U.S. Department of Education - EDCAPS
G5-Technical Review Form (New)

Technical Review Coversheet

Applicant: BSCS Science Learning (S411C230181)
Reader #1:   **********

		Points Possible	Points Scored
Questions			
Selection Criteria			
Significance			
1. Significance		20	13
Quality of Project Design			
1. Project Design		30	28
Quality of Project Personnel			
1. Project Personnel		10	10
Quality of the Management Plan			
1. Management Plan		10	10
	Sub Total	70	61
Priority Questions			
Competitive Preference Priority			
Competitive Preference Priority 1			
1. Promoting Equity		5	5
Competitive Preference Priority 2			
1. Workforce Diversity		2	0
	Sub Total	7	5
	Total	77	66

Panel #10 - EIR Early-Phase - 10: 84.411C

Reader #1: **********

Applicant: BSCS Science Learning (S411C230181)

Questions

Selection Criteria - Significance

1. The Secretary considers the significance of the proposed project. In determining the significance of the proposed project, the Secretary considers the following factor:

Reader's Score: 13

Sub

1. **(1) The extent to which the proposed project involves the development or demonstration of promising new strategies that build on, or are alternatives to, existing strategies. (20 points)**

   Strengths:

   The existing program, Open Sci Ed has been previously field tested and is currently being implemented however no studies currently exist on how it impacts student science achievement. The applicant proposes a quasi-experimental study to evaluate the efficacy of a large-scale Open Educational Resource middle school science curriculum on student science achievement (p.e23).

   Weaknesses:

   The applicant seeks to evaluate an existing curriculum for efficacy in improving student science scores. The applicant does not sufficiently prove that this is a "new" or "alternative" strategy to an existing program as Open SciEd is currently already existing.

   Reader's Score: 13

Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project. In determining the quality of the design of the proposed project, the Secretary considers the following factors:

Reader's Score: 28

Sub

1. **(1) The extent to which there is a conceptual framework underlying the proposed research or demonstration activities and the quality of that framework. (10 points)**

Sub

Strengths:

The applicant utilized the OpenSciEd Conceptual Framework which is based on the National Research Council's K-12 Framework for Science Education (p.e19). This is the framework underlying the creation of Next Generation Science Standards and is considered by the educational field as the "way" science should be taught in the United States.

Weaknesses:

No weaknesses found.

Reader's Score: 10

2. **(2) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable. (5 points)**

Strengths:

The proposal includes two goals; "test the OpenSciEd instructional materials and engage in local adaptation and refinement of teacher professional learning supports" (p. e25). The strategies, outcomes, and measures for the proposal are detailed in Exhibit 4, (p. e26) and are aligned with the proposal's goals. For example, Objective 1: Leverage the expertise and perspective of Southern University to co-adapt, pilot, monitor, and refine the professional learning program to support implementation of OpenSciEd (Years 1 and 2) which leads to Strategy 1.3, pilot professional learning program. The outcome is pilot professional learning with 8th-grade teachers in high-need schools which leads to measure 1.3, documentation of teacher participation in professional learning activities.

Weaknesses:

In Exhibit Four p. e26, none of the "measures" have success indicators. For example, "Measure 1.3., "Documentation of teacher participation in PL activities" does not include the specific number of teachers the applicant wants to participate in the professional learning (PL) activities so it is unclear how the applicant will measure the success of this grant.

Reader's Score: 3

3. **(3) The extent to which the design of the proposed project is appropriate to, and will successfully address, the needs of the target population or other identified needs. (15 points)**

Strengths:

The applicant specifically addressed how the proposal will meet the needs of the students receiving the implementation. "In Louisiana, where this project will take place, 58% of students are non-white, 60% are economically disadvantaged, and 45% are below the basic level in science "(NCES, 2022). The development of the curriculum will meet the needs of traditionally underserved students. The OpenSciEd materials make this diversity visible by including a broad range of images and stories of who does and has done STEM endeavors in our society, and prioritize the interests of underserved communities"), the grade level of implementation. The OpenSciEd program is designed to address low achievement and widening gaps in middle school grades (pgs,e27 and e28).

