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

Technical Review Coversheet

Applicant: Missouri State University (S411C200085)
Reader #2:   **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Quality of Project Design			
1. Quality of Project Design		40	38
	Sub Total	40	38
Resources and Quality of Management Plan			
Resources and Quality of Management Plan			
1. Resources and Management		35	33
	Sub Total	35	33
Selection Criteria			
Quality of the Project Evaluation			
1. Project Evaluation		25	22
	Sub Total	25	22
Priority Questions			
CPP			
Competitive Preference Priority 1			
1. Computer Science		5	5
	Sub Total	5	5
	Total	105	98

Technical Review Form

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

Applicant: Missouri State University (S411C200085)

Questions

Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project based on the following factors:

Reader's Score: 38

> **Sub**

> 1. **(1) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable.**
>
>   **Strengths:**
>
>   The goals, objectives, and outcomes are clear, measurable and detailed (pp. e22 – e24).
>
>   **Weaknesses:**
>
>   None noted.

> **Reader's Score:** 10

> 2. **(2) 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.**
>
>   **Strengths:**
>
>   The school selection processes specifically outlines how schools with high proportions of the target population will be prioritized (p. e26). In addition, teachers are included in the development of modules and in training other teachers later in the project, which represents a community-engaged approach (teachers designing for teachers, rather than researchers designing for teachers).
>
>   **Weaknesses:**
>
>   None noted.

> **Reader's Score:** 10

> 3. **(3) The extent to which the design of the proposed project reflects up-to-date knowledge from research and effective practice.**
>
>   **Strengths:**
>
>   The research upon which the project and intervention were developed are current and specific. The WWC practice guides were consulted to ensure strategies that are developed are supported by high levels of evidence, which means the evidence-base used here is also cumulative (p. e35).

Sub

Weaknesses:

None noted.

Reader's Score: 10

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

Strengths:

The study as proposed has a very high potential to increase knowledge about effective, sustainable strategies for increasing access and participation in computer science courses.

Weaknesses:

The specific strategies to be implemented/studied are not yet determined.

Reader's Score: 8

Resources and Quality of Management Plan - Resources and Quality of Management Plan

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

Reader's Score: 33

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 outlined on pp. e32 – e34 will achieve the objectives of the project on time and within budget. There are detailed plans for communication between and within the different groups that are responsible for different aspects of the project.

Weaknesses:

The proposal would have benefited from some more specific, shorter-cycle milestones (only annual ones are listed).

Reader's Score: 8

2. **(2) The extent to which the costs are reasonable in relation to the objectives, design, and potential significance of the proposed project.**

Strengths:

The budget and costs align well with activities, and the cost per student for the project is reasonable.

Weaknesses:

None noted.

Sub

Reader's Score: 5

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

   Strengths:

   A particular strength of the named personnel is that the team responsible for field work (curriculum development, coaching and training) all have lots of teaching experience (p. e35). All others have appropriate expertise, experience, and authority to complete their responsibilities.

   Weaknesses:

   None noted.

   Reader's Score: 5

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

   Strengths:

   The project includes regular meetings and reviews of information, with built-in questions, feedback loops, and processes for getting the right information from the right individuals (e.g., students) to the right individuals (e.g., curriculum designers; pp. e32 & e33). There are even plans to review and update the logic model itself (p. e38).

   Weaknesses:

   None noted.

   Reader's Score: 10

5. **(5) The extent to which the results of the proposed project are to be disseminated in ways that will enable others to use the information or strategies.**

   Strengths:

   The dissemination plan is comprehensive, with resources being developed for public use from the get-go (p. e32), and funding already secured for materials being hosted online beyond this project's end date (p. e38).

   Weaknesses:

   None noted.

   Reader's Score: 5

Selection Criteria - Quality of the Project Evaluation

1. **The Secretary considers the quality of the evaluation to be conducted of the proposed project based on the following factors:**

Reader's Score: 22

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).**

   Strengths:

   The proposed design is powered to detect a reasonable effect size (p. e40), and the matched comparison group is focal and local.

