

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

Status: Submitted

Last Updated: 09/12/2023 11:48 AM

## Technical Review Coversheet

Applicant: University of Texas Foundation (S411C230191)

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

	Points Possible	Points Scored
<b>Questions</b>		
<b>Selection Criteria</b>		
<b>Significance</b>		
1. Significance	20	19
<b>Quality of Project Design</b>		
1. Project Design	30	29
<b>Quality of Project Personnel</b>		
1. Project Personnel	10	7
<b>Quality of the Management Plan</b>		
1. Management Plan	10	8
<b>Sub Total</b>	70	63
<b>Priority Questions</b>		
<b>Competitive Preference Priority</b>		
<b>Competitive Preference Priority 1</b>		
1. Promoting Equity	5	5
<b>Competitive Preference Priority 2</b>		
1. Workforce Diversity	2	0
<b>Sub Total</b>	7	5
<b>Total</b>	77	68

# Technical Review Form

Panel #8 - EIR Early-Phase - 8: 84.411C

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

Applicant: University of Texas Foundation (S411C230191)

## Questions

### Selection Criteria - Significance

1. The Secretary considers the significance of the proposed project. In determining the significance of the proposed project, the Secretary considers the following factor:

Reader's Score: 19

#### Sub

1. (1) The extent to which the proposed project involves the development or demonstration of promising new strategies that build on, or are alternatives to, existing strategies. (20 points)

#### Strengths:

The applicant presents three applications how the proposed project differentiates from current science instruction. First, while absolutely necessary, “[adherence] to the recommendations of the NGSS (NGSS Lead States, 2013) by promoting a “three- dimensional approach” to science learning” (p. e22) and introducing this approach in kindergarten class can be considered innovative as “this three-dimensional approach vastly differs from current practice in kindergarten classrooms” (p. e22).

Second, the applicant describes that the proposed Sci-K program will “differentiate science instruction based on a student’s strengths or learner characteristics” (p. e23)

Third, the applicant describes that project differentiates from current education practice in that “it will use science instruction as a backdrop to concurrently build students’ academic language and early number sense skills (p. e23).

The applicant states that “evidence-based science programs are in short supply for kindergarten classrooms” and cite that “California, Florida, and Texas, three states with considerable sway on the national textbook market, none have empirical research that meets the WWC (2023) screening criteria” (pp. e23-24)/

The project builds on a second grade program with positive effect sizes on STEM-related outcomes (p. e24) conducted by Dr. Christian Doabler and Dr. William Therrien (Doabler et al., 2017-2023) (p. e16).

The applicant also states that “two IES-funded research projects (Clarke, Doabler et al., 2020-2024; Turtura, Clarke, Doabler et al., 2023-2028) focused on kindergarten mathematics interventions are also strongly related since both involve high-need kindergarten students in low-income communities” (p. e16)

#### Weaknesses:

The applicant does not reference how differentiation as a backdrop to “build students’ academic language and early number sense skills” are promising new strategies that build on, or are alternatives to, existing strategies specifically as it relates to the targeted population of kindergarten age students (p. e23).

Reader's Score: 19

### Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project. In determining the quality of the design of the proposed project, the Secretary considers the following factors:

Reader's Score: 29

Sub

1. (1) The extent to which there is a conceptual framework underlying the proposed research or demonstration activities and the quality of that framework. (10 points)

**Strengths:**

The applicant cites a strong research rationale and support for this project and presents a “body of evidence suggests students’ understanding of science content and practices is aided by intentional instructional support (Alfieri et al., 2011; NRC, 2012; Therrien et al., 2017)” and “few science programs incorporate validated principles of instruction, such as scaffolded student practice opportunities” (p. e23).

The conceptual framework has three components: developing “Bundles of Three-Dimensional Science Learning” described from pp. e25 – e26, implementing “Validated Principles of Instruction” that include “purposefully selected instructional tasks and activities and teacher-provided academic feedback (Therrien et al., 2017)” p. e27, and “Effective Professional Development” that “actively engages teachers in the Sci-K materials” (p. e27).

