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

Technical Review Coversheet

Applicant: Alabama State Department of Education (U411C190267)

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

		Points Possible	**Points Scored**
Questions			
Selection Criteria			
Quality of the Project Evaluation			
1. Project Evaluation		20	16
	Sub Total	20	16
	Total	20	16

Technical Review Form

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

Applicant: Alabama State Department of Education (U411C190267)

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:**

   (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).

   (2) The extent to which the evaluation will provide guidance about effective strategies suitable for replication or testing in other settings.

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

   (4) 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 proposed design is strong, using a randomized control trial (p. 19), with analysis of baseline equivalence on key variables (e.g., student prior mathematics achievement, school setting—rural, town, etc.--, and prior interest in computer science and STEM-related careers) to ensure comparability.

   The evaluation focuses on appropriate outcome measures for the project design, including algebraic problem solving, computational thinking, and computer science interest and computer science STEM-related careers (p. 21). The evaluation proposes to use well-established measures to assess these outcomes, ensuring reliability and validity in the findings (p. 21-22).

   The proposed analysis is strong, recognizing that the rural nature of schools in the program may limit the number of students involved in both treatment and control groups (p. 22). To deal with this possibility, the evaluators will assess the appropriateness of using hierarchical linear modeling (HLM) or using a series of non-parametric tests. This flexibility shows a thoughtful approach to a project that poses challenges to a cookie-cutter design.

   The examination of implementation focuses on appropriate questions and uses existing observation instruments for assessing fidelity (p. 23-24), supplemented by a teacher questionnaire. In addition, the evaluators propose to assess contextual factors that affect implementation. As a result, the project will receive information that can lead to program improvement, and potential adopters will have needed guidance about whether the program approach will be effective in their settings.

   Weaknesses:

   The power analysis is problematic, particularly given the rural-school focus of the project and the relatively small number of participants (p. 22). The assumption that 81 students in each of 20 schools will be involved either in the treatment or as comparisons is likely to be a stretch, given the small size of rural schools. Further, although the evaluation speaks to

ways to eliminate or minimize attrition, the methods proposed address teacher attrition only through a series of monitoring and intervention activities (p. 21) but do not deal with student attrition. This is a major problem due to the small numbers involved (although the rural focus is appropriate, the evaluation is weak in dealing with its implications for research).

The assessment of implementation fidelity does not indicate an acceptable level of implementation and, therefore, , does not provide the program team with alerts about the need for intervention in a particular school or classroom (p. 23-24). It does not indicate what level of deviation from the program design is acceptable.

Reader's Score: **16**

Status: Submitted
Last Updated: 07/18/2019 02:52 PM

Technical Review Coversheet

Applicant: Alabama State Department of Education (U411C190267)
Reader #2: **********

		Points Possible	Points Scored
Questions			
Selection Criteria			
Quality of the Project Evaluation			
1. Project Evaluation		20	16
	Sub Total	20	16
	Total	20	16

Technical Review Form

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

Applicant: Alabama State Department of Education (U411C190267)

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:**

   (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).

   (2) The extent to which the evaluation will provide guidance about effective strategies suitable for replication or testing in other settings.

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

   (4) 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:

   1) The applicant describes methods of evaluation that could, if well implemented, produce evidence about the project's effectiveness that would meet the What Works Clearinghouse standards without reservations that includes using stratified assignment at the school level and clustered random assignment of rural and town schools and (pg. 19). A plan to control for attrition using three specified strategies is describe on pages 21-22. A power analysis that indicates the study will have adequate power (.80) is provided on page 22. Methods include implementing a hierarchical linear modeling approach (pg. 22) that includes student performance data on algebraic problem-solving and computational thinking and evaluating effect sizes for all significant findings (page 22).

   2) The applicant describes a detailed plan to evaluate implementation using strategies that are suitable for replication (pg. 24), such as the use of the ICLE Rigor, Relevance and Engagement Rubrics to measure engaging practices emphasizing problem-solving and conceptual approaches. The applicant also states that it will summarize and graph results to make them useful to leadership (pg. e87). These findings may provide guidance for testing in other settings.

   3) The applicant describes a well-designed plan to use a validated measure (S-STEM survey) to measure student attitudes toward CS and interest in CS/STEM careers (pg. 22). The applicant describes its intention to report internal consistency reliabilities for all measures is provided on page. 22.

   4) The applicant clearly articulates key project components, outcomes and thresholds for performance measures on pg.13 and on the Form for Project Objectives and Performance Measures (pg. e100). A strong plan to study interaction effects is specified on page 23.

   Weaknesses:

   1) A plan to account for contamination is not provided. Though the applicant states on page 20 that the treatment and control groups are expected to be equivalent, a plan to adjust for a lack of equivalence is not clearly described.

2) Details are limited regarding guidance for testing in other settings. For example, guidance, such as formulas or equations that will support replication of the HLM model or goodness of fit model, are not provided.

3) Evidence of validity and reliability is not provided regarding the student assessments that will be used to measure algebraic word-problem solving and computational thinking. Details are limited regarding evidence of validity for the Basics Study Questionnaire.

4) No weaknesses noted.

Reader's Score: **16**

Status: Submitted
Last Updated: 07/18/2019 01:31 PM