   Weaknesses:

   Although low attrition is expected, it is unclear if there are plans to measure attrition, and if found, handle attrition bias.

   Reader's Score: 13

2. **(2) 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.**

   Strengths:

   Key project components, mediators, and outcomes are well-articulated.

   Weaknesses:

   It is unclear if the fidelity index that is being established (p. e42) will be used to develop a measurable threshold for acceptable implementation.

   Reader's Score: 4

3. **(3) The extent to which the methods of evaluation will provide valid and reliable performance data on relevant outcomes.**

   Strengths:

   All of the quantitative measures to be used already have published high reliability and validity; and in addition, there are plans to measure these with the study sample to confirm (p. e42). Qualitative and quantitative data will be triangulated to further establish reliability and validity of data collected (p. e43).

   Weaknesses:

   None noted.

   Reader's Score: 5

Priority Questions

CPP - Competitive Preference Priority 1

1. **Competitive Preference Priority 1: Computer Science**

   Projects designed to improve student achievement or other educational outcomes in computer science (as defined in this notice). These projects must address the following priority area: Expanding access to and participation in rigorous computer science coursework for traditionally underrepresented students such as racial or ethnic minorities, women, students in communities served by rural local educational agencies (as defined in this notice), children or students with disabilities (as defined in this notice), or low-income individuals (as defined

under section 312(g) of the Higher Education Act of 1965, as amended).

Strengths:

The project uses existing evidence to develop and implement strategies specifically for increasing access and participation in computer science coursework and also measures the effectiveness of these strategies on highly relevant outcomes specifically with students in rural locales.

Weaknesses:

None noted.

Reader's Score: 5

Status: Submitted
Last Updated: 10/29/2020 02:15 PM

Technical Review Coversheet

Applicant: Missouri State University (S411C200085)
Reader #3: **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Quality of Project Design			
1. Quality of Project Design		40	40
	Sub Total	40	40
Resources and Quality of Management Plan			
Resources and Quality of Management Plan			
1. Resources and Management		35	34
	Sub Total	35	34
Selection Criteria			
Quality of the Project Evaluation			
1. Project Evaluation		25	25
	Sub Total	25	25
Priority Questions			
CPP			
Competitive Preference Priority 1			
1. Computer Science		5	5
	Sub Total	5	5
	Total	105	104

Technical Review Form

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

Applicant: Missouri State University (S411C200085)

Questions

Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project based on the following factors:

Reader's Score: 40

Sub

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

   Strengths:

   Goal 1, reflecting student computer science engagement, has 4 aligned objectives that are clearly specified and measurable. Goals 2, reflecting developing teacher content knowledge and efficacy for teaching CS and interdisciplinary curriculum, has 4 aligned objectives. Goal 3, reflecting student academic success in related STEM content areas, has 6 well aligned objectives. Each objective is time bound, clear, and measurable. The logic model offers four intermediate outcomes – increase CS teacher and student knowledge, increase teacher efficacy, improve student attitudes and interest in CS, and increase student time spent on CS – that are well aligned, clear and measurable. (e25-26).

   Weaknesses:

   None noted

   Reader's Score: 10

2. **(2) 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.**

   Strengths:

   150 teachers across grades 3-8 serving approximately 13,500 students from rural communities are the target populations. (e21,e26) High needs students are described as students from rural school districts in southern Missouri that are designated Small Rural School Achievement (SRSA), Rural Low-Income Schools (RLIS), or both, or have a Title I designation, thus, have a significant portion of high-needs students. (e31) The target schools have an urgent need for quality CS and STEM education (e27). The CODERS project is appropriate to address the professional learning needs of educators that would enable delivery of effective CS instruction. Further, the project would provide rural students access to rigorous, interdisciplinary CS-focused instruction and highly effective educators. (e27)

Weaknesses:

None noted

Reader's Score: 10

3. **(3) The extent to which the design of the proposed project reflects up-to-date knowledge from research and effective practice.**

Strengths:

Applicant cites recent research on the effectiveness of explicitly teaching writing strategies, indicates that teachers who use evidence-based strategies meet criteria of a highly effective teacher, and uses this as the basis for professional learning. (e31) The research cited reflects up-to-date knowledge from research and effective practice, especially in light of the dearth of research on teaching and learning elementary/K-8computer science.