Weaknesses:

No Weaknesses Found.

Reader's Score: 15

Selection Criteria - Quality of Project Personnel

1. The Secretary considers the quality of the personnel who will carry out the proposed project. In determining the quality of project personnel, the Secretary considers the following factor:

Reader's Score: 10

Sub

1. (1) The extent to which the applicant encourages applications for employment from persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, gender, age, or disability. In addition, the Secretary considers the qualifications, including relevant training and experience, of key project personnel. (10 points)

   Strengths:

   The proposal will be implemented by three organizations; BSCS Science Learning, American Institutes for Research, and Southern University. According to the applicant, "Each of the three organizations is committed to equity, diversity, and inclusion, has explicit policies to encourage recruitment of diverse staff, and will commit to staffing the project with a diverse group of team members with experience working with the high-need populations and communities the project will serve" (p. e30). The proposed personnel all have previous experience in educational research as well as specific experience with Education, Innovation and Research grants.

   Weaknesses:

   No weaknesses found.

   Reader's Score: 10

Selection Criteria - Quality of the Management Plan

1. The Secretary considers the quality of the management plan for the proposed project. In determining the adequacy of resources and quality of the management plan for the proposed project, the Secretary considers the following factors:

Reader's Score: 10

Sub

1. (1) 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.

   Strengths:

   The management plan is exceptionally detailed and thorough. The included timeline (Exhibit J5, p. e155) breaks down the activities and milestones and lists the specific partner and person(s) responsible for each milestone. For example, activity 1.3, pilot PL program, will be completed in year 2 and Zwiep, Lo, Jackson-Osagie, and Reed will be the personnel responsible for completing this activity.

   Weaknesses:

   No weaknesses found.

Sub

    Reader's Score: **10**

Priority Questions

Competitive Preference Priority - Competitive Preference Priority 1

1. **Competitive Preference Priority 1:**

   Promoting Equity in Student Access to Educational Resources and Opportunities: Implementers and Partners (up to 5 points)

   Under this priority, an applicant must demonstrate how the project will be implemented by or in partnership with one or more of the following entities:
   (a) Community colleges (as defined in the NIA)
   (b) Historically Black colleges and universities (as defined in the NIA)
   (c) Tribal Colleges and Universities (as defined in the NIA)
   (d) Minority-serving institutions (as defined in the NIA)

   Strengths:

   Southern University and A&M College, a partner in this proposal, meet the requirement of a Historically Black college and university as listed in the US Department of Education 2023 eligibility matrix.

   Weaknesses:

   No weaknesses found.

Reader's Score: **5**

Competitive Preference Priority - Competitive Preference Priority 2

1. **Competitive Preference Priority 2:**

   Supporting a Diverse Educator Workforce and Professional Growth to Strengthen Student Learning (up to 2 points)

   Projects that are designed to increase the proportion of well-prepared, diverse, and effective educators serving students, with a focus on underserved students, through building or expanding high-poverty school districts' capacity to hire, support, and retain an effective and diverse educator workforce, through adopting or expanding comprehensive, strategic career and compensation systems that provide competitive compensation and include opportunities for educators to serve as mentors and instructional coaches, or to take on additional leadership roles and responsibilities for which educators are compensated.

   Strengths:

   Priority was not addressed.

   Weaknesses:

   Priority was not addressed.

