

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

Status: Submitted

Last Updated: 07/24/2018 06:19 PM

Technical Review Coversheet

Applicant: SRI International (U411C180070)

Reader #1: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Significance		
1. Significance	30	29
Quality of the Project Design and Management Plan		
1. Project Design/Management	50	50
Total	80	79

Technical Review Form

Panel #13 - EIR Early Phase Tier 1 (Content) - 13: 84.411C

Reader #1: *****

Applicant: SRI International (U411C180070)

Questions

Selection Criteria - Significance

1. In determining the significance of the project, the Secretary considers the following factors:

- (1) The national significance of the proposed project.
- (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.
- (3) The extent to which the proposed project demonstrates a rationale (as defined in the NIA).
- (4) The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

Strengths:

National significance: Applicant does an effective job in describing the plight of the educational experiences for students residing in rural areas. For example, they offer the results of a single study, which demonstrate a real need to improve the educational efforts that address the mathematics achievement gaps between students in rural versus urban areas (p. 1).

National significance: The applicant offers a plethora of research findings on future employment opportunities including the technology and agricultural fields (p. 2). Such data are important, as the applicant desires to establish an academic program that will prepare students for employment opportunities in these fields.

National significance: Applicant does an effective job in reporting study results supporting the need to expose middle school students to information technology (p. 3).

Promising new strategies: Applicant offers a clear and concise approach that builds upon an existing foundation (p. 5). They offer a two-prong approach focused on work-based learning beyond career exploration at the middle school level and the application of 3D fabrication to support student learning.

Rationale: Applicant offers adequate research findings to support their desire to pursue the proposed program (pp. 5-7). For example, the applicant does an exceptional job in clearly outlining the learning progressions for students in grades 6-8.

Exceptional approach: Based on the framework, the proposed intervention has the potential to improve student outcomes in math, 3D printing, and computational thinking (pp. 7-8).

Weaknesses:

National significance: Applicant offers sound data from a study germane to students' achievement and rural area. Then, the applicant offers a research finding about inequities in academic achievement based on race and income level. Although this is great data and discussion for this grant proposal, it would have been useful if the applicant offered additional research findings specific addressing the dilemma of rural students and academic achievement (p. 1).

Rationale: Applicant offers research findings to support their desire to pursue the proposed program (pp. 5-7). However, it would have been useful if the data were quantitative in nature. For example, they assert that their proposed program,

“provides both motivation and grounding for learning CT and mathematics” (p. 5). However, they offer no quantitative data to support this statement. In another example, they claim that CAD tools and real objects support the development of geometric concepts and spatial reasoning skills (p. 7). They also offer a number of research studies to support this claim. However, they offer no quantitative data from these studies.

Reader's Score: 29

Selection Criteria - Quality of the Project Design and Management Plan

1. In determining the quality of the proposed project design, 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 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.**
- (3) The extent to which performance feedback and continuous improvement are integral to the design of the proposed project.**
- (4) The mechanisms the applicant will use to broadly disseminate information on its project so as to support further development or replication.**

Strengths:

Goals, objectives, and outcomes: Applicant does an exceptional job with clearly identifying and linking the goals, objectives, and outcomes. Moreover, the outcomes are specific and measurable (pp. 13-14).

Management plan: Plan is clearly organized with timeline measured in months, which offer more accuracy and a higher level of accountability instead of simply establishing that an activity will be completed in a certain quarter (pp. 14-15).

Performance feedback and continuous improvement: Applicant offers a 3-prong approach for quality improvement: project evaluator's monthly project meetings addressing implementation issues, expert panel review of the curricular materials, and project leaders' monthly meeting to assess program progress (pp. 18-19).

Dissemination of information: Applicant offers a diverse approach to disseminate information: not-for-profit distributor, website, conferences, and 3D manufacturer (p. 19).

Weaknesses:

N/A

Reader's Score: 50

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Technical Review Coversheet

Applicant: SRI International (U411C180070)

Reader #2: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Significance		
1. Significance	30	25
Quality of the Project Design and Management Plan		
1. Project Design/Management	50	50
Total	80	75

Technical Review Form

Panel #13 - EIR Early Phase Tier 1 (Content) - 13: 84.411C

Reader #2: *****

Applicant: SRI International (U411C180070)

Questions

Selection Criteria - Significance

1. In determining the significance of the project, the Secretary considers the following factors:

- (1) The national significance of the proposed project.
- (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.
- (3) The extent to which the proposed project demonstrates a rationale (as defined in the NIA).
- (4) The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

Strengths:

1. The applicant has provided an appropriate overview of nationally significant problems such as unaddressed educational and employment needs that are prevalent within rural areas. They have appropriately described the significance of their program which is in response to the identified gaps between rural and suburban youth with regards to access to Computer Science. (24-25)
2. The applicant has provided some details regarding academic tools that have been proven to lead to increased mathematic learning. (30)
3. The applicant has provided relevant information regarding how their project components will be based upon research findings (30-35). Within their logic model, they have provided a depiction of how activities such as professional development, resources etc. support the concepts of their project and will prepare teachers and students for Computer Technology coursework. (95)
4. The applicant aims to implement an innovative approach to improve student achievement for high need students. They have provided ample evidence that concepts such as using CAD tools in conjunction with real objects to support the development of geometric concepts and spatial reasoning skills have the possibility to improve math achievement. Information has been provided with regards to how overall strategies could lead to an increase in STEM careers (24). They have proven how their design that will include workplace mentorships, will give middle school students access to work based learning experiences. (28-29, 34)

Weaknesses:

2. The applicant has not provided a clear description of how their plan will likely be a promising new strategy. Specific academic disparities among the targeted students have not been provided. The applicant has not provided a comprehensive description of how curricular components detailed have affected similar groups (i.e. rural, low income middle school students) Therefore, it is difficult to determine the extent to which their project will be a promising new strategy that will increase academic success.

Reader's Score: 25

Selection Criteria - Quality of the Project Design and Management Plan

1. In determining the quality of the proposed project design, 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 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.

(3) The extent to which performance feedback and continuous improvement are integral to the design of the proposed project.

(4) The mechanisms the applicant will use to broadly disseminate information on its project so as to support further development or replication.

Strengths:

1. The applicant has appropriately demonstrated that goals and objectives will address the priorities of this competition. They have noted measureable, quantifiable objectives that correlate with the goals of their program. For example, they have described a goal that includes developing their work based curriculum. Their objective specifically addresses this goal as teachers from at least 2 to 4 different schools will be utilized to create 3 curriculum units (36-37).

2. The applicant has provided clear information regarding their management plan. Their plan clearly supports and fosters collaboration among their target schools (41). The Project Director will oversee the project and has vast experience in curriculum design and math augmentation. Roles and experience of other supporting staff are duly noted and appropriate for professional development and implementing STEM initiatives (39-40). The applicant presents a clear work plan that includes staff oversight, project activities and a timeline that provides a clear depiction of how milestones and deliverables will be achieved (37-38).

3. The applicant has appropriately noted how continuous feedback will be integral to the success of their program. Monthly reviews as well as input from key stakeholders such as their project team and Evaluator will facilitate additional support and or course revisions as needed (37, 38, and 42).

4. Based on partnerships and collaborations with institutions such as the University of Delaware, the applicant presents a favorable chance to effectively disseminate program components (84). Project resources that will be shared such as math curriculum strategies are easily scalable and will provide other institutions with viable methods to examine best practices (42).

Weaknesses:

None noted.

Reader's Score: 50

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Technical Review Coversheet

Applicant: SRI International (U411C180070)

Reader #3: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Significance		
1. Significance	30	30
Quality of the Project Design and Management Plan		
1. Project Design/Management	50	44
Total	80	74

Technical Review Form

Panel #13 - EIR Early Phase Tier 1 (Content) - 13: 84.411C

Reader #3: *****

Applicant: SRI International (U411C180070)

Questions

Selection Criteria - Significance

1. In determining the significance of the project, the Secretary considers the following factors:

- (1) The national significance of the proposed project.
- (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.
- (3) The extent to which the proposed project demonstrates a rationale (as defined in the NIA).
- (4) The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

Strengths:

This project meets the national significance. It clearly identifies the rationale for addressing the needs of students living in rural areas, where access to equitable academic resources and preparation for future employment is limited.

It is innovative in that it addresses computer science and math learning at the middle school level, which is a time that students can become not only academically stronger but also can develop enthusiasm for fields of study in high school and beyond. The project adds work-based learning at the middle school level, which will engage students better than just a career exploration model.

The strong math component of the project is critical to the students' futures, as poor math skills result in limiting students' academic choices as they progress through school.

The project provides a "test bed" in a high need area of rural Central California which may lead to improving on the project for further scaling up.

The 3D fabrication context brings an exciting and usable component to the engagement of middle school students in their learning.

Weaknesses:

None identified

Reader's Score: 30

Selection Criteria - Quality of the Project Design and Management Plan

1. In determining the quality of the proposed project design, 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 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.

(3) The extent to which performance feedback and continuous improvement are integral to the design of the proposed project.

(4) The mechanisms the applicant will use to broadly disseminate information on its project so as to support further development or replication.

Strengths:

The goals, objectives and outcomes are clear and match the description of the project. The task schedule is specific and timelines are appropriate. Per the statement on p. 14, "We have carefully budgeted the program by task," provides a smart way to ensure on-time, on-budget delivery of the project.

The management plan is strong, with specific activities, milestones and persons responsible.

The innovative curriculum development process described on page 18 is a unique method for designing curriculum that will allow students to develop strong mathematical concepts and reasoning. The use of Reeve's four-stage design research approach provides the project with a disciplined framework.

Mechanisms for feedback and continuous improvement are identified.

Dissemination of information includes website components that are stated to be maintained after the project ends.

Weaknesses:

Goal and objective measures lack baseline data so it is hard to tell if they are appropriate.

Reader's Score: 44

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