Weaknesses:

None noted.

Reader's Score: 10

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

Strengths:

Project has the potential to contribute to increased knowledge about the professional learning needs of grades 3-8 educators enabling the delivery of highly effective instruction in computer science and computational thinking, and regarding integrating elements of various disciplines into Computer Science.

Weaknesses:

None noted.

Reader's Score: 10

Resources and Quality of Management Plan - Resources and Quality of Management Plan

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

Reader's Score: 34

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:

Milestones aligned to objectives and the year(s) in which each occurs are outlined. In addition to overarching project milestones such as hiring personnel, milestones and objectives for school level implementation are provided. Responsibilities of the PI, Co-PI are described. In collaboration with a group of disciplinary experts (CODERS council), a detailed annual workplan to include hiring, procurement, collection and analysis of feedback data will be

developed.

Weaknesses:

The alignment between the key personnel responsibilities and the milestones is unclear. Checkmarks indicating that almost all milestones take place each year do not provide sufficient clarity to fully assess adequacy of the management plan. The proposed responsibilities for seven graduate research assistants should be indicated in the management plan.

Reader's Score: 9

2. **(2) The extent to which the costs are reasonable in relation to the objectives, design, and potential significance of the proposed project.**

    Strengths:

    The costs for personnel, contracts, supplies, laptops/equipment, and stipends for are reasonable and aligned to objectives of the project.

    Weaknesses:

    None noted.

    Reader's Score: 5

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

    Strengths:

    The wide-ranging qualifications and breadth of expertise and experience of the key personnel are relevant and strongly aligned to the goals of the project.

    Weaknesses:

    None noted.

    Reader's Score: 5

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

    Strengths:

    An overarching process for ensuring feedback from stakeholders and a focus on continuous improvement is outlined. Specifically, professional learning evaluations and reflections will inform subsequent PD. Collaborative review of video of teachers' instruction by teacher teams will inform implementation of strategies. These data will be shared with the steering committee (CODERS council) and inform the work across schools/regions. (e37) In addition to evaluators providing interim and annual reports to district administrators, principals, and project staff, quarterly review of the logic model is intended to gauge early impact, inform program changes, and identify unintended outcomes, thus ensuring continuous quality improvement. (e38). The sum of these processes describes a comprehensive approach to continuous improvement.

    Weaknesses:

    None noted.

Sub

    Reader's Score: **10**

5. **(5) The extent to which the results of the proposed project are to be disseminated in ways that will enable others to use the information or strategies.**

    Strengths:

    A comprehensive plan for disseminating implementation results and research findings via social media, open access university websites, research and practitioner journals, community-based publications and symposia, and conference presentations are outlined. (e38) The evaluation team intends to present results at nationally prominent research conferences. (e39)

    Weaknesses:

    None noted.

