of the impact for these students was between .3 and .6 standard deviations.
[3] The effect size of .18 standard deviations was statistically significant ($p < .05$).
[4] This was a statistically significant difference ($p < .05$).

need to improve low-performing schools (**Absolute Priority 4)** and support high-need students

(**Absolute Priority 1**). As the previous section demonstrates, this approach has already proven

to be successful in a low-performing, high-need school district. In 2011, Milwaukee lagged

behind average US reading proficiency for large urban districts, and regressed in reading scores

when compared to 2009 (MacIver Institute, 2013). The SPARK school sites that experienced

positive pilot outcomes were all designated as "persistently low achieving" by the state

(Wisconsin Department of Public Instruction, n.d.). **Table 1** illustrates how the proposed project

will continue to prioritize high-needs schools by scaling-up the existing SPARK to a tri-state

network of low-performing schools[1] (majority rural).

TABLE 1. SPARK Early Literacy Expansion Sites								Low Performance Indicator	
BGC Partner	LEA[1]	BGC Partner	LEA[1]	% Free/ Reduced Lunch	% Minority	% ELL	% SWD[4]	Bottom 10% of State Scores	Subgroup Achievement Gap > 20%
Greater Milwaukee BGC (WI)	Milwaukee Public Schools	Carson	427	84%	98%	0%	19%	X	
		Clarke Street	308	82%	98%	0%	27%	X	
		81st Street	403	68%	88%	1%	28%	X	
		Engleburg	336	80%	97%	1%	29%	X	
		Hayes[3]	614	89%	99%	50%	21%	X	
		Sherman	384	83%	97%	0%	22%	X	
Portage County BGC (WI)	Steven's Point	Jefferson	249	55%	26%	10%	19%		X (34%)[5]
		Kennedy	219	40%	15%	9%	12%		X (35%)[5]
	Almond-Bancroft	Almond	137	44%	27%	20%	20%		X (26%)[5]
Sparta BGC (WI)	Sparta	Lawrence-Lawson	245	61%	29%	15%	17%		X (36%)[5]
Langlade County BGC (WI)	Unified District of Antigo	West Elementary	212	75%	20%	6%	25%		X (51%)[5]
Wisconsin Rapids BGC (WI)	Wisconsin Rapids	Howe	357	67%	23%	6%	16%		X (26%)[6]
BGC of the Pee Dee Area (SC)	Darlington	Washington Street	397	77%	79%	0%	9%		X (26%)[6]
		Thornwell School for the Arts	380	77%	84%	0%	11%		X (26%)[7]

Huntsville (AL)	Huntsville City	Jones Valley	528	45%	43%	0%	0%		X (41%)[7]

[1] High need schools were selected based on the following factors: (1) socioeconomic status as determined by National Student Lunch Program (NSLP) participation, (2) student need based on state test scores & subgroup achievement gaps, and (3) diverse locales (urban and rural)

[2] All sites have signed a Memorandum of Understanding or Letter of Support indicating support and/or participation in the project

[2] Bilingual school serving a population of English Language Learners (ELL)

[4] Students with Disabilities

[5] District difference between NSLP and non-NSLP participants on 2016 WI state test

[6] District difference between NSLP White and Black/Hispanic 3rd grade students that met or exceeded expectations on the 2016 NAEP ELA exam

[7] District difference between White and Black 3rd grade students that met or exceeded academic content expectations in Reading in 2014-15

Research-based Design

SPARK promises to be impactful across the tri-state network by integrating the research-proven strategies of one-on-one tutoring, family engagement, and after-school programming into its design.

One-on-one tutoring: The Institute of Education Sciences (2003) reports that one-on-one tutoring for at-risk readers in grades 1 through 3 has the greatest positive effect on students' literacy outcomes. However, teaching students to read requires a school-level system for identifying at-risk students early and providing those students with the affordable, intensive interventions they need to become proficient readers by third grade. Short-term, one-on-one instruction not only offers that direct support, but it is also less expensive than other literacy interventions, long-term special education, or even retention (Nicholson et al., 1999). As such, SPARK is designed to provide students with that direct and intensive literacy support. Tutors engage in one-on-one 30-minute sessions with each student three times a week, develop lesson plans that are developmentally appropriate, and work with their students' teachers to integrate literacy instructional priorities being taught in the classroom. Tutors are trained and supervised by state-certified educators who support high-quality lesson planning and program implementation through observation and data collection. By using tutors instead of teachers, SPARK is able engage a greater number of students at a reduced cost.

Family engagement. Researchers have found that increased parental involvement in their children's schooling is connected to early literacy gains. While outcomes for all students improve with additional family involvement, the demonstrated positive working relationship between the home and school is shown to have an added literacy benefit for low-income children with less-educated parents (Dearing et. al, 2006; Carroll, 2013; Lin, 2003). Not only does increased family engagement lead to increased positive feelings about literacy—which in turn improves literacy performance (Dearing et. al, 2006)—but family involvement is closely connected to student attendance, and research has shown "school, family, and community partnership practices can significantly decrease chronic absenteeism" (Sheldon & Epstein, 2004, p. 39). A U.S. Department of Education report on chronic absenteeism revealed that <u>one in seven students missed 15 or more days of school</u> in 2013-14 (U.S. Department of Education, 2016). Ultimately, for literacy instruction to work and for student literacy levels to improve, children first need to be *in school* to receive it.

Through its innovative parent engagement and outreach practices, SPARK is designed to address the need for family involvement in a successful literacy intervention. The lynchpin of this effort at the site level are SPARK's Family Engagement Coordinators, whose goals are to promote literacy in the home and community and provide a safe, supportive space that allows students to develop confidence and self-esteem. Coordinators stay connected to parents through a variety of means, such as social media, notes home, parent events, and home visits. In addition to stressing the importance of school-day attendance, family events focus on ways in which adults can augment learning at home, engage the whole family in daily literacy activities (such as daily" read-alouds" with intentional breaks to discuss picture-to-text

correlation). Program staff also continually look for ways to learn the families' needs and point

adults towards resources they might not access otherwise (such as community resources

around workforce development).

Social-emotional learning development supported by after-school programming.