The applicant cites supporting research for component 1 that “a robust and lasting understanding of three-dimensional learning is essential for students’ development of science proficiency (NRC, 2012)” (p. e25) as well as supporting research for the other two components on p. e27.

The applicant provides a description and examples for each of these three components for their framework in Table 1 from pp. e27 – e28. For example, under the second component of their framework, “Validated Principles of Instruction”, Instructional Interactions is listed as “Frequent opportunities for all students to explore and reach three-dimensional science learning” (p. e28)

The principles used in the proposed program have “results from recent efficacy trials indicate significant treatment effects on STEM-related outcomes across genders, ethnicity, SES, and academic skill levels (Doabler et al., 2016; Doabler et al., 2019; Doabler et al., 2023; Rojo et al., 2023)” (p. e33)

**Weaknesses:**

While the authors cite a substantial amount of research as it relates to the need to meet diverse learning needs, the project would have benefited with including research that explicitly mention students of kindergarten age.

Reader's Score: 9

2. (2) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable. (5 points)

**Strengths:**

Goals broken down by year with corresponding objectives and a breakdown of tasks under each objective are included in the management plan from pp. e122 – e129 and include fidelity outcomes that are clearly specified and measurable.

Fidelity outcomes are listed in detail in Table 2. Project Objectives and Desired Outcomes on pp. e31-32. The student level outcome to be used will be ECLS-K General Knowledge Test is defined on p. e130 and includes an extensive description how it will assess the proposed bundles for “earth, physical, and life sciences” assessing

**Sub**

students on two types of competencies”.

The applicant also provides justification for use of this test because “research suggests that children’s kindergarten GKT scores are highly predictive of their third-grade Science Test scores” (p. e130).

The applicant also includes two additional assessments to measure student outcomes: the science vocabulary assessment that will be developed and the ASPENS, both of which are described on p. e131.

The applicant includes two teachers measures as well, the NGSS Science and Engineering Practices Survey and the Science Discourse Instrument, both of which are described in detail on pp. e131-e133.

**Weaknesses:**

No weaknesses noted.

**Reader's Score: 5**

**3. (3) 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. (15 points)**

**Strengths:**

he applicant presents a strong case that the target population are underserved with “71% of families in the Pine Bluff area are in current economic distress, with 24% living below poverty thresholds (Census.gov, n.d.)”. Additionally, there is a need for improved science instruction because over 55% of students from Pine Bluff districts scored below the passing threshold (ADOE, n.d.)” on the third-grade Arkansas state science assessment” p. e20.

The applicant describes that they “will begin development of Sci-K by adjusting the core components established and tested in our prior work (Doabler et al., 2021) to become developmentally appropriate for kindergarten students” (p. e29 ) to meet their needs.

After each implementation, the independent evaluators will conduct teacher interviews and administer surveys to gather formative data to share with our design team for subsequent curricular revisions” (p. e30) to ensure the proposed project is appropriate to, and will successfully address, the needs of the target population.

**Weaknesses:**

No weakness noted.

**Reader's Score: 15**

**Selection Criteria - Quality of Project Personnel**

**1. The Secretary considers the quality of the personnel who will carry out the proposed project. In determining the quality of project personnel, the Secretary considers the following factor:**

Reader's Score: 7

Sub

1. (1) **The extent to which the applicant encourages applications for employment from persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, gender, age, or disability. In addition, the Secretary considers the qualifications, including relevant training and experience, of key project personnel. (10 points)**

**Strengths:**

The applicant states that The University of Texas at Austin (UT) and the University of Arkansas at Pine Bluff “both employ current team members who represent groups that have been underrepresented in the EIR program and STEM careers based on race and ethnicity” (p. e21).