    Reader's Score: **5**

Selection Criteria - Quality of the Project Evaluation

1. **The Secretary considers the quality of the evaluation to be conducted of the proposed project based on the following factors:**

Reader's Score: **25**

    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).**

    Strengths:

    A quasi-experimental design that can meet What Works Clearinghouse standards with reservations is described. The QED will compare academic outcomes of 2,700 CODERS treatment students to 2,700 comparison students within the same school whose teachers did not participate in the project and students from rural "business-as-usual" comparison schools where teachers are also not participating in the project. (e40) Teachers within the same school will be surveyed to assess contamination threat, incentivized supports for teachers will likely result in low attrition rates for both teachers and students, and missing data will be handled using listwise deletion (e40).
    Treatment and comparison students will be matched 1:1 using nearest neighbor propensity score matching (PSM) without replacement to help ensure baseline similarity on state standardized assessments. The PSM will include key exogenous variables, such as baseline ELA, science, and math scores, economic disadvantage, minority status, and sex
    The outcome measures of state standardized math, science, and ELA achievement were selected because they predate CODERS and to avoid any potential over alignment.

    Weaknesses:

    None noted.

    Reader's Score: **15**

2. **(2) 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.**

Strengths:

Key project components are identified as STEM/CS curricula, virtual experiences, and teacher professional development while the stated long-term outcome is student academic achievement. (e43) Analysis will include both teacher and student mediators - pedagogical practices, teacher efficacy and content knowledge gains, and student attitudes and efficacy - as well as covariates such as teacher experience. (e41) A measurable threshold for acceptable implementation is provided (e24).

Weaknesses:

None noted.

Reader's Score: 5

3. **(3) The extent to which the methods of evaluation will provide valid and reliable performance data on relevant outcomes.**

Strengths:

Validity is to be established with confirmatory factory analysis. Reliability, as indicated via Cronbach's alpha, will be established for the Elementary Student Coding Attitudes Survey, the Programming and Computing Efficacy and Computational Thinking Survey, and S-STEM upper elementary and secondary survey. For educator outcomes, reliability will be established for the Teacher Survey on T-STEM and the Technological Pedagogical and Content Knowledge survey. (e22-24)

Weaknesses:

None noted.

Reader's Score: 5

Priority Questions

CPP - Competitive Preference Priority 1

1. **Competitive Preference Priority 1: Computer Science**

    Projects designed to improve student achievement or other educational outcomes in computer science (as defined in this notice). These projects must address the following priority area: Expanding access to and participation in rigorous computer science coursework for traditionally underrepresented students such as racial or ethnic minorities, women, students in communities served by rural local educational agencies (as defined in this notice), children or students with disabilities (as defined in this notice), or low-income individuals (as defined under section 312(g) of the Higher Education Act of 1965, as amended).

    Strengths:

    Project is designed to expand opportunities in Computer Science for underserved populations in grades 3-8 for 13,500 students. (e21) Traditionally underrepresented, low-income students from rural communities will receive rigorous, interdisciplinary standards-based computer science instruction that incorporates physical science and evidence-based writing.

Weaknesses:

None noted.

Reader's Score: **5**

Status: Submitted

Last Updated: 10/29/2020 10:24 AM

Technical Review Coversheet

Applicant: Missouri State University (S411C200085)
Reader #1:   **********

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Quality of Project Design			
1. Quality of Project Design		40	40
	Sub Total	40	40
Resources and Quality of Management Plan			
Resources and Quality of Management Plan			
1. Resources and Management		35	32
	Sub Total	35	32
Selection Criteria			
Quality of the Project Evaluation			
1. Project Evaluation		25	24
	Sub Total	25	24
Priority Questions			
CPP			
Competitive Preference Priority 1			
1. Computer Science		5	4
	Sub Total	5	4
	Total	105	100

Technical Review Form

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

Applicant: Missouri State University (S411C200085)

Questions

Selection Criteria - Quality of Project Design

1. **The Secretary considers the quality of the design of the proposed project based on the following factors:**

Reader's Score: 40

    Sub

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

   Strengths:

   The goals, objectives, and outcomes of the CODERS project are clearly specified and logically linked to one another (e25). Each oof the outcomes is specific and measurable (e25, e22-e23).

   Weaknesses:

   No weaknesses noted.

