

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

Status: Submitted

Last Updated: 07/18/2019 03:59 PM

## Technical Review Coversheet

**Applicant:** Education Development Center, Inc. (U411C190275)

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

	Points Possible	Points Scored
<b>Questions</b>		
<b>Selection Criteria</b>		
<b>Quality of the Project Evaluation</b>		
1. Project Evaluation	20	18
<b>Sub Total</b>	20	18
<b>Total</b>	20	18

# Technical Review Form

Panel #4 - EIR Early Phase Tier 2 - 8: 84.411C

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

Applicant: Education Development Center, Inc. (U411C190275)

## 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 an evaluation that will, if well implemented, produce evidence about the project's effectiveness that would meet the What Works Clearinghouse standards with reservations (pg. 20). Five studies are described that address specific research questions (pg. 19). Details include a study using a mixed methods, quasi-experimental design with 15 treatment and 15 comparisons districts (pg.23) that will be paired using a propensity matched scoring approach (pg. 20). A power analysis is described that shows the study design has adequate power (power =.80) (pg. 23). A clear description is provided regarding analysis methods, such as a two level hierarchical linear model and a second model to determine the extent of underrepresented group status is a predictor of performance (pg. 23). Other described methods include a linear regression model (pg. 24) and the use of logistic regression analysis to determine if students from underrepresented groups are being retained at different rates than majority groups (pg. 25). The applicant provides a plan to conduct fidelity of implementation tracking (pg. 20), a study of the district infrastructure and capacity building (pg. 21), and a study of professional development (pg. 22). For the study of student performance using MCAS assessment results (pg. 22), moderators are described on page 23 and include factors that will be controlled for in the HLM model, such as participation in the intervention district, prior performance indicators, membership in under-represented groups, prior experience with CS coursework, and the district capacity index indicator (page 23).

2) The applicant describes the creation of a district infrastructure index and three systems to track implementation fidelity which are expected to inform the development of a PACE Toolkit that is intended to support replication (pg. 20). The tracking system will provide demographic information for all students, as well as information such as which unique CS courses are offered, how many sections, and how many teachers are teaching the courses. Details are provided regarding a plan to conduct case studies that will examine implementation in a sample of five districts to understand literal and/or theoretical replication issues (pg. 21).

3) The applicant describes the use of reliable performance data, including the use of student assessment data from MSCS state assessments. Other instruments that may produce reliable data include results from the Culturally Responsive Teaching Self-Efficacy Scale (Siwatu, 2007) to measure teacher self-efficacy in using culturally responsive instruction (pg. 22) and data from a district infrastructure index (pg. 21). The applicant provides a table on pages e115 that

includes reliability statistics for the Barriers and Supports to Implementation Computer Science Survey (Basics) and states that the instrument was assessed for content validity and usability (pg. e115).

4) The applicant describes key project components and outcomes in a table on pages 9-11. Details are provided regarding an acceptable threshold of implementation (75%) that uses data automatically collected through the Code Studio platform (pg. 21).

**Weaknesses:**

1) Details are limited regarding how the applicant will adjust for baseline equivalence if the average baseline MCAS scores for matched districts exceed .25 standard deviations (pg. 20).

2) No weaknesses noted.

3) No weaknesses noted.

4). Mediators are not described.

**Reader's Score: 18**

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## Technical Review Coversheet

**Applicant:** Education Development Center, Inc. (U411C190275)

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

	Points Possible	Points Scored
<b>Questions</b>		
<b>Selection Criteria</b>		
<b>Quality of the Project Evaluation</b>		
1. Project Evaluation	20	18
<b>Sub Total</b>	20	18
<b>Total</b>	20	18

# Technical Review Form

Panel #4 - EIR Early Phase Tier 2 - 8: 84.411C

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

Applicant: Education Development Center, Inc. (U411C190275)

## 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 evaluation is likely to meet What Works Clearinghouse standards, probably without reservations, because it matches districts on key characteristics, including student characteristics (p. 20). The use of propensity score matching is excellent because it accounts for both the nature of the district (urbanicity), scores on the MCAS, and a variety of student characteristics (number of students in the district, percentage of minority, female, low and reduced price lunch students, as well as students with disabilities). Using a variety of indicators, as noted, is likely to ensure that treatment and comparison groups are, in fact, similar, thereby strengthening claims that the program is responsible for different outcomes.

The proposed evaluation covers all aspects of the proposed program—district changes, teacher professional development, and student performance (p. 21-22; 23-24) and aligns with the logic model (p. G-1-3). As a result, the study will provide rich information about the changes in district policy (such as those related to course availability, course assignment, technology, and specialists) needed to implement the program successfully. In addition, the characteristics of successful professional development (e.g., topics discussed in the professional learning communities), and the relationship of inputs to actual outcomes, all of which will be useful to potential adopters.

A key strength of the proposed evaluation is how it defines and measures "fidelity of implementation." By setting indicators of implementation beforehand, evaluators are in a strong position to determine if the program is being implemented and therefore able to ascribe changes in outcomes to it. Furthermore, the evaluation goes beyond tracking individual classroom implementation to examining district infrastructure needed to support program institutionalization after the EIR grant ends (p. 20-21). This approach is strong because it will provide important information, both for formative evaluation and for potential dissemination and replication.

The data analysis proposed takes into account a variety of moderator variables, such as (prior performance on the MCAS, membership in under-represented groups, prior experience with computer science courses, and an indicator of district capacity to undertake the program), which is essential to understanding the actual impact of the intervention because each may have an effect on the outcome, independent of the treatment (p. 23). The instrumentation for

Implementation and contextual data is proposed to be collected using existing instruments, which, in earlier studies, collecting implementation and contextual factors show strong reliability, with Cronbach alphas generally ranging from the high .80s to .90s. Only teachers' views of their abilities was lower (.75) (p. 1-4).

**Weaknesses:**

: The power analysis does not take into account teachers and students who might enter or leave the classrooms in the treatment or comparison group. This, coupled with the predicted moderate effect size of .43, weakens the evaluation because enterers and leavers are likely to decrease the number of students in the study, thereby decreasing the possibility of finding effects if they exist. (p. 23). With a smaller number of students, the power of the study is lessened, which is likely to decrease the effect size found.

Relying on teacher perceptions of their efficacy in teaching in a culturally responsive manner (p. 1-5) is a weak approach because individuals frequently under-estimate their biases, as shown by research on implicit bias. Further, people frequently don't know what they don't know before being taught and over-estimate that knowledge.

**Reader's Score: 18**

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