Finally, research highlights the importance of supporting social-emotional learning (SEL) and

integrating enrichment activities to strengthen the impact of an intervention. Skills such as self-

awareness, self-management, responsible decision-making, relationship skills, and social

awareness influence all areas of academic, social, and physical development (CASEL, n.d.). A

growing body of research demonstrates that such non-cognitive competencies are important

predictors of many areas of success, including high school and college completion,

employability, earnings, financial stability, avoidance of criminality, and physical and mental

health (Gabrieli et al, 2015).

While the research base around SEL is still growing, SPARK already incorporates

practices intended to support student growth across these non-cognitive competencies (see

Appendix G). During school, tutors and their students develop the strong relationships that

foster social-emotional learning. These relationships help construct safety nets for struggling

students who may be acting out because they are afraid of failing in their classrooms in front of

their peers. SPARK's goal is for students feel comfortable enough to try, knowing their support

systems will continue until they are successful. Additionally, during the afterschool hours,

SPARK provides academic enrichment activities to strengthen social-emotional learning and to

make connections between literacy and everyday experiences. SPARK sites carefully select

books and activities that directly balance teaching reading skills with character-driven stories to

encourage empathy for, and connection with, characters. In small groups, students read and

discuss books of high interest and engage in deep, meaningful content. This ongoing student

engagement and emotional support is intended to sustain SPARK's impact after the student's

participation has ended.

Cost Effectiveness

SPARK's comprehensive and holistic qualities make it unique among other interventions,

which is further illustrated in **Table 2** by comparing the features, impact, and cost of SPARK to

other interventions that support early (K–3) literacy. This cost-effectiveness of SPARK provides

an opportunity to impact more students, and is particularly attractive to rural sites which often

lack funding for additional programming.

Table 2. Summary of Validated Early Literacy Interventions

Program	Features	Duration	Average Effect Size	Annual Cost per Student
Special Education	A multidisciplinary team: • Determines if a student qualifies for special education services, • Creates an individual plan, and • Develops modifications, accommodations, and extra supports for the student	Full academic year	0.18-0.33	$9,369
Retention	• Students who have not reached a certain level of reading proficiency are retained in the same grade for the next year • In practice, often accompanied by summer programs and/or other interventions	Full academic year	−0.13	$7,524
Reading Recovery	• One-on-one tutoring by a licensed teacher who is also Reading Recovery–trained	20 weeks	+0.70	$4,144
Reading Partners	• One-on-one tutoring by volunteers, supervised by an AmeriCorps member	Full academic year	+0.10	$3,610 (some covered by volunteers)
SPARK Early Literacy	• One-on-one tutoring, supervised by a licensed teacher • Family engagement (parental support, outreach, family events, home visits) • Afterschool programming focused on social-emotional learning	Full academic year for all components	+0.51	$2,300

Sources: Reading Partners data comes from CCRE's "Evidence for ESSA website, http://www.evidenceforessa.org; retention and special education costs come from National Education Association, "Special education and the IDEA," http://www.nea.org/specialed/index.html;

retention effect size comes from Frey, N. (2005). "Retention, Social Promotion, and Academic Redshirting: What Do We Know and Need to Know?" *Remedial and Special Education*, *26*(6); special education effect sizes come from Wanzek, J., & Vaughn, S. (2007). "Research-based Implications from Extensive Early Reading Interventions." *School Psychology Review* 36, 541–561; reading recovery costs come from Gómez-Bellengé "2005-06 National Data Preview: Measuring the Impact of Reading Recovery," *Journal of Reading Recovery,* Spring 2007; and SPARK costs are estimated from our intervention studies based in Milwaukee Public Schools.

B. STRATEGY TO SCALE

B.1 UNMET DEMAND

The extent to which the applicant demonstrates there is unmet demand for the process, product, strategy or practice that will enable the applicant to reach the level of scale that is proposed in the application.

As the sections above illustrate, there is substantial unmet demand nationally, for a proven effective, holistic, cost-effective literacy program that meets the needs of low-performing schools. By going beyond the scope of existing literacy interventions at a lower per-student cost the SPARK program presents an unmatched value for educational organizations across the country. For example, Reading Recovery (which does not include family engagement services or afterschool supports) averages $4,144 per student, while SPARK averages $2,300 per student (see **Table 2** in **Section A.3** for a comparison of national literacy programs and their costs). The program is also significantly less expensive—and more effective—than in-school intervention options like special education services and grade retention, which cost an average of $7,524 and $9,369 per student, respectively (National Education Association, n.d.). This demand is evidenced by interest and signed memorandums of understanding (MOUs) or letters of support (LOSs) from 15 schools across a tri-state SPARK expansion network (primarily rural settings), pledging to begin implementation in January 2017 (see **Appendix D**). Due to this potential, the proposes a SPARK Center which takes the program to scale across this consortium of sites and provides an opportunity to test its impact, replicability and scale across

new and diverse locales.

B.2 ADDRESSING BARRIERS TO SCALE

The extent to which the applicant will use grant funds to address a particular barrier or barriers that prevented the applicant, in the past, from reaching the level of scale proposed in the application.

An EIR investment will take SPARK to scale across a tri-state network of 15 high-need, low-performing sites through a technology-enabled SPARK Center, which is then tested for impact, replicability, and sustainability across new and diverse locales. Creating this infrastructure will address the current barriers that are preventing the program from reaching the level of scale proposed; implementation capacity and lack of awareness of the program's unique and cost-effective approach. Located in Madison, Wisconsin, at Education Analytics (EA), the SPARK Center will provide an infrastructure that is anchored in "lessons learned" from both successful i3 validation grantees and the growing literature base on strategies for successfully scaling up evidence-based education programs (Bradach & Grindle, 2014; Coburn, 2003; Levin, 2013; Sutton, 2014). EA' deep knowledge of SPARK,[5] track-record of scaling products and services within and across state lines, and extensive operational, research, and technical assistance capacity, will ensure the proposed comprehensive, technology-enabled SPARK Center successfully scales the program to the tri-state network. (see **Appendix G** for EA's history of effectively scaling products and services). The SPARK Center will include the following primary functions: stakeholder engagement/ communication and dissemination, program implementation resources, and online real-time data management and access. Each of these functions will be integrated into an online technology platform, enabling access and use by

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[5] Since 2014, EA has collaborated with BGCGM and SREed in the evaluation of the SPARK Early Literacy Intervention

SPARK Center and site level staff while also raising awareness of the program for external

stakeholders. (See **Appendix G** for example features of the technology platform).

