

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

Status: Submitted

Last Updated: 07/12/2019 10:36 AM

Technical Review Coversheet

Applicant: The Regents of the University of California, Irvine (U411C190092)

Reader #1: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Quality of the Project Evaluation		
1. Project Evaluation	20	14
Sub Total	20	14
Total	20	14

Technical Review Form

Panel #10 - EIR Early Phase Tier 2 - 7: 84.411C

Reader #1: *****

Applicant: The Regents of the University of California, Irvine (U411C190092)

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 applicant clearly described the methods of evaluation as a delayed randomized-control trial to be implemented in years 4 and 5 of the proposed project including a total of 24 schools: assigning randomly 12 schools in the treatment group (4th grade) and 12 schools implementing regular ELA curriculum (4th grade) (pg.e42). The information produced by the RCT would produce information about the effectiveness of the intervention.

The applicant clearly noted the data collection protocols for quantitative and qualitative data about the strategies (Integration into ELA and Linguistic scaffolding (pg.e26-e27) such as quarterly classroom observations, teachers' curriculum implementation, and design groups to collect curriculum feedback (pg.e35). The applicant also provided information about goals, objectives, and outcomes (pg.e36-e37) and a logic model indicating resources, activities, outcomes, and evaluation questions were presented (pg.e228) to guide the implementation of the proposed project. The applicant clearly indicated that data collected during year 2 and year 3 would be utilized to adjust the curriculum and teachers' professional development (pg.e34). The applicant clearly noted the use of the Plan/Do/Study/Act (PDSA) cycle as continuous improvement to adjust curriculum or implementation issues (pg.e38). The proposed project would generate specific and generic fidelity information on the implementation and dosage of the professional development for replication (pg.e47) allowing the development of protocols to replicate the proposed intervention in other settings.

The applicant demonstrated the valid and reliable performance data on relevant outcomes would be collected through the detail explanation of the adjustment of the Santa Ana Unified School District (SFUSD) curriculum to incorporate computational thinking into the curriculum by utilizing the Creative Computing Curriculum Guide developed at the Harvard Graduate School of Education (pg.e26-e27). In addition to the modified curriculum, the learning strategy TIPP&SEE" developed by the Computing for ANyONE (CANON) lab at the University of Chicago and faculty at Texas State University would be implemented to ensure students' ability to modify programs through a use-modify-create approach (pg.e30). The applicant indicated that a survey (the Lean Computational Thinking Abilities Assessment (LCTAA) to measure computational skills) and additional developed questions) would be validated and then the applicant would pilot the modified curriculum by assessing the implementation through the developed instrument and the Pre- and post-survey results on attitudes and beliefs towards computer science (pg.e43-e44).

The applicant clearly detailed the statistical power (80%) with a threshold of 0.05 for the minimum detectable effect size (MDES) of the proposed project (pg.e45-e46). The applicant clearly indicated (1) key components: teachers' professional

development and students' attitudes and beliefs toward computer science; (2) moderators: the applicant would represent moderator effects as interactions by extending the Hierarchical Linear Model; (3) mediators: analysis of fidelity would be utilized as a mediator (structural equation modeling); and (4) outcomes of interest (students at level 1, teachers at level 2, and school at level 3) (pg.e46). The information would allow a clear implementation of the proposed project and it would guide the data analysis of the proposed project.

Weaknesses:

The applicant did not clearly address protocols to address attrition issues and randomization protocols of the groups (treatments and control) of the proposed project. Thus, it is not unclear if the Works Clearinghouse standards would be met.

Although the applicant acknowledged the possibility of the results indicating that the "treatment [group] fails to predict the amount of CS instruction, then the lack of effect was due to lack of program differentiation... (pg.e48)," the applicant did not clearly indicate how the difference, if any of teachers, classrooms, and students, would be established before the intervention is implemented.

The applicant did not clearly state the targets of the objectives to be met by the goals of the proposed project (pg.e36-e37).

The applicant did not clearly indicate possible moderators to be part of the analysis of the proposed project (pg.e48).

Reader's Score: 14

Status: Submitted
Last Updated: 07/12/2019 10:36 AM

Status: Submitted

Last Updated: 07/15/2019 08:46 PM

Technical Review Coversheet

Applicant: The Regents of the University of California, Irvine (U411C190092)

Reader #2: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Quality of the Project Evaluation		
1. Project Evaluation	20	13
Sub Total	20	13
Total	20	13

Technical Review Form

Panel #10 - EIR Early Phase Tier 2 - 7: 84.411C

Reader #2: *****

Applicant: The Regents of the University of California, Irvine (U411C190092)

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 project evaluation proposes a rigorous research design (randomized control trial) along with the random assignment of 24 schools (12 schools intervention, 12 schools traditional curriculum). The project extends within three school districts for 91 teachers into 1-treatment group and 1-control group. It also considers 1,080 students initially plus 2,160 additional students within five years) meeting the WWC standards without reservations requirements. For example, there are 12 intervention schools and 12 schools with a traditional curriculum (pg. 19)

The project evaluation proposes to assess the impact of the IMPACT curriculum through different qualitative and quantitative instruments for teachers and students. Teachers will participate in weekly and monthly surveys, interviews, as well as being exposed to quarterly observations by the administrative team (pg. 1 and 2). Student progress will be evaluated by class projects (pg. 2), pre and post assessments from ISM survey (pg 21), as well as academic records (pg. 2). This is a strength because it shows a variety of data collection methods.

The project evaluation provides a detailed description of "how" the evaluators plan on assessing the impact and implementation of the project to include methods of data collection and analysis (pg. 1-3, and 19-25). Multiple methods of data collection (observations, artifacts, surveys, interviews, and academic records) will be used throughout to assess the fidelity of implementation of the program (pg. 1-3, and 19-25). This is a strength because it shows a variety of ways to evaluate the project.

The project evaluation presents a detailed analysis of the power analysis assessing for minimum sample sizes and detectable effect sizes to assess program impact (pg. 20-25).

The project evaluation addresses not only program implementation and impact, but also moderation and subgroup analysis, mediators, and cost effectiveness allowing for a broader evaluation of the project (pg. 23-25).

The project evaluation thoroughly describes the psychometrics of previously validated instrumentation to be used to collect teacher and student data that will provide valid and reliable data on relevant outcomes to the project (pg. 20-25).

The project evaluation proposes collecting baseline and post-data for treatment and control groups for teachers and student instruments, measuring program impact on a weekly and monthly basis, allowing for the assessment of change over time and the examination of the growth trajectory (pg. 1 and 2).

The project evaluation provides a comprehensive list of the key components of the project, aligned with the accompanying measurable thresholds for acceptable implementation and data sources (pg. 19-25).

Weaknesses:

It is not totally clear if teachers will be randomized in such a manner intended to better distribute ethnicity/race, socioeconomic status, and local/state contextual factors. These details may affect the entire research design and evaluation results. The teachers are an essential component within the evaluation and the specifics in regard to their selection and sampling is important.

It is not totally clear if there is a plan in place to deal with potential attrition and potential “student joiners” by establishing a baseline sample and collecting rosters of participant students in the beginning of the project.

It is not totally clear on “how” the evaluators will address a cost effectiveness analysis for scale-up and sustainability of the project.

The project evaluation questions and outcomes are not clearly stated (pg. 13-14). For example, what is the expected increase on student achievement during the application of the program?

Reader's Score: 13

Status: Submitted
Last Updated: 07/15/2019 08:46 PM