Education Innovation and Research Program (EIR)
Project Abstract

Applicant Name: Teachers College, Columbia University
Project Title: *ExCELL in Science for High-Need Pre-Kindergarten Classrooms: The Early Phase*
Type of Grant Requested: (select one) ☒ Early-Phase ☐ Mid-Phase ☐ Expansion
Absolute Priorities the Project Addresses: (select all that apply)
☒ Absolute Priority 1-- Demonstrate a Rationale (Early), Moderate (Mid), Strong (Expansion)
☐ Absolute Priority 2-- Field-Initiated Innovations—General
☒ Absolute Priority 3-- Promoting STEM Education
☐ Absolute Priority 4-- Meeting Student Social, Emotional, and Academic Needs
☐ Absolute Priority 5-- Educator Recruitment and Retention
Competitive Preference Priorities the Project Addresses: (select all that apply)
☒ Competitive Preference Priority 1-Promoting Equity in Student Access to Educational Resources and Opportunities: Implementers and Partners
☒ Competitive Preference Priority 2-Addressing the Impact of COVID–19 on Students, Educators, & Faculty
Total number of students to be served by the project: 1728 pre-kindergarteners (1642 of high needs)
Grade level(s) to be served by the project: Pre-kindergarten classrooms
Definition of high-need students: Prekindergarten children from low-income backgrounds and from under-resourced communities, who have historically performed below national expectations.
Brief description of project activities: *ExCELL in Science (EIS)*, a science program for prekindergarten (PreK) teachers and students who are high needs will be created. During pilot and feasibility studies, science lesson plans and associated materials, professional development for teachers, fidelity instrument and science knowledge measure will be developed using an iterative process. An independent evaluation will follow. Throughout the project, we will work with School District of Philadelphia (SDP) to ensure the *EiS* meets the needs of the district and is sustained in the district.
Summary of project objectives and expected outcomes: Objectives: 1) conduct asset mapping and a needs assessment to help identify gaps that have occurred due to COVID and create an advisory board; 2) develop *EiS* theme-based lesson plans and associated materials and professional development for PreK teachers, 3) conduct a pilot of *EiS* with 6 teachers and revise, 4) conduct a feasibility study of *EiS* with 10 teachers, 5) conduct an independent evaluation of *EiS* with 80 teachers that meets WWC standards, and 6) sustain *EiS* in the SDP and disseminate information. Outcomes include: completed asset mapping and needs assessment that informs the development of *EiS*; creation of an advisory board; creation of *EiS*; development of a fidelity measure and teacher science knowledge measure; completed pilot and feasibility studies and independent RCT evaluation; *EiS* sustained in the SDP and information disseminated.
Summary of how the project is innovative: This project is innovative because it will create *EiS*, an accessible, scalable program for PreK classrooms. *EiS* has three innovative features: 1) high quality science lesson plans, professional development, and coaching that are based on the leading science framework from the National Research Council (NRC, 2012; Nordine & Lee, 2021) and echoed in the Next Generation Science Standards; 2) accessible PreK programs in high-need, ethnically and culturally and linguistically diverse classrooms; and 3) inclusion of evidence-based language strategies that support native English and children who are English learners.
Other studies related to the proposed project: [redacted] & [redacted] (2022) that showed that use of evidence-based language strategies promoted children's skills to discuss inquiry-based science strategies. [redacted] & [redacted] (2023) that revealed that Exceptional Early Language and Literacy (ExCELL) increased teachers' quality of instruction as a result of training and coaching. [redacted],

[redacted] and [redacted] (2023) that demonstrated that the frequency of teacher feedback during classroom conversations was uniquely linked to children's vocabulary learning on standardized measures.
Proposed implementation sites: PreK classrooms in the SDP**.**
Organizations partnering with this project: Temple University, University of North Carolina, North Carolina Central University (HBCU), and American Institutes for Research (independent evaluator).