Members of the proposed grant “have successfully engineered and empirically tested more than 10 STEM-related programs for high-need students (e.g., Doabler et al., 2013; Doabler et al., 2015b; Doabler et al., 2017; Hand, Therrien et al. 2009; Therrien et al., 2010)” p. e34

The members of the leadership and implementation team additionally have relevant training and experience such as Dr. Christian Doabler’s research that “focuses on STEM programs for high-need students”, Dr. Kimberley Davis “expertise in the area of science instruction for students from marginalized groups”, Dr. William Therrien expertise “in curriculum development in science and will oversee development of the Sci-K program”, etc. (pp e34-e35)

**Weaknesses:**

Only one member of the personnel identified in Quality of the Project Personnel section specifically mentions experience with kindergarten age children, Dr. Scott Grapin (p. e35)

Only two of the resumes included in the grant have K-12 experience, and neither is in kindergarten:

- Dr. Gersib has two years of experience as a special education teacher (p. e68)
- Dr. Chiu has three years of experience as a high school math and science teacher (p. e76)

The project would benefit with including kindergarten teachers and /or members from the participating schools with experience and knowledge in kindergarten in the key personnel section to support and lead and/or co-lead the grant.

Reader's Score: 7

**Selection Criteria - Quality of the Management Plan**

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

Reader's Score: 8

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.**

**Sub**

**Strengths:**

A well detailed management plan is included from pp. e122 – e129 that provides very detailed timelines and milestones for each year of the proposed grant. For example, each of the three Sci-K bundles are listed to be developed in subsequent years beginning with the Physical Science unit in Year 1 (p. e122) and the applicant includes six sub-tasks necessary for completing this milestone. The implementation phase for this unit is then defined in Year 2 (p. e123) with six (6) sub-tasks for preparing the professional development to the teachers as well as refined and feedback for the unit and a milestone to complete the next unit (p. e124)

**Weaknesses:**

The key personnel identified as responsible for completing several phases of the project are too broad and do not define the individual or institution responsible for leading the effort. For example, UT, UVA, and UA-PB are listed as Key Personnel under both milestones for Objective 1 for Year 1, two of the three milestones under Objective 1 for Year 2, both milestones under Objective 2 for Year 2, etc.

Educators and administrators from the participating school should be included in management plan.

**Reader's Score: 8**

**Priority Questions**

**Competitive Preference Priority - Competitive Preference Priority 1**

**1. Competitive Preference Priority 1:**

**Promoting Equity in Student Access to Educational Resources and Opportunities: Implementers and Partners (up to 5 points)**

**Under this priority, an applicant must demonstrate how the project will be implemented by or in partnership with one or more of the following entities:**

- (a) Community colleges (as defined in the NIA)**
- (b) Historically Black colleges and universities (as defined in the NIA)**
- (c) Tribal Colleges and Universities (as defined in the NIA)**
- (d) Minority-serving institutions (as defined in the NIA)**

**Strengths:**

The University of Arkansas at Pine Bluff is “recognized as a Historically Black College and University (HBCU).” (p. e16)

**Weaknesses:**

No weakness noted.

**Reader's Score: 5**

**Competitive Preference Priority - Competitive Preference Priority 2**

**1. Competitive Preference Priority 2:**

**Supporting a Diverse Educator Workforce and Professional Growth to Strengthen Student Learning (up to 2 points)**

Projects that are designed to increase the proportion of well-prepared, diverse, and effective educators serving students, with a focus on underserved students, through building or expanding high-poverty school districts' capacity to hire, support, and retain an effective and diverse educator workforce, through adopting or expanding comprehensive, strategic career and compensation systems that provide competitive compensation and include opportunities for educators to serve as mentors and instructional coaches, or to take on additional leadership roles and responsibilities for which educators are compensated.

**Strengths:**

N/A

**Weaknesses:**

N/A

**Reader's Score:**     **0**

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**Status:**           Submitted  
**Last Updated:**   09/12/2023 11:48 AM



Status: Submitted

Last Updated: 09/13/2023 03:31 PM

## Technical