Stakeholder Engagement / Communication and Dissemination: A key function of the

SPARK Center is comprehensive stakeholder engagement and communication extending to site-

level staff, community members, philanthropic organizations, and the research community. The

SPARK Center will utilize multiple strategies, such as gathering feedback and input from key

stakeholders around barriers to implementation and sustainability, disseminating information

about program effectiveness, and building relationships with key philanthropic organizations.

The SPARK Center has already begun planning for broad dissemination to raise awareness of its

program to increase both site and center sustainability including a plan to engage Boys & Girls

Club State Alliances across all 50 states by participating in the semi-annual Alliance conference

gatherings (See **Appendix G** for additional opportunities for dissemination).

Program Implementation Resources: To support program scale-up, the SPARK Center

will review all existing program implementation resources, enhance and customize them where

necessary, and integrate them into an online, real-time resource library that will be accessible

to all site-level and SPARK Center staff to support high-quality training, coaching, and

implementation. These resources will include: reporting templates, monthly narrative

templates, tutor training tools and how-to videos, time-saving strategies and resources,

structured family engagement activity guides, templates for family newsletters, and web-based

resource links for afterschool and family engagement activities with young readers (see

Appendix G for more information about these resources). A professional SPARK community of

practice which enables SPARK Center staff to interact with site-level stakeholders, facilitating

communication between sites across geographic space to share challenges, best practices, and lessons learned, will supplement the implementation resources.

Online, Real-Time Data Management and Access: To best support program implementation, the SPARK Center will expand SPARK's current data management solution, Cityspan, which is used by government agencies, school districts, and nonprofit organizations. The system, currently being used successfully in SPARK Milwaukee sites, provides both site-based users and centralized administrators full access to day-by-day activity and progress, including 24-hour access to current participant status, as well as e-mailed monthly reports. Examples of the data captured includes: the number of in-school tutoring sessions, the number of afterschool reading enrichment sessions, the reason for missed sessions (child absence, tutor absence, etc.), the number of family events, the number of individual parent contacts, and the number of licensed educator formal observations. An automated "red alert" e-mail message is sent to pertinent parties when targets are not met or data is not entered. This system will be critical to the multidistrict implementation effort; it will inform targeted site supports and development of implementation resources.

B.3 REPLICATION IN A VARIETY OF SETTINGS AND POPULATIONS

The feasibility of successful replication of the proposed project, if favorable results are obtained, in a variety of settings and with a variety of populations.

The SPARK Center will extend the existing program to additional settings and allow for testing of replication in the 15 site, tri-state network including both urban and rural communities (See **Section A.3** for full list of sites). The proposed program will build upon SPARK's successful implementation in seven low-performing urban sites with diverse program

participants; two randomized control trial (RCT) studies, funded by a previous i3 Development

Grant, showed that the program had a strong impact on the African American, Hispanic,

Southeast Asian, White (non-Hispanic), and Native American students. Extending

implementation to rural settings will ensure the program's replication in areas that "have yet to

attain an acceptable level of success in educating and closing the achievement gap across the

various racial and economic subgroups of this diverse student population" (Williams, 2003, p.3).

Successful replication in additional settings will be supported through the SPARK

Center's customization of existing implementation processes and resources to best fit the

needs of these various locales. SPARK Center staff will collaborate with the program evaluation

team to review variations in implementation across the different settings, then further

customize supports and resources as needed and continue to review for efficacy. Findings from

the program evaluation will determine whether SPARK has a differential impact in different

settings and with different student subgroups, the variability of SPARK's impact across sites,

and the effectiveness of each SPARK Center function in facilitating implementation. These

findings will inform additional SPARK Center expansion and replication by the end of Year 3,

when the SPARK Center begins fee-for-service offerings to meet the demand for this research-

based cost-effective program (see **Section C.3** for additional details).

C. QUALITY OF THE PROJECT DESIGN AND MANAGEMENT PLAN

C.1 CLARITY OF GOALS, OBJECTIVES, AND OUTCOMES

The extent to which the goals, objectives, and outcomes to be achieved by the proposed

project are clearly specified and measurable.

SPARK is an innovative program for improving early literacy outcomes for students in

Kindergarten through 2nd grade; EIR mid-phase funding will allow the partnering organizations

to expand its impact to a proposed 15 sites in Wisconsin and other states by rolling out a

technology-supported SPARK Center that will promote effective implementation and

information dissemination. **Table 3** (and logic model in **Appendix G**) below further details the

project's goals, objectives, and measurable targets.

TABLE 3. Project Goals and Objectives		
Goals	Objectives	Outcomes
Goal 1: Improve student literacy outcomes at existing and new sites	A. Successfully implement the SPARK Early Literacy program to increase literacy outcomes, decrease absenteeism, and improve student social-emotional learning	Intervention students demonstrate greater improvement than control students on reading assessments.
		Intervention students demonstrate greater growth than control students on a teacher survey about student social-emotional development (T-CRS: Teacher-Child Rating Scale)
		80% of intervention tutoring will demonstrate adequate adherence to the model as determined by an implementation observation tracking system
	B. Successfully implement the SPARK family engagement process	6 site-level family engagement events held per school year as measured by Cityspan data tracking system
		Intervention students demonstrate higher regular school-day attendance than control classrooms
Goal 2: Establish the SPARK Center to scale the SPARK program across a tri-state network	A. Establish SPARK Center infrastructure	Management plan and project management processes implemented
		Program- and site-level staff hired and trained at all sites
		Program advisory group and technical work group established
	B. Establish systems for communications / stakeholder engagement and dissemination	Develop and implement a comprehensive communication and stakeholder engagement plan
		Develop a and implement a comprehensive dissemination and marketing plan
	C. Build upon current SPARK Center implementation resources	Refine existing training and site engagement resources, bring them into an online library, and employ them across all sites.
	D. Manage and access data online and in real time	Develop dashboard for reviewing implementation data
Goal 3: Support an evaluation of the SPARK program expansion that meets WWC standards	A. Use randomized-control trial framework to determine SPARK's impact	Disseminate findings and final report to the DOE and stakeholders
	B. Use qualitative and formative methods to track implementation and inform project improvement efforts	Disseminate findings and final report to the DOE and full range of stakeholders. Continuously share results with project leadership to inform ongoing decision-making

Successful implementation of the intervention will be tracked using a range of data collection

tools, including the Phonological Awareness Literacy Screening (PALS) literacy assessment in-school tutoring attendance, frequency of parent/family outreach and contact,[6] and teacher surveys on student social-emotional development (the Teacher-Child Rating Scale, T-CRS). For more information about the data collected and tracked to inform the evaluation, as well as to assess ongoing continuous improvement, see **Section D: Quality of the Project Evaluation**.