Reader's Score: 0

Status: Submitted
Last Updated: 09/15/2023 03:46 PM

Technical Review Coversheet

Applicant: BSCS Science Learning (S411C230181)
Reader #2: **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Significance			
1. Significance		20	20
Quality of Project Design			
1. Project Design		30	27
Quality of Project Personnel			
1. Project Personnel		10	10
Quality of the Management Plan			
1. Management Plan		10	10
	Sub Total	70	67
Priority Questions			
Competitive Preference Priority			
Competitive Preference Priority 1			
1. Promoting Equity		5	5
Competitive Preference Priority 2			
1. Workforce Diversity		2	0
	Sub Total	7	5
	Total	77	72

Technical Review Form

Reader #2:   **********

Applicant: BSCS Science Learning (S411C230181)

Questions

Selection Criteria - Significance

1. The Secretary considers the significance of the proposed project. In determining the significance of the proposed project, the Secretary considers the following factor:

Reader's Score: 20

> **Sub**

> 1. **(1) The extent to which the proposed project involves the development or demonstration of promising new strategies that build on, or are alternatives to, existing strategies. (20 points)**

>> **Strengths:**

>> The proposed project seeks to address science proficiency for high-need students, especially in the middle grades. OpenSciEd has created high-quality research-based classroom materials and professional learning resources. (e21) These are designed with the intent to engage students in actively learning science. This is built off instructional materials created in response to Next Generation Science Standards that were impractical to implement. The professional learning part of this project seeks to address the high variability in the quality of district-developed programs. (e21)

>> **Weaknesses:**

>> No weaknesses noted.

> **Reader's Score: 20**

Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project. In determining the quality of the design of the proposed project, the Secretary considers the following factors:

Reader's Score: 27

> **Sub**

> 1. **(1) The extent to which there is a conceptual framework underlying the proposed research or demonstration activities and the quality of that framework. (10 points)**

Sub

Strengths:

The conceptual framework that underlies this proposed project is the instructional model, as seen in Exhibit 3. The OpenSciEd developers selected the Next Generation Science Storylines instructional model. This allows for three-dimensional performance expectations. By making sense of phenomena, students are motivated to ask questions to make sense of their world leading to iterative cycles of investigating, improving explanations with new evidence, and further questioning. (e24)

Weaknesses:

No weaknesses noted.

Reader's Score: 10

2. **(2) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable. (5 points)**

Strengths:

Appendix J outlines the objectives and outcomes to be achieved by this project in a clearly delineated chart. It notes objectives 1-3, the activity and milestones that are associated and what year of the project it will be completed. For example, objective 1 states: Leverage the expertise and perspective of Southern University to co-adapt, pilot, monitor, and refine a program of professional learning to support the implementation of OpenSciEd. Activity 1.4 includes implementing curriculum materials that will be completed in year 2 of the project. (e155)

Weaknesses:

The goal is to test the OpenSciEd instructional materials and engage in local adaptation and refinement of teacher professional learning supports. (e25) However, it is unclear how this is measurable. For example, there are insufficient percent measured goals. Exhibit 4 states the objectives, outcomes, and measures but there are no goals regarding the data collected from the student surveys, and interviews. (e26)

Reader's Score: 2

3. **(3) The extent to which the design of the proposed project is appropriate to, and will successfully address, the needs of the target population or other identified needs. (15 points)**

Strengths:

The OpenSciEd project will address the needs of high-need students, middle school science students, and science teachers. It aims to make diversity in science and engineering visible by including a broad range of images and stories of STEM endeavors in our society and prioritize the interests of underserved communities. (e27) This is important as students need to be able to see themselves in their coursework and encourage interest in these fields. OpenSciEd will also support the educators by designing six different professional learning sessions to support the classroom materials.

Weaknesses:

No weaknesses noted

Reader's Score: 15

Selection Criteria - Quality of Project Personnel

1. **The Secretary considers the quality of the personnel who will carry out the proposed project. In determining the quality of project personnel, the Secretary considers the following factor:**

Reader's Score: 10

Sub

1. **(1) The extent to which the applicant encourages applications for employment from persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, gender, age, or disability. In addition, the Secretary considers the qualifications, including relevant training and experience, of key project personnel. (10 points)**

   Strengths:

   The three partners for this project, Biological Sciences Curriculum Study, Southern University, American Institutes for Research are all committed to equity, diversity, and inclusion and has explicit policies to encourage the recruitment of diverse staff, and will commit to staffing the project with a diverse group of team members with experience working with the high-need populations and communities. (e29) In regards to qualifications including relevant training and experience, the unity development lead focuses on creating science education for students from marginalized communities which directly aligns with the OpenScied project and refining of curriculum materials (e30)

   Weaknesses:

   No weaknesses noted.