   Reader's Score: 10

2. **(2) 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.**

   Strengths:

   The CODERS project shows promise in addressing the needs of target population of rural, low-income students by focusing on the preparation of teachers to engage students in CS and STEM learning, while also supporting the use of evidence-based writing instruction in processing what they are learning. Preference for participation in CODERS will be given to Title I schools, and to schools that have been designated as Rural Low-Income Schools and/or Small Rural School Achievement schools (e26). CODERS focuses on both providing high quality educational opportunities to students in low-income rural areas, on increasing both the number of highly effective teachers in CS/STEM, and on increasing the depth of knowledge of those teachers (e25). The design of the project is comprehensive, and includes professional development as well as academic year integration, instructional design support, and co-teaching in order to address the project's stated goals and objectives (e21). The project's foundation is established in year 1, when needs assessments, module creation, and planning for the next 3 years of the project will take place (e21).

Weaknesses:

No weaknesses noted.

Reader's Score: 10

3. **(3) The extent to which the design of the proposed project reflects up-to-date knowledge from research and effective practice.**

   Strengths:

   The CODERS project includes the creation of virtual professional learning communities; professional learning communities have been shown to be an important support for teachers' learning and self-efficacy (e27). A strength of the project is the decentering of the university as the locus of knowledge, and the provision of opportunities for teachers to develop, sustain and increase instructional expertise in ways that can provide benefits both within and beyond the CODERS project (e27-e28). Current research suggest that the number of professional development hours most likely to yield substantial benefits is forty; the CODERS project provides more than this amount (e27). The proposal also draws on WWC research as a guide for the proposed project (e31).

   Weaknesses:

   No weaknesses noted.

   Reader's Score: 10

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

   Strengths:

   In relation to student achievement, the CODERS project has several goals—improving students' content knowledge, their efficacy, their knowledge and attitudes toward Computer Science and STEM career fields, and their academic achievement (e15, e18). The four-part structure of the CODERS project (development, support of teachers' skills and efficacy, development of students' computational and reflection skills, and dissemination of modules) is well-conceived and is likely to increase knowledge of strategies that successfully support teachers, and students' CS/STEM engagement (e21). The project uses reliable measures (e22) to measure attitudes and efficacy related to CS/STEM (e22).

   Weaknesses:

   No weaknesses noted.

   Reader's Score: 10

Resources and Quality of Management Plan - Resources and Quality of Management Plan

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

Reader's Score: 32

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:

A strength of the project is the level of flexibility built into the fidelity plans for the first year, and years 3-5, respectively (e24). The ongoing monthly oversight of the CODERS Council as a means for ensuring progress is made and deadlines are met provides an appropriate foundation for the management plan (e32).

Weaknesses:

Given plans to centralize the instructional expertise of teachers, the proposal could be strengthened by including both teachers and school administrators in the CODERS Council (e32), as well as the development and refinement of CODERS modules (e34), and the development of the CODERS Summer Launch for teachers (e35).

Reader's Score: 8

2. (2) The extent to which the costs are reasonable in relation to the objectives, design, and potential significance of the proposed project.

Strengths:

The costs for implementing and evaluating the CODERS project are reasonable, with the cost per student being $296. This is a somewhat conservative estimate, given that CODERS teachers will be able to use their skills and knowledge to work with additional students after the project has concluded (e34).

Weaknesses:

No weaknesses noted.

Reader's Score: 5

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

Strengths:

The key project personnel are highly qualified, and possess relevant expertise and training. This expertise and training encompasses the components of the project that relate to writing and CS/STEM pedagogy, as well as expertise and training related to providing high quality professional development (e35). The key project personnel also includes an individual whose work is specifically focused on serving the needs of diverse, rural teachers (e36). The evaluators for the project have several decades of experience and experience evaluating 12 i3 projects.

Weaknesses:

No weaknesses noted.

Reader's Score: 5

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

Strengths:

Each element of the project is associated with a process for continuous improvement (e37), with the CODERS Council serving as a body to synthesize data related to the continuous improvement process and the maintenance of fidelity to program goals, objectives, and outcomes (e37).

