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

Technical Review Coversheet

Applicant: Smithsonian Institution (U411C190055)
Reader #1:   **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Significance			
1. Significance		25	25
Quality of Project Design			
1. Project Design		35	35
Adequacy of Resources/Quality of Management Plan			
1. Resources/Management Plan		20	20
	Sub Total	80	80
Priority Questions			
Competitive Preference Priority			
Competitive Preference Priority			
1. Absolute Priority 3		5	0
	Sub Total	5	0
	Total	85	80

Technical Review Form

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

Applicant: Smithsonian Institution (U411C190055)

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 factors:**

   (1) The potential contribution of the proposed project to increased knowledge or understanding of educational problems, issues, or effective strategies.

   (2) 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.

   Strengths:

   The approach to teaching the necessary content in STEM disciplines is difficult when there is a lack of resources or tools, the applicant presents a curriculum that will address strategies to provide teachers with practical and professional resources. By innovative engagement in problem solving, using the scientific method of inquiry, and the development of presentations, the application proposes a valid contribution to the understanding of linking STEM discipline to the altering of student attitudes toward STEM (p. e27). The approach, which seeks to address student learning of technical content, builds on decades of academic experiences relative to the need for this instruction and the opportunity to learn it.
   The applicant proposes an expansion of the Framework for K-12 Science Education standards to include ongoing professional development relative to classroom practices in teaching science and engineering (p. e31). The development of teaching problem solving techniques for real world problems can empower the teachers and the students. The teachers can build on their common experiences teaching from the classroom modules they have been using and better focus on student understanding of difficult content (p. e32).

   Weaknesses:

   N/A

Reader's Score: 25

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:**

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

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

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

Strengths:

The applicant provided clear evidence of the provision of ongoing professional development to the participating teacher in the project. By using research based instructional materials, the students would receive much needed support and the goal to improve student learning could be achieved successfully (p. e33). Specific methodology of differentiating and scaffolding the teachers' professional development was provided (p. e34), and the logic model provided a clear outline to understand how the objectives and outcomes would be measured, through the evaluation plan in Appendix G. The framework for the project was provided and is aligned with the national standards for science education, this provides a clear foundation for the justification of project activities. National, state, and district concerns for the relevance of the instructional implementation are clearly addressed through the project's demonstration of using the framework in different environments for evaluation purposes.

The applicant addressed plan for monitoring feedback through the use of multiple loops of data collection activities such as: student, teacher, administrator, and stakeholder feedback, formal and informal communications, and Advisory board meetings (p. e35). This continuous cycle of communication will be analyzed and presented as a comprehensive report, complete with findings, predictions, and implications for further practice (p. e36).

Weaknesses:

N/A

Reader's Score: 35

Selection Criteria - Adequacy of Resources/Quality of Management Plan

1. **The Secretary considers the adequacy of resources and 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:**

   (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.

   (2) The qualifications, including relevant training and experience, of key project personnel.

   (3) The potential for continued support of the project after Federal funding ends, including, as appropriate, the demonstrated commitment of appropriate entities to such support.

Strengths:

The applicant presented a complete plan for the achievement of project objectives through a collaboration with an external evaluator (the Center for Research in Educational Policy CREP, p. e38). This, along with various state and local stakeholders have proven experience working with school districts and personnel in projects of this type. The training and experience of the principal and co-principal investigators was provided and were adequate for this project. The program manager was noted as being responsible for the professional development in the project, was also listed as the point of contact for local partners and participants (p. e39). This team and the experience noted demonstrates attention to some critical points of communication that are essential; for a successful implementation of this type of project. Fiscal management, communication, roles and responsibilities, and appropriate timelines and activities make this section a comprehensive demonstration of the quality of the project's management.

The applicant clearly noted the project's provision of resources that are needed in the target communicates. There will be a foundation provided to build on and sustain this project beyond the prescribed funding period (p. e42). By providing clear details regarding the continued support for this project, along with the commitment of the teachers in the treatment schools, the work of the project appears to be able to be continued.