   Reader's Score: 10

Selection Criteria - Quality of the Management Plan

1. **The Secretary considers the quality of the management plan for the proposed project. In determining the adequacy of resources and quality of the management plan for the proposed project, the Secretary considers the following factors:**

Reader's Score: 10

Sub

1. **(1) 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.**

   Strengths:

   The management plan ensures that objectives will be achieved on time and within budget. The timeline of evaluation activities is charted in Exhibit J1 (e147) and a chart of timeline and milestone activities is in Exhibit J5 (e155). Each objective described in Exhibit 4 will be led by one of the three teams in collaboration with the other project partners. For example, American Institutes for Research will conduct all aspects of the evaluation and will have no role in the development or the implementation, Biological Sciences Curriculum Study Science Learning's primary project role will be to support the implementation of the OpenSciEd materials (e32-e33).

Sub
Weaknesses:
No weaknesses noted

Reader's Score: 10

Priority Questions

Competitive Preference Priority - Competitive Preference Priority 1

1. Competitive Preference Priority 1:

Promoting Equity in Student Access to Educational Resources and Opportunities: Implementers and Partners (up to 5 points)

Under this priority, an applicant must demonstrate how the project will be implemented by or in partnership with one or more of the following entities:
(a) Community colleges (as defined in the NIA)
(b) Historically Black colleges and universities (as defined in the NIA)
(c) Tribal Colleges and Universities (as defined in the NIA)
(d) Minority-serving institutions (as defined in the NIA)

Strengths:
The applicant will partner with Southern University and A&M College which is a public historically Black land-grant university located in Baton Rouge, Louisiana. (e12)

Weaknesses:
No weaknesses noted.

Reader's Score: 5

Competitive Preference Priority - Competitive Preference Priority 2

1. Competitive Preference Priority 2:

Supporting a Diverse Educator Workforce and Professional Growth to Strengthen Student Learning (up to 2 points)

Projects that are designed to increase the proportion of well-prepared, diverse, and effective educators serving students, with a focus on underserved students, through building or expanding high-poverty school districts' capacity to hire, support, and retain an effective and diverse educator workforce, through adopting or expanding comprehensive, strategic career and compensation systems that provide competitive compensation and include opportunities for educators to serve as mentors and instructional coaches, or to take on additional leadership roles and responsibilities for which educators are compensated.

Strengths:
The applicant did not address this priority.

Weaknesses:

The applicant did not address this priority.

Reader's Score: **0**

Status: Submitted

Last Updated: 09/15/2023 01:03 PM

Technical Review Coversheet

Applicant: BSCS Science Learning (S411C230181)
Reader #3:   **********

		Points Possible	Points Scored
Questions			
Selection Criteria			
Significance			
1. Significance		20	12
Quality of Project Design			
1. Project Design		30	28
Quality of Project Personnel			
1. Project Personnel		10	10
Quality of the Management Plan			
1. Management Plan		10	10
	Sub Total	70	60
Priority Questions			
Competitive Preference Priority			
Competitive Preference Priority 1			
1. Promoting Equity		5	5
Competitive Preference Priority 2			
1. Workforce Diversity		2	0
	Sub Total	7	5
	Total	77	65

Technical Review Form

Reader #3:   * * * * * * * * * *

Applicant: BSCS Science Learning (S411C230181)

Questions

Selection Criteria - Significance

1. The Secretary considers the significance of the proposed project. In determining the significance of the proposed project, the Secretary considers the following factor:

Reader's Score: **12**

> **Sub**
>
> 1. **(1) The extent to which the proposed project involves the development or demonstration of promising new strategies that build on, or are alternatives to, existing strategies. (20 points)**
>
> **Strengths:**
>
> This project creates evidence-based classroom materials and a coordinated set of professional learning resources (e21) to establish a comprehensive science curriculum tailored for grades 6-8. The curriculum is made freely available to all under an open license (e20).
>
> The goal of this project is to transform the teacher's role from merely delivering information to becoming the facilitator of a conducive learning environment. This includes establishing a classroom that nurtures the learning needs of all students (e20).
>
> **Weaknesses:**
>
> The applicant did not adequately illustrate how this project introduces a promising new approach. For example, the OpenSciEd middle school program has been active with students since 2020 and is currently used by more than 58,000 teachers across 37 states, and it has conducted 41 professional learning events spanning a total of 125 days nationwide (e23).
>
> While the applicant's proposal involves studying the effectiveness of the OpenSciEd program on student outcomes, this aspect alone does not constitute a sufficiently innovative strategy that builds upon the existing approach. (e22)
>
> The conclusion that many teachers are given outdated and misaligned materials, prompting them to search online for resources, lacks clarity regarding its basis or evidence. (e20)
>
> **Reader's Score:**   **12**

Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project. In determining the quality of the design of the proposed project, the Secretary considers the following factors:

Reader's Score: 28

1. **(1) The extent to which there is a conceptual framework underlying the proposed research or demonstration activities and the quality of that framework. (10 points)**

    Strengths:

    This project develops a middle school science program that aligns with the National Research Council Framework for K-12 Science Education and the Next Generation Science Standards. The program will be designed so that teachers can readily implement it using standard resources and accommodate diverse student populations. (e17)

    The applicant has provided a comprehensive logic model. For example, the applicant introduced Classroom Routines, encompassing practices such as the anchoring phenomenon routine, the driving question board, and problematizing routines. (e141)

    Weaknesses:

    No weaknesses noted.

    Reader's Score: 10

2. **(2) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable. (5 points)**

    Strengths:

    The applicant has supplied a table detailing objectives, strategies, outcomes, and measures. As an example, the utilization of OpenSciEd curriculum materials by teachers will be assessed through their completion of online logs that document their usage of these materials (e26).

    Weaknesses:

    The applicant's method for gauging student success lacked specificity. For example, the applicant stated that evaluating student success will be done through diverse sources to scrutinize disparities in program implementation, but the applicant failed to provide information regarding the specific sources that will be utilized. (e26)

    Reader's Score: 3

3. **(3) The extent to which the design of the proposed project is appropriate to, and will successfully address, the needs of the target population or other identified needs. (15 points)**

    Strengths:

    The applicant's primary focus is on addressing the requirements of disadvantaged middle school science students and science teachers. This project is specifically located in Louisiana, with a particular emphasis on East Baton Rouge Parish, where the student population has historically been underserved in science. (e27)

Sub

> **Weaknesses:**
>
> No weaknesses noted.

Reader's Score: 15

Selection Criteria - Quality of Project Personnel

1. The Secretary considers the quality of the personnel who will carry out the proposed project. In determining the quality of project personnel, the Secretary considers the following factor:

Reader's Score: 10

> **Sub**
>
> 1. **(1) The extent to which the applicant encourages applications for employment from persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, gender, age, or disability. In addition, the Secretary considers the qualifications, including relevant training and experience, of key project personnel. (10 points)**
>
>   **Strengths:**
>
>   The applicant possesses the qualifications necessary for the successful execution of this program. For example, the project director has over two decades of experience in science education research and has overseen numerous large-scale grants from the National Science Foundation and the Department of Education (e30).
>
>   The applicant is dedicated to promoting equity, diversity, and inclusion, and has established policies aimed at fostering the recruitment of a diverse staff (e29). For example, the applicant has established a collaboration with Southern University and A&M College, a publicly recognized historically Black land-grant university. (e12)
>
>   **Weaknesses:**
>
>   No weaknesses noted.

Reader's Score: 10

Selection Criteria - Quality of the Management Plan

1. The Secretary considers the quality of the management plan for the proposed project. In determining the adequacy of resources and quality of the management plan for the proposed project, the Secretary considers the following factors:

Reader's Score: 10

> **Sub**
>
> 1. **(1) 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.**

Sub

Strengths:

The applicant offers a training stipend of $2,000 to each teacher, which is intended to compensate for their participation in a professional learning program (e175).

The applicant has furnished a timeline for evaluation tasks monthly, as well as a yearly timeline specifying activities and key milestones for this grant. For instance, in August and September of 2024, the applicant plans to conduct teacher surveys (e147).

Weaknesses:

No weaknesses noted.

Reader's Score: 10

Priority Questions

Competitive Preference Priority - Competitive Preference Priority 1

1. **Competitive Preference Priority 1:**

   Promoting Equity in Student Access to Educational Resources and Opportunities: Implementers and Partners (up to 5 points)

   Under this priority, an applicant must demonstrate how the project will be implemented by or in partnership with one or more of the following entities:
   (a) Community colleges (as defined in the NIA)
   (b) Historically Black colleges and universities (as defined in the NIA)
   (c) Tribal Colleges and Universities (as defined in the NIA)
   (d) Minority-serving institutions (as defined in the NIA)

Strengths:

The applicant has a partnership with Southern University and A&M College, which is a Historically Black College or University located in Baton Rouge, Louisiana. (e140)

Weaknesses:

No weaknesses noted.

Reader's Score: 5

Competitive Preference Priority - Competitive Preference Priority 2

1. **Competitive Preference Priority 2:**

   Supporting a Diverse Educator Workforce and Professional Growth to Strengthen Student Learning (up to 2 points)

   Projects that are designed to increase the proportion of well-prepared, diverse, and effective educators serving students, with a focus on underserved students, through building or expanding high-poverty school districts' capacity to hire, support, and retain an effective and diverse educator workforce, through adopting or expanding comprehensive, strategic career

and compensation systems that provide competitive compensation and include opportunities for educators to serve as mentors and instructional coaches, or to take on additional leadership roles and responsibilities for which educators are compensated.

Strengths:

Did not address.

Weaknesses:

Did not address.

Reader's Score: 0

Status: Submitted
Last Updated: 09/15/2023 10:20 AM

Technical Review Coversheet

Applicant: BSCS Science Learning (S411C230181)
Reader #1:   **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Quality of the Project Evaluation			
1. Project Evaluation		30	29
	Sub Total	30	29
	Total	30	29

Technical Review Form

Panel #8 - Early-phase Tier II Panel - 8: 84.411C

Reader #1:   **********

Applicant: BSCS Science Learning (S411C230181)

Questions

Selection Criteria - Quality of the Project Evaluation

 1. **The Secretary considers the quality of the evaluation to be conducted of the proposed project. In determining the quality of the evaluation, the Secretary considers the following factors:**

Reader's Score: 29

   Sub

   1. **(1) The extent to which the methods of evaluation will, if well implemented, produce evidence about the project's effectiveness that would meet the What Works Clearinghouse standards with or without reservations as described in the What Works Clearinghouse Handbook (as defined in this notice). (20 points)**

   Strengths:

   The applicant provides an excellent description of their use of a propensity score matched quasi-experimental design, with 70 teachers within two cohorts across seven school districts (e34), and this design is eligible to meet What Works Clearinghouse standards with reservations. The applicant clearly explains the methodology that will be used to match treatment and comparison samples (e35-e36). The confirmatory research question uses student scores on the state assessment in grade 8, which provides a student outcome measure with face validity and reliability (e35). The applicant will implement several strategies to limit sample loss to no more than 10 percent (as allowed for in the power analysis on page e152), including a delayed treatment model (e18) and awarding substantial teacher stipends of $2,000 each (e175). Baseline data will be collected and used to ensure that each cohort is able to meet the standard for baseline equivalence based on key variables, including prior year's student achievement scores and at least two baseline demographic characteristics (e36). Missing data procedures align to the What Works Clearinghouse standards and include excluding teachers and students with missing outcome measures (e151). A comprehensive discussion of the power analysis is presented and includes information on the key assumptions used to estimate the minimum detectable effect size (that is .14 standard deviations) for the confirmatory outcomes of grade 8 student achievement (e151-e152). Hierarchical linear modeling will be used to estimate the treatment effect for the primary impact question (e150), and the applicant sufficiently demonstrates a correct model specification.

   Weaknesses:

   No weaknesses noted.

   Reader's Score: 20

   2. **(2) The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes. (5 points)**

Sub

Strengths:

The applicant provides an excellent description of how the evaluation will provide performance feedback and permit periodic assessment of progress toward achieving the intended outcomes. A rich set of qualitative data and quantitative data will be collected to understand the extent to which the treatment is implemented with fidelity, the usability of the treatment in terms of experiences and perceptions, and whether local adaptations are needed to the treatment (e38-e39). For example, fidelity of implementation will be informed by teacher and facilitator attendance records and weekly teacher logs of unit delivery (e39) and teacher surveys, teacher interviews, and student surveys will inform participant perceptions of the treatment (e39-e40). These data collections will occur frequently, beginning with the pilot cohort and continuing through the evaluation of each participating cohort, which provides a mechanism for assessing periodic progress toward achieving the intended outcomes. Procedures are effectively outlined for how implementation data will be coded for analysis, and the importance of triangulating the interview data with survey data is noted (e154). In addition to regular meetings, the evaluation team will prepare quarterly briefs from year 1 to year 4 to share preliminary implementation results, and annual interim findings memos in years 4 and 5, which is an excellent strategy for sharing periodic progress. These updates are represented in the timeline of evaluation tasks (e147).

Weaknesses:

No weaknesses noted.

Reader's Score: 5

3. **(3) The extent to which the evaluation plan clearly articulates the key project components, mediators, and outcomes, as well as a measurable threshold for acceptable implementation. (5 points)**

Strengths:

The logic model identifies the key project components, mediators, and student outcomes, and the applicant presents a good plan for aligning the evaluation with these elements (e141). For example, the logic model identifies instructional materials and teacher supports as key components for improving classroom instruction which then will improve student outcomes, and the evaluation plan will measure the extent to which the instructional materials and teacher supports improve classroom instruction (the mediator) and then improve grade 8 student achievement in science (e141). The alignment is evidenced in the evaluation plan's impact and implementation research questions (e35) and the data sources that will be used to answer each question. For example, research question 5 is, "To what extent is the impact of OpenSciEd curriculum materials mediated by its impact on teacher instruction?" and the data sources include a student survey of classroom instruction and grade 8 science assessment scores. Preliminary "example" thresholds for acceptable implementation are provided for the teacher classroom routines and teacher professional learning components of implementation fidelity, and each threshold is measurable and reasonable. For example, a teacher must at least implement an average of 80 percent of the classroom routines and attend at least 80 percent of the six professional learning sessions (e153).

Weaknesses:

The applicant refers to the thresholds for acceptable implementation as "examples" and therefore does not clearly identify the "actual" thresholds for acceptable implementation. As such, it is not clear if the "actual" thresholds will be measurable and appropriate, and aligned to the key project components.