C.2 ADEQUACY OF MANAGEMENT PLAN

The adequacy of the management plan to achieve the objectives of the proposed

project on time and within budget, including clearly defined responsibilities, timelines,

and milestones for accomplishing project tasks.

EA's established project management practices ensure clear alignment between project goals and staff responsibilities, ensure communications across all project staff, and promote data-informed decision-making for all project activities. Described below are leadership roles and responsibility at the two levels of management: (1) Spark Center staff and (2) local BGC-affiliate / school sites. (see **Appendix G** for SPARK Center Organizational Chart).

SPARK Center: The responsibilities of all SPARK Center personnel are in **Table 4** below.

TABLE 4. SPARK CENTER MANAGEMENT	
ROLE	RESPONSIBILITY
Project Director	Lead overall project design and execution, including financial oversight and management of staff and partner to ensure project goals and objectives are met on time and within budget
Project Supervisor	• Grant management including timeline and budget management, partner and affiliate engagement, and USDOE reporting. • Lead cross-functional leadership team in data-driven continuous improvement process applied to all programmatic and strategic activities (including sustainability)
Operations	• Oversee project financials and administrative services

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[6] Family outreach includes monthly newsletters, text & email messages, invitations to events, and phone calls home. Family contact includes only meaningful interaction such as attendance at a family event, a phone conversation or a successful home visit.

Director	• Work with Evaluation Team as needed to support evaluation • Oversee development and implementation of SPARK Center website
Implementation Director	• Oversee local sites and ensure collaboration among schools and program sites • Oversee senior program manager and family engagement senior manager • Develop cross-site processes and resources for hiring, training, and employee review • Support marketing and information dissemination
Senior Program Manager	• Supervise Program Managers and local affiliate Site Coordinators • Develop resources and deliver training for Program Managers • Review implementation data and plan support
Senior Family Engagement Coordinator	• Supervise Family Engagement Coordinators • Develop resources and deliver training for Family Engagement Coordinators • Review implementation data and plan support
Outreach Specialist	• Support ongoing stakeholder engagement and communication activities • Lead branding of SPARK Center resources for dissemination
Cross-Functional Leadership Team	Project Director, Operations Director, Implementation Director, Project Supervisor, Evaluation Principal Investigator • Monitor annual targets and benchmarks and ensure fidelity to the program model • Perform ongoing review of data to identify programmatic changes to implement • Work with Program Advisory Group and Technical Working Group
Operations Team	Operations Director and EA staff • Establish and maintain SPARK Center technology platform, including dashboards for reviewing implementation data and communities of practice
Advisory Board	Key stakeholders to inform strategic direction (including BGC members, local site leadership, literacy experts from the field) • Refine the implementation model • Provide strategic recommendations around sustainability and scalability
Evaluation Team	Principal Investigator, SREed Evaluation Team • Design and implement the evaluation methodology used to measure SPARK impact and fidelity of implementation • Ensure that all permissions and data agreements proceed as planned and oversee collection of student outcome data • Facilitate the use of implementation and outcome data by site and project staff (including ongoing conversations around continuous improvement activities) • Prepare presentations and reports of evaluation results

To support the efficient and successful completion of the proposed work, SPARK Center personnel will utilize a range of communication strategies, including in-person meetings, phone and video conferences, and shared collaborative tools and software. The SPARK Center's technology platform will provide resources and data for SPARK Center and site level staff effectively implement the program across the 15 SPARK sites. Through the platform, the

respective SPARK Center teams will monitor program performance and data, track student

participation and progress, disseminate training and support materials to site-level staff,

participants, and stakeholders, and provide a central communication platform for members of

the SPARK network (see **Appendix G** for a list of SPARK Center Platform Potential Features).

Local BGC affiliates / school sites: The SPARK Center recognizes the importance of leveraging

local BGC and site leadership to implement the model in their own community setting and with

local school personnel, which is reflected in the responsibilities of all SPARK personnel at local

sites are included in **Table 5** below.

TABLE 5. SPARK LOCAL SITE MANAGEMENT	
ROLE	RESPONSIBILITY
Implementation Team	Implementation Director, Senior Program Manager, Family Engagement Senior Manager, Site Coordinators, Program Managers, Family Engagement Coordinators • Ensure SPARK services are being offered in adherence to the established timeline • Ensure sites have the appropriate level of personnel assigned to support the students • Work with the external evaluator to conduct observations at affiliate sites • Ensure systems are in place to collect program data/observations, conduct professional development, & work with affiliates to facilitate collaboration among the schools
Site Coordinators	• Hire, supervise & evaluate the Family Engagement Coordinators • Review parent contact & participation data with Family Engagement Coordinator monthly to determine levels of parent participation and communication • Work with Family Engagement Coordinators to increase family engagement • Coordinate collection of student data & evaluation information needed at the site level
Program Managers (certified teacher)	• Hire, supervise, schedule & evaluate tutors • Facilitate monthly literacy collaboration meetings with tutors, classroom teachers, & Family Engagement Coordinator • Train, observe & review tutors and lesson plans and provide ongoing professional development • Coordinate collection of all student data needed at the site level
Family Engagement Coordinator	• Coordinate monthly family events • Conduct two home visits per year with each family • Collaborate with participating teachers to ensure that parents receive information on their child's progress & on how to best support their child's achievement in literacy • Enroll parents as leaders to facilitate monthly parent events • Work with parents to ensure that they enroll their children in the afterschool & summer literacy program provided by the local BGC
Tutors	• Provide one-on-one reading instruction to intervention participants • Create 30-minute lesson plans using standardized format, 3x per week for each student • Track student progress, growth, and attendance • Communicate individual student progress to Family Engagement Coordinators

		Integrate the literacy instructional priorities of the classroom teacher he/she supports

Proposal Timeline/Milestones

The timing of each project activity, its aligned goal, and the team responsible for its completion are detailed in **Table 6.** Six cross-cutting teams will coordinate all aspects of work that require input and performance across institutions and areas of expertise including: Cross-Functional Leadership Team (Lead), Implementation Team (Impl), Evaluation Team (Eval), Operations Team (Oper) Advisory Board (Advs). Some activities will also be supported by SPARK site-level teams (Sites).