Weaknesses:

N/A

Reader's Score: 20

Priority Questions

Competitive Preference Priority - Competitive Preference Priority

1. **Within Absolute Priority 3, we give competitive preference to applications that address the following priority:**

   Projects designed to improve student achievement or other educational outcomes in computer science (as defined in the notice). These projects must address the following priority area:

   Expanding access to and participation in rigorous computer science (as defined in the notice) coursework for traditionally underrepresented students such as racial or ethnic minorities, women, students in communities served by rural local educational agencies (as defined in the notice), children or students with disabilities (as defined in the notice), or low-income individuals (as defined under section 312(g) of the Higher Education Act of 1965, as amended).

   Note: Projects addressing this priority must be administered in a manner consistent with nondiscrimination requirements contained in the U.S. Constitution and Federal civil rights laws.

   Strengths:

   N/A

   Weaknesses:

   N/A

Reader's Score: 0

Status: Submitted
Last Updated: 06/11/2019 02:32 PM

Status: Submitted
Last Updated: 06/13/2019 06:44 PM

Technical Review Coversheet

Applicant: Smithsonian Institution (U411C190055)
Reader #2: **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Significance			
1. Significance		25	25
Quality of Project Design			
1. Project Design		35	35
Adequacy of Resources/Quality of Management Plan			
1. Resources/Management Plan		20	20
	Sub Total	80	80
Priority Questions			
Competitive Preference Priority			
Competitive Preference Priority			
1. Absolute Priority 3		5	0
	Sub Total	5	0
	Total	85	80

Technical Review Form

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

Applicant: Smithsonian Institution (U411C190055)

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 factors:**

   (1) The potential contribution of the proposed project to increased knowledge or understanding of educational problems, issues, or effective strategies.

   (2) 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.

   Strengths:

   1.The applicant has appropriately addressed a dissemination operation to illustrate how their project will increase knowledge or understand educational problems, issues or effective strategies. Their project purposes to: elevate the percentage of underserved students who pursue degrees in STEM disciplines; expand high school matriculation rates, and the enrollment in community colleges, technical schools, and 4-year universities; and enlarge the participation in the STEM workforce. For example, the applicant outlines a dissemination plan that entails CREP preparing and disseminating evaluation reports. District leadership representatives from North Carolina and South Carolina (Members of the Advisory Board) will ensure that information is adequately disseminated to all levels of school leadership through meetings, regular conference calls, and Quarterly Status Reports (QSRs). e117

   2.The applicant has shown the effectiveness of their proposed program; interventions that will address the problem; and demonstrated how their proposed project (based on evidence-based research findings) could build on promising new strategies. They will provide robust research-based curricular materials aligned with differentiated professional development to focus on engineering, science content, and skills. Smithsonian Science for the Classroom (field tested modules) will be implemented to help teachers address the changing standards. To elevate their program, the applicant proposes to provide Site Coordinators to serve as an on-site mentor for participating educator. e25

   Weaknesses:

   1.None Noted

   2.None Noted

Reader's Score: 25

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:

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

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

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

Strengths:

1.The applicant thoroughly describes the proposed project, including a goal such as: ('to provide teachers with ongoing professional development in conjunction with research-based curricular materials to provide the support necessary to bolster student learning.') and objectives, as well as outcomes that address the priorities of this competition. The applicant outcomes to be achieved by the proposed project are clearly specified and measurable for the proposed project. For example, the applicant specifies aligned resources, benchmarks, and goals that target the population, implementation, describe deadlines, measuring tools such as (surveys, pre/post-tests, and focus groups), qualitative, and quantitative levels of success; and addresses a plan (how to and when) during the project period, a valid baseline would be established for the performance measure. e33, e18

2.The applicant has presented a conceptual framework that identifies key components of the project and addresses quality activities for that framework. They have presented a plan that demonstrates evidence-based activities (outputs) and provided an appropriate rationale regarding services that will be offered within their program. For example, in order to demonstrate how research supports the design of their project and how it will be incorporated into the their program, they have addressed the effectiveness of their guided strategy; and have cited studies by (Parkter-Chenaille, 2013 and Rivken, et al., 2005).) that justified that there is the likelihood that their proposed project will increase student knowledge and understanding of issues facing rural communities and provide effective strategies for accelerating educational outcomes among the target population. e113, e104