Reader's Score: 4

Status: Submitted

Last Updated: 09/29/2023 11:43 AM

Technical Review Coversheet

Applicant: BSCS Science Learning (S411C230181)
Reader #2:   **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Quality of the Project Evaluation			
1. Project Evaluation		30	27
	Sub Total	30	27
	Total	30	27

Technical Review Form

Panel #8 - Early-phase Tier II Panel - 8: 84.411C

Reader #2:   **********

Applicant: BSCS Science Learning (S411C230181)

Questions

Selection Criteria - Quality of the Project Evaluation

1. **The Secretary considers the quality of the evaluation to be conducted of the proposed project. In determining the quality of the evaluation, the Secretary considers the following factors:**

Reader's Score: 27

 Sub

1. **(1) The extent to which the methods of evaluation will, if well implemented, produce evidence about the project's effectiveness that would meet the What Works Clearinghouse standards with or without reservations as described in the What Works Clearinghouse Handbook (as defined in this notice). (20 points)**

 Strengths:

 The evaluation will examine the impact of OpenSciEd curriculum materials on 8th grade students' science achievement while accounting for prior student science achievement (e36). The evaluation will involve 70 teachers (35 treatment and 35 comparison, then delayed treatment) within seven school districts, across two cohorts (e34-e35). A propensity score matched quasi-experimental design, that matches and has assignment at the teacher level along with blocking at the district level will be used. The main outcomes measure is students' scores on the state standardized science achievement test (e34-e35). The propensity score matching process for teachers within district will likely establish baseline equivalence (e36). The evaluation plan indicates also that it will repeat the matching process and reassess baseline equivalence until the baseline variables, particularly prior year's student achievement scores and at least two baseline demographic characteristics, are matched (e36). Analyses will involve appropriately rigorous multilevel regression (e36) and power analysis (e37, e151-e152). The evaluation team also plans to account for an expected 10% teacher-level attrition by recruiting 8 to 10 additional teachers (e152) and provide teacher incentives that may minimize attrition (e169).

 In sum, the proposed evaluation is rigorous, well-designed, and, if well executed, likely would meet the What Works Clearinghouse standards with reservations.

 Weaknesses:

 The application is not entirely clear how matching at the student level will be added to or integrated with the teacher level matching process (e36).

 Reader's Score: 18

2. **(2) The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes. (5 points)**

Sub

Strengths:

To provide timely and actionable formative feedback and permit periodic assessment of progress toward achieving the intended program outcomes, the evaluators will collect and analyze quantitative and qualitative data collected from the pilot cohort and two impact cohorts (e40). A comprehensive set of data will be collected which includes, for example, program records (e.g., teacher and facilitator PL session attendance), teacher and student surveys and interviews, artifacts and participant feedback, and program staff interviews. Feedback will center on three areas: (a) fidelity of implementation, (b) experiences and perceptions of the program, and (c) program adaptation in response to local contexts. (e38-e41). To further provide periodic assessment toward intended outcomes, the evaluation team will provide quarterly briefs from Year 1 to Year 4 to share preliminary results on implementation and annual interim findings memos in Years 4 and 5 to share preliminary results on impact (e41, e155). Specific plans for analyzing the quantitative and qualitative data collected throughout the project are reasonably outlined (e150-e154).

Given the comprehensive plan to evaluate the project and, in particular, collect and provide feedback via a variety of relevant data it seems likely that the plan will provide useful performance feedback and permit periodic assessment of progress toward achieving intended outcomes.

Weaknesses:

No weaknesses noted.

Reader's Score: 5

3. **(3) The extent to which the evaluation plan clearly articulates the key project components, mediators, and outcomes, as well as a measurable threshold for acceptable implementation. (5 points)**

Strengths:

The evaluation plan clearly articulates six program components: instructional model, classroom routines, equitable science instruction for all students, assessment to inform teaching and learning, as well as professional learning activities and educative curriculum features (e41). The evaluation plan also identifies a partial mediator (teachers' classroom instruction) and several outcomes (students' science achievement and perceptions of the relevance, coherence, and sensemaking supports of the OpenSciEd curriculum materials; e41). Thresholds for acceptable implementation will focus on teachers' delivery of OpenSciEd instructional materials and participation in OpenSciEd PL (e41).

Weaknesses:

The thresholds for acceptable implementation are less thoroughly described. Measurable threshold levels of implementation foci are also to be determined (e41).

Reader's Score: 4

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