Table 6. Proposal Timeline

Aligned Goal	Team/ Leads	Activity	Y1				Y2				Y3				Y4	
			F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W
All	Lead	Regular leadership meetings	X	X	X	X	X	X	X	X	X	X	X	X		
All	Advs, ERC	Quarterly team meetings	X	X	X	X										
All	Lead, Impl	Quarterly cross-network meetings					X	X	X	X	X	X	X	X		
2	Lead, Oper	Establish SPARK Center with key functions of implementing cross-state infrastructure; stakeholder / communication and dissemination, implementation resources, and online data management and access	X	X	X	X	X	X	X	X						
1	Lead, Impl	Establish process for site-level hiring and technical assistance to sites; recruit all local site management			X											
1	Lead, Impl	Establish and implement formal process for training Program Managers and Family Engagement Coordinators			X											
1	Lead, Impl, Sites	Network-wide 4 to 5-day site personnel training			X											
1	Impl	Site visits to support program set-up			X											
1	Eval, Sites	Site visits to engage stakeholders about requirements for study involvement			X											
1	Impl	Establish process for hiring tutors and begin recruitment				X										
1	Impl	Establish process for training tutors and begin training				X										
1	Impl, Sites	Prepare literacy labs at sites with print-rich environment			X											
1	Impl, Sites	Pilot SPARK literacy intervention			X											

Year	Team	Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Impl, Sites	Pilot family engagement process			X	X												
1	Impl, Eval, Sites	Work with teachers to identify students who would benefit from SPARK					X											
1	Eval, Sites	Recruit students and obtain parental consent for participation in the project					X	X		X								
1	Impl, Sites	Implement SPARK literacy intervention (scheduling, tutoring, ongoing supervision of tutors)					X	X	X	X	X	X	X	X				
1	Impl, Eval, Sites	Implement SPARK literacy intervention with Year 3 control group students (scheduling, tutoring, ongoing supervision of tutors)																
1	Impl, Eval, Sites	Implement family engagement process (monthly family events, home visits when necessary, coordinating afterschool engagement/activities)					X	X	X	X	X	X	X	X				
1, 2	Impl	Visit sites to provide support and capacity-building once in the fall, once in the spring, and as needed					X	X	X	X	X	X	X	X				
All	Sites	All sites participate in fall literacy assessment								X								
2, 3	Eval, Oper, Sites	Obtain outcome data from schools								X								
1	Eval	Randomly assign students to receive SPARK								X	X							
2, 3	Eval, Oper, Sites	Obtain outcome data from schools												X	X			
1, 3	Eval	Analyze impact of SPARK													X			
3	Eval, Lead	Prepare final report															X	
3	Lead	Complete reporting requirements															X	
3	Oper, Eval	Prepare datasets for the DOE															X	X

In addition to providing a timeline, **Table 6** shows the staffing structure needed to successfully bring SPARK to scale while ensuring its efficacy. Management consists of two parallel teams at the local and national level, staffed by individuals with the highest qualifications and expertise to ensure the efficacy of implementation (see **Appendix C** for resumes of key personnel).

C.3 FEEDBACK & CONTINUOUS IMPROVEMENT

The adequacy of procedures for ensuring feedback and continuous improvement in the operation of the proposed project.

As the prime contractor, Education Analytics (EA) will lead the design, implementation, and ongoing progress monitoring of the SPARK Center, which has been designed to align with i3 lessons learned that organizations can successfully scale up and achieve sustainability when they adapt practice based upon evidence. Using a process based upon Dr. W. Edwards Deming's Plan, Do, Study, Act (PDSA) Cycle, which is designed to build organizational learning and knowledge through a systematic series of steps for the continual improvement of a product or process (Deming, 2000), SPARK Center staff will continuously review all data sources (e.g, stakeholder feedback, fidelity of implementation data) to determine how to provide targeted support to site-level staff and refine existing resources. This process will be particularly important for scaling the program to new settings (rural and across state lines) as specific contextual factors provide opportunities for customizing, testing, and refining implementation support.

This data-informed approach has been integral to EA's success in managing and implementing a range of research, technical assistance, and service projects which rely upon effective scaling. (see **Appendix G** for EA Organizational Qualifications) The SPARK Center's management structure and internal processes, built around EA's technology, will ensure effective implementation and prepare the Center for scaling to additional sites after the grant years have ended. EA's established project management practices ensure clear alignment between project goals and staff responsibilities, facilitate communications across all project staff, and promote data-informed decision-making for all project activities.

This data-informed process will occur at all levels of SPARK implementation, most importantly at the individual site. At the site level, the SPARK literacy intervention includes a

number of tools designed to ensure efficacy of instruction and integrity of the program (described in **Section A.3**), including running records to assess participant progress and appropriate level of material, monthly tutoring session observations conducted by site coordinators to collect continuous improvement data across sites, and tutor-developed lessons plans written for each session based on the College and Career Readiness standards (see **Appendix G** for examples of materials).

C.4 FUTURE POTENTIAL & PLANNING

The potential and planning for the incorporation of project purposes, activities, or benefits into the ongoing work of the applicant beyond the end of the grant.