3. A clear depiction of how continuous feedback will be utilized throughout their program; a plan to assess the impact of the proposed project; a process to implement new programs and make future project decisions, and demonstrate accountability has been provided. For example, weekly communication among project leadership and monthly reports will provide performance feedback and data to refine, strengthen, and improve the project implementation strategies. An annual Project Director's meeting will be held to interact with peers face-to-face, and share knowledge and experiences. Feedback loops will be facilitated continuously to gather teachers, administrators, parents, other stakeholders, students, and program-level data. Effective feedback and continuous improvement techniques could assess the impact of the proposed program, plan and implement new programs, make future project decisions, and demonstrate accountability to the community trust.
e25, e27, e29

Weaknesses:

1.None Noted

2.None Noted

3.None Noted

Reader's Score: 35

Selection Criteria - Adequacy of Resources/Quality of Management Plan

1. **The Secretary considers the adequacy of resources and 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:**

   (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.

   (2) The qualifications, including relevant training and experience, of key project personnel.

   (3) The potential for continued support of the project after Federal funding ends, including, as appropriate, the demonstrated commitment of appropriate entities to such support.

   Strengths:

   1.The applicant has provided information that is needed in order to effectively assess the efficiency of their management plan. Details regarding how milestone activities will be accomplished and supported in order to achieve outputs; and administrative skills and responsibilities to provide information for prospective key administrators in order to fulfill proposed objectives and effectively implement the proposal are stated as follows: (Project Director/PI): will implement the project in the two states; (Co-Principal Investigator): will inform the development of innovative professional development workshops and support the overall management of the project; and (Program Manager): will be responsible for organizing the logistics of professional development and will serve as the point of contact for partners and site coordinators. The implementation, evaluation plan, and strategies to achieve the objectives within budget on time are documented. Defined responsibilities, timelines, milestones for accomplishing project tasks
   ,and qualified personnel with experience and expertise in leadership, administration, evaluation, curriculum development, implementation, and management skills could provide assurances that the project has the capacity to achieve the objectives of the proposed project on time and within budget and clearly meet program expectations. e38, e39

   2.The applicant proposes prospective key personnel to ensure that there will be sufficient background, proper program oversight, qualifications, and experiences appropriate to the
   respective personnel positions. Professional qualifications, experience, and administrative skills that will be needed to effectively fulfill the objectives of the project are as follows: For example, the (Project Director) qualifications needed: (PhD.) overseer of leadership development and professional development initiatives, developed a collaborative work environment; and managed Professional Services Division finances; (Co-PI) qualifications needed: (Ed.D) Senior Executive Director of Smithsonian Science Education Center; and (Associate Director): qualifications needed: (M.S.): managed or served as PI or Co-PI on STEM and Technology Integration grants. e57, e69

   3. In order to provide fiscal and administrative controls to manage federal funds contributions and support the proposed project beyond the length of the grant, the applicant proposes to: allow curricular materials to remain within the district; develop local leadership capacity; provide site coordinators leadership opportunities as partners; and support and train teachers as trainers in control schools. e42

Weaknesses:

1.None Noted

2.None Noted

3.None Noted

Reader's Score: **20**

Priority Questions

Competitive Preference Priority - Competitive Preference Priority

1. **Within Absolute Priority 3, we give competitive preference to applications that address the following priority:**

   Projects designed to improve student achievement or other educational outcomes in computer science (as defined in the notice). These projects must address the following priority area:

   Expanding access to and participation in rigorous computer science (as defined in the notice) coursework for traditionally underrepresented students such as racial or ethnic minorities, women, students in communities served by rural local educational agencies (as defined in the notice), children or students with disabilities (as defined in the notice), or low-income individuals (as defined under section 312(g) of the Higher Education Act of 1965, as amended).

   Note: Projects addressing this priority must be administered in a manner consistent with nondiscrimination requirements contained in the U.S. Constitution and Federal civil rights laws.

   Strengths:
   N/A

   Weaknesses:
   N/A

Reader's Score: **0**

Status: Submitted
Last Updated: 06/13/2019 06:44 PM

Technical Review Coversheet

Applicant: Smithsonian Institution (U411C190055)
Reader #3: **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Significance			
1. Significance		25	25
Quality of Project Design			
1. Project Design		35	35
Adequacy of Resources/Quality of Management Plan			
1. Resources/Management Plan		20	20
	Sub Total	80	80
Priority Questions			
Competitive Preference Priority			
Competitive Preference Priority			
1. Absolute Priority 3		5	0
	Sub Total	5	0
	Total	85	80

Technical Review Form

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

Applicant: Smithsonian Institution (U411C190055)

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 factors:**

    (1) The potential contribution of the proposed project to increased knowledge or understanding of educational problems, issues, or effective strategies.