Weaknesses:

It seems relevant and consistent with the structure of the CODERS project to involve teachers in a manageable, yet pivotal way within the continuous improvement process (e37). The proposal could be strengthened by devoting attention to providing opportunities for teachers not directly involved in CODERS professional development to serve in this capacity.

Reader's Score: 9

5. **(5) The extent to which the results of the proposed project are to be disseminated in ways that will enable others to use the information or strategies.**

Strengths:

The CODERS project includes an appropriate plan for disseminating the results of the work; this plan includes providing curricula via social media and hosted websites, as well as lessons provides via YouTube, and presentations and publications (e38).

Weaknesses:

No weaknesses noted.

Reader's Score: 5

Selection Criteria - Quality of the Project Evaluation

1. **The Secretary considers the quality of the evaluation to be conducted of the proposed project based on the following factors:**

Reader's Score: 24

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).**

Strengths:

The CODERS project evaluation will be a three-year trial and impact study of teachers and students (e18, e40) that meets What Works Clearinghouse (WWC) standards with reservations (e40) via a quasi-experimental design. Academic outcomes for 2,700 students participating in CODERS will be compared to 2,700 students who are not provided with the treatment (e40). Propensity Score Matching (PSM) will be used to establish baseline equivalence (e41).

Descriptive data collected includes baseline demographic information on teachers, students, and the schools in which the project takes place, enrollment data for participants and non-participants, the number of teachers trained and the total number of professional development hours received, the percentage of teachers reporting confidence to teach CS/STEM activities, the number of students taught, and district data on students' performance on standardized tests (e13-e14).

Sub

Weaknesses:

No weaknesses noted.

Reader's Score: 15

2. **(2) 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.**

Strengths:

The evaluation plan includes both a formative and summative evaluation and is integrated with the continuous improvement efforts led by the CODERS Council (e42). Each key outcome related to teacher and student participation in CODERS is accounted for within the evaluation plan (e42). In order to assess and maintain fidelity, a longitudinal fidelity of implementation study will be used, and will include a CODERS fidelity index co-developed by the CODERS Council, the Research and Evaluation team, faculty, and the evaluation partner (e42).

Weaknesses:

Baseline achievement percentages for math, science, and English language arts (ELA) are not provided for outcomes related to student achievement (e24).

Reader's Score: 4

3. **(3) The extent to which the methods of evaluation will provide valid and reliable performance data on relevant outcomes.**

Strengths:

Measures associated with the goals of the CODERS projects have been established and have been evaluated for reliability (e22-e23), and, when information on reliability of measures is not available, the design of the study includes plans to assess measure that will be used. Focus groups and individual interviews with project participants will be used to obtain qualitative data, and analyses will use grounded theory-based strategies for identifying themes (e44).

Weaknesses:

No weaknesses noted.

Reader's Score: 5

Priority Questions

CPP - Competitive Preference Priority 1

1. **Competitive Preference Priority 1: Computer Science**

   Projects designed to improve student achievement or other educational outcomes in computer science (as defined in this notice). These projects must address the following priority area: Expanding access to and participation in rigorous computer science coursework for traditionally underrepresented students such as racial or ethnic minorities, women, students in communities served by rural local educational agencies (as defined in this notice), children or students with disabilities (as defined in this notice), or low-income individuals (as defined under section 312(g) of the Higher Education Act of 1965, as amended).

Strengths:

Based on the integration of writing skills with CS/STEM content, CODERS does appear to provide rigorous content to the target populations.

Weaknesses:

The proposal could be further strengthened by articulating in greater detail the pathways students will follow related to efficacy, basic knowledge of CS/STEM and academic curricula focused on using specific strategies for supporting math, ELA and science achievement.

Reader's Score: 4

Status: Submitted

Last Updated: 10/30/2020 03:08 PM