The first three months of Year 1— from October through December 2017—will focus on an intensive transfer of existing SPARK implementation expertise and resources to the SPARK Center, and hiring and training additional staff. Activities over the remainder of Year 1 (January to September 2017) will build out all SPARK Center functions, integrate into an online technology platform, and begin program implementation in select sites for the second half of the 2017-18 school year. During Year 2 (2018-19 school year), findings from the program evaluation and stakeholder input will be used to test and refine SPARK Center functions as the program is fully implemented. By the end of Year 2, SPARK Center functions will be market-ready, and fee-for-service provision will begin to additional sites. Thus, in Year 3 (2019-20 school year), while EIR grant funds are being used to complete the validation study, the SPARK Center will begin generating revenue from its fee-for-service offerings. During Year 4 (September to December 2020), the self-sustaining SPARK Center will rapidly expand service provision nationally, as SREed completes the final evaluation and works with the DOE to publish it findings.

The expected self-sustainability of the SPARK Center through generation of fee-for-service revenue is based upon the large unmet demand for this service (discussed in **Section B.1**). Although fee-for-service provision will be available to the full range of educational organizations, our connections to the two largest networks of afterschool, extended learning opportunities—The 21CCLC national network (10,000 sites) and Boys & Girls Clubs of America (4,000 clubs) — will significantly stimulate SPARK's expansion. The self-sustaining SPARK Center will also be achieved through aggressive fundraising by SPARK Center leadership starting in Year 1 of the EIR grant, supported through an in-kind contribution of EA's Vice President of Development's time. This process has already begun; the SPARK Center is currently pursuing multiple funding sources to support scale-up, including Pay-For-Success (See **Appendix G** for a list of potential sources of foundation funding).

D. QUALITY OF PROJECT EVALUATION

EVALUATION DESIGN

An independent evaluation, conducted by Dr. Curtis Jones at the Office of Socially Responsible Evaluation in Education (SREed) at the University of Wisconsin—Milwaukee, will systematically collect and weigh the evidence of SPARK's results while also informing the program's continuous improvement efforts. SREed has the necessary experience to successfully conduct the evaluation, having served as an external evaluator for a number of projects of this size and scope including the Investing in Innovations (i3)-funded SPARK development grant, resulting in two studies that the What Works Clearinghouse (WWC) designated as meeting design standards without reservations. The multisite, randomized control trial methods (Raudenbush & Liu, 2000) used for the current study are similar to those used in the previous

project, so it is expected that it will also meet WWC design standards without reservations.

EVALUATION QUESTIONS

The evaluation will answer eight questions using a variety of qualitative and quantitative methods to track implementation as outlined in **Table 7** below. The evaluation will use a multisite, randomized control trial framework to establish SPARK's impact and to meet the design standards for inclusion in the WWC. The study will focus on two questions regarding implementation at both the site and the project level, three confirmatory questions across three unique domains (school attendance, literacy achievement, and social-emotional development), and three planned exploratory questions exploring the unique impact of the components of SPARK, whether SPARK has a differential impact with different student subgroups, and the variability of the impact of SPARK across sites.

Table 7: Research questions and data sources

	Program data	Interviews	Observations	Teacher survey	Student data
Q1: To what degree is SPARK being implemented as intended?	X	X	X		
Q2: How effective are the information, supports, and trainings provided to SPARK sites?		X	X		
Q3: To what extent does SPARK affect student literacy? (confirmatory)					X
Q4: To what extent does SPARK affect students' regular school-day attendance? (confirmatory)					X
Q5: To what extent does SPARK affect social-emotional development? (confirmatory)				X	
Q6: What is the unique impact of the tutoring and family components? (exploratory)				X	X
Q7: What evidence is there that SPARK has a differential impact on student subgroups? (exploratory)					X
Q8: How much variability exists in SPARK's impact across sites? (exploratory)					X

SAMPLE SELECTION

The first year of the project will be treated as a pilot, with an emphasis on providing the project with formative feedback regarding implementation and preparing of sites for the

randomized control study. In Years 2-3 the evaluation's primary focus will shift to measuring

SPARK's impact, employing a multisite randomized control trial selection framework at the

student level. In year two, blocking will occur by grade level within schools. With 15 schools and

two grade levels involved in the study, there will be 30 blocks. To ensure that students with the

greatest need are served by the study, group assignment will not occur until after literacy

assessments are completed at the beginning of the school year. Within each block, students

with the lowest assessment results will be prioritized for eligibility in the study. Half of the

students selected for the study in each block will be randomly assigned to participate in SPARK

in year two, while the other half will receive "business as usual" literacy instruction and serve as

controls. In Year 3, the Year 2 control group will then receive SPARK, with year two SPARK

participants serving as the control group. This method will result in two randomized studies of

SPARK, the results of which will be pooled together at the conclusion of the study.

EVALUATION DATA SOURCES

Program data. Each SPARK site will document in-school tutoring attendance and participation

in parent engagement activities. Used to monitor both individual and site-level implementation,

these data will be analyzed and reported quarterly to SPARK administration as well as to

calculate student and site fidelity-of-implementation scores.

Interviews. SPARK staff (program managers, site coordinators, family engagement

coordinators, and tutors) and teachers will be periodically interviewed about a variety of topics

relating to both effectiveness and implementation. Teachers will be asked questions such as

"How much, and in what ways, have your students benefited from SPARK?" and "To what

degree have you been able to coordinate your literacy instruction with what is happening in

SPARK?" SPARK staff will be asked questions related to implementation such as "What supports, information, and training would help you be more effective in your role?"

Observations. Site managers periodically observe and check the quality of tutoring using a structured, qualitative, fidelity-of-implementation observation instrument, performed in tandem with evaluation staff to help calibrate results. The evaluation staff will also use a structured observation instrument to observe family engagement events. The results will be available to SPARK staff in real time through the SPARK Center's website to inform continuous improvement efforts.

Teacher survey (social-emotional development). Teachers will complete the Teacher-Child Rating Scale (T-CRS) (Hightower et al., 1996) for each study participant before they are assigned to the SPARK or control groups, and again at the end of their participation. This short survey asks teachers to rate how much they agree with statements describing a student's social-emotional development. The results produce an overall score, a score for externalized behavior/behavior control (e.g. "Tolerates frustration"), assertiveness (e.g. "Participates in class discussions"), peer social skills (e.g. "Has many friends"), and task orientation (e.g. "Works well without adult support"). Used in a number of studies, this scale has been shown to be both valid and reliable (Weissberg, et al., 1987).

Student data. The Phonological Awareness Literacy Screening (PALS), developed by the Curry School of Education at the University of Virginia, is a valid, reliable, criterion-referenced benchmark assessment currently being used by all of the participating schools to track student literacy development. Composite scores from the PALS will be used to measure the impact of SPARK on literacy achievement. Schools will administer the PALS in the fall and spring each

year. Regular school-day attendance (number of absences) and student demographic data (gender, race, free/reduced price lunch participation) will be also collected from each school.

ANALYSIS

Q1: To what degree is SPARK being implemented as intended? To address this question, the evaluation team will monitor the implementation of key components, as presented in the logic model and tracked with program data. These components include the number of tutoring sessions each student receives, the number of family contacts made, and the number of newsletters sent home. At the student level, minimum participation in SPARK will require at least 40 tutoring sessions, five family contacts, one home visit, and six newsletters sent home. For a site to be implementing SPARK well, at least 70% of students must meet these thresholds. These quantitative data will be supplemented with qualitative data from observations and interviews to achieve a greater depth of understanding. Qualitative data will be analyzed thematically and through grounded theory methods (Glaser & Strauss, 1967).

Q2: How effective are the information, supports, and trainings provided to SPARK sites? SPARK staff interviews will explore the effectiveness of the supports and trainings the staff receive from Education Analytics. Again, qualitative data will be analyzed thematically and through grounded theory methods (Glaser & Strauss, 1967).

Q3: To what extent does SPARK affect student literacy? (confirmatory) The following multilevel model, with students nested within sites (Raudenbush, 1993), with slight variations, will be used to answer research questions:

$$y_{ij} = \alpha_{0j} + \alpha_1 S_{ij} + \alpha_2 B_{ij} + \alpha_3 X_{ij} + \varepsilon_{ij} \qquad (1)$$

$$\alpha_{0j} = \beta_{00} + \delta_{0j} \qquad (2)$$

In equations (1) and (2), y_{ij} is the standardized literacy assessment measure for student i in school j; α_{0j} is a school-level intercept that includes a fixed intercept component β_{00} and a school random intercept component δ_{0j}; S_{ij} is an indicator variable for participation in SPARK; α_1 is the effect of SPARK; B_{ij} is a baseline literacy assessment measure with corresponding coefficient α_2; X_{ij} is a vector of student background characteristics, such as gender, race, and free/reduced-price lunch participation, with corresponding coefficient vector α_3; and ε_{ij} is the error term. Separate models will be fitted within each grade level and then pooled to estimate SPARK's overall impact. Alternative variations of this model include using school fixed effects (i.e., specifying δ_{0j} as fixed rather than as random) and/or interactions between SPARK participation, baseline literacy, and/or student background with school assignment (i.e., expanding α_1, α_2, and/or α_3 to include school fixed and/or random components, transforming them to α_{1j}, α_{2j}, and/or α_{3j} analogously to the intercept in equation 2).

Q4: To what extent does SPARK affect students' regular school-day attendance?

(confirmatory) The same modeling strategy used in research question Q3 will help determine the SPARK's effect on attendance by replacing the literacy assessment measures in equation (1) with the number of school absences a student has prior and after their participation in SPARK.. Alternatively, school absences prior to SPARK could be included as an additional explanatory variable rather than as a replacement for the baseline literacy assessment measure. This approach is useful if information in the baseline literacy scores is predictive of future absences.

Q5: To what extent does SPARK affect social-emotional development? (confirmatory) The same modeling strategy used in research question Q3 will also help determine how much impact SPARK has on social-emotional development. This strategy will be applied by replacing

the literacy assessment measures in equation (1) with T-CRS scores.

Q6: What is the unique impact of the tutoring and family components? (exploratory) Analysis of sibling pairs will be used to tease apart the impact of family engagement from tutoring. An estimated 20% of study participants will have another sibling in the study, so a number of children will be participating in SPARK while their brother or sister is in the control group. While control group students will not directly participate in the SPARK program while at school, their parents will still receive the family engagement programming. Therefore, the impact of the family engagement component can be isolated by coding participation into three categories: students assigned to receive SPARK; control group students with siblings who were assigned to receive SPARK; and control group students with no siblings in SPARK. The effect of the family engagement component can be measured by comparing the outcomes of students in the control group with and without siblings in SPARK

Q7: What evidence is there that SPARK has a differential impact on student subgroups? (exploratory) Student subgroup differential impact analysis will be conducted by interacting SPARK participation (S_{ij}) with both baseline assessment results (B_{ij}) and student characteristics (X_{ij}). Significant interactions would suggest that the impact of SPARK varies according to the reading abilities of students or by gender, race, or free/reduced-price lunch participation.

Q8: How much variability exists in SPARK's impact between sites? (exploratory) SPARK's effect will be alternatively modeled to include a random component that varies across schools. The school-level random effect of SPARK participation, specified in equation (3), will be added to equations (1) and (2) to estimate the variability in treatment effects across sites:

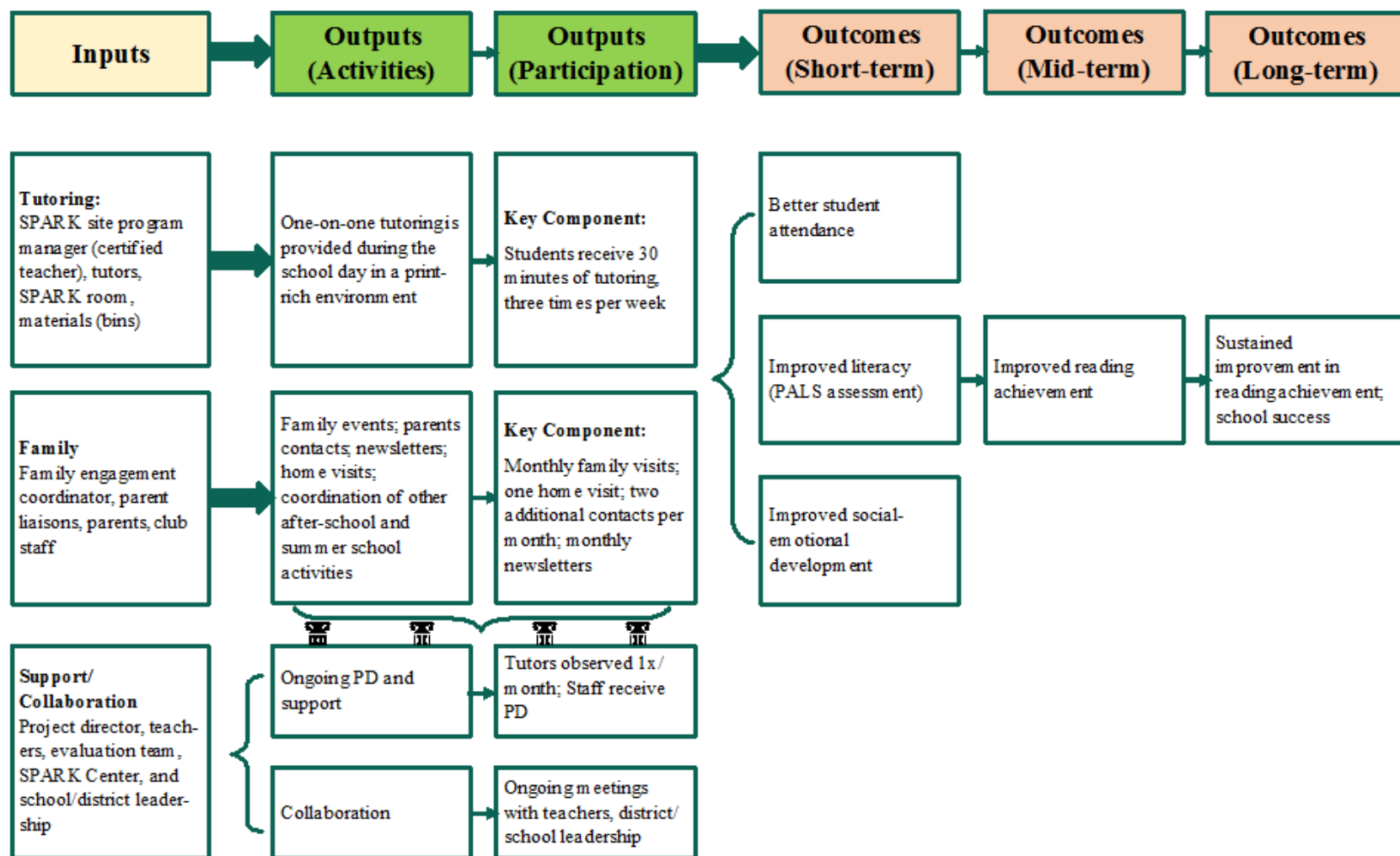$$\alpha_{1j} = \beta_{10} + \delta_{1j} \quad (3)$$

This model specification will allow variance in SPARK's impact across sites to be tested. If this test's results suggest that significant treatment-by-site variance exists, site characteristics will be explored as potential moderators of SPARK's impact. These will include implementation factors, site fidelity-of-implementation scores, and demographic characteristics such as the percent of students receiving free/reduced-price lunch.

POWER ANALYSIS

Historical data from the i3 development grant were analyzed to inform the parameters used for the power analysis using Raudenbush's Optimal Design software. For all analyses, Alpha was set to .05 (α = .05) and Power was set to .80 (F = .80). Cell size is expected to be approximately 40 students (n = 20 SPARK and n = 20 control) for each of the 30 sites/blocks (grade levels within schools). Years two and three attrition rates are estimated to be 10% and 35% respectively, which results in analytic cell sizes of 36 and 26. **Table 8** presents the parameters and results from the power analysis. The specific parameters used to estimate minimum detectable effects (δ) are based on the results from previous evaluations of SPARK and from a review of the literature. Given that previous evaluations of SPARK found that after one year of tutoring SPARK had an impact of .40 on the PALS and .13 on regular school attendance, the power analysis suggests that there is ample power to detect the impact of SPARK.

Table 8. Power Analysis	PALS	T-CRS	School Absences
Power (F)	.80	.80	.80
Effect size variability (σ^2)	.05	.05	.05
Variance explained by blocking variable (B)	.00	.05	.07
Variance explained by covariates (R^2)	.40	.40	.10
Year 2 Minimum Detectable Effect (δ)	.18	.18	.21
Year 3 Minimum Detectable Effect (δ)	.21	.21	.23
Pooled Minimum Detectable Effect (δ)	.14	.13	.15

SPARK Center Scaling & Validation Logic Model

Inputs	Outputs (Activities)	Outputs (Participation)	Outcomes (Short-term)	Outcomes (Mid-term)	Outcomes (Long-term)

Tutoring:
SPARK site program manager (certified teacher), tutors, SPARK room, materials (bins)

One-on-one tutoring is provided during the school day in a print-rich environment

Key Component:
Students receive 30 minutes of tutoring, three times per week

Better student attendance

Family
Family engagement coordinator, parent liaisons, parents, club staff

Family events; parents contacts; newsletters; home visits; coordination of other after-school and summer school activities

Key Component:
Monthly family visits; one home visit; two additional contacts per month; monthly newsletters

Improved literacy (PALS assessment)

Improved reading achievement

Sustained improvement in reading achievement; school success

Improved social-emotional development

Support/ Collaboration
Project director, teachers, evaluation team, SPARK Center, and school/district leadership

Ongoing PD and support

Tutors observed 1x/ month; Staff receive PD

Collaboration

Ongoing meetings with teachers, district/ school leadership

ACRONYM KEY

ACRONYM	MEANING
21CCLC	21st Century Community Learning Centers
BGC	Boys & Girls Club
BGCGM	Boys & Girls Clubs of Greater Milwaukee
CRRE	Center for Research and Reform in Education
DOE	Department of Education
EA	Education Analytics
EIR	Education Innovation and Research
ESSA	Every Student Achieves Act
i3	Investing in Innovations
LEA	Local Education Agency
LOS	Letter of Support
MOU	Memorandum of Understanding
MPS	Milwaukee Public Schools
NAEP	National Assessment of Educational Progress
NSLP	National School Lunch Program
PALS	Phonological Awareness Literacy Screening
RCT	Randomized Control Trial
SREed	Office of Socially Responsible Evaluation in Education
T-CRS	Teacher-Child Rating Scale
WWC	What Works Clearinghouse

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