    (2) 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.

    Strengths:

    The proposed project will compare rural student achievement outcomes between a state that has adopted the next generation science standards and a state that has not . It has the potential to increase understanding of variation in student outcomes for rural students. This understanding would then allow the identification of supports necessary for bolstering science and engineering outcomes for students in rural communities.

    The proposed project builds on existing strategies, specifically the implementation of a high-quality elementary science and engineering curriculum and providing differentiated professional development (e23, e31). Both curriculum and professional development are the strongest levers for improving instruction and student outcomes. The review of student work and analysis of student misconceptions as a component of professional development has the potential to build substantive capacity and conceptual understanding of the content in the teachers. Providing ongoing, tiered professional development increases the likelihood that change in teacher practice will be sustained over time. That, coupled with a standards based curriculum are critical elements for improving student learning outcomes in science and engineering

    Weaknesses:

    n/a

Reader's Score: 25

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:**

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

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

    (3) The adequacy of procedures for ensuring feedback and continuous improvement in the

operation of the proposed project.

Strengths:

The measured outcome is increased student achievement in science. Data collected to evidence student achievement include standardized achievement tests in grade 2 through 5 (e46). The outcomes, including increased teacher confidence, increased student achievement and improved student attitudes towards STEM, are clearly identified and measurable (e104). Each of these outcomes is critical to improving educational outcomes, generally, because they address both the teacher and the student.

The conceptual framework includes building a body of knowledge using tiered professional development tied to classroom practice. This is a strength because content knowledge training must be tied to specific classroom practice. The conceptual framework also includes the need for teacher professional development to be ongoing in order to effect sustainable student outcomes (e31). One of professional development sessions are ineffective in building teacher capacity. Providing ongoing, tiered professional development increases the likelihood that change in teacher practice will be sustained over time and addresses the individual needs of each educator. An additional element of the framework is the review of student work and analysis of student misconceptions (e31). This allows for teachers to deepen their understanding of student thinking and of how to scaffold instruction.

In addition to student outcomes on standardized assessments in grades 2 through 5, teacher focus group data, classroom observations, and professional development survey data is collected. The proposed plan includes multiple feedback loops and includes collection of student and program data. It includes feedback from students, teachers, leaders and parents. (e35). Multiple measures, forms, and rounds of feedback are important for obtaining a comprehensive snapshot of the project's impact

Weaknesses:

n/a

Reader's Score: 35

Selection Criteria - Adequacy of Resources/Quality of Management Plan

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    (2) The qualifications, including relevant training and experience, of key project personnel.

    (3) The potential for continued support of the project after Federal funding ends, including, as appropriate, the demonstrated commitment of appropriate entities to such support.

Strengths:

A detailed listing of clearly defined responsibilities for each entity is provided (e117). Each of the 23 statements of responsibility begins with a verb that makes clear the action that each entity must take in achieving the objectives of the proposed project. It is clear which entity will

The principal and co-principal investigators have substantive experience in science, specifically biology, and experience as an elementary educator, curriculum developer and researcher. They are supported by an advisory board that includes the president and executive director of statewide math and science organizations. Therefore, the project management resources (personnel), as identified, reflect significant leadership experience to support and execute the proposed project. The curricular materials developed through the grant remain with the district after the grant period ends. The external

partners have committed to providing support to the districts and schools in their states. Teachers trained in the treatment schools will be trained to train the teachers in the control schools. Therefore, access to both curriculum and professional development remain at the end of the grant period.

Weaknesses:

n/a

Reader's Score: 20

Priority Questions

Competitive Preference Priority - Competitive Preference Priority

1. **Within Absolute Priority 3, we give competitive preference to applications that address the following priority:**

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   Note: Projects addressing this priority must be administered in a manner consistent with nondiscrimination requirements contained in the U.S. Constitution and Federal civil rights laws.

   Strengths:

   n/a

   Weaknesses:

   n/a

Reader's Score: 0

Status: Submitted
Last Updated: 06/14/2019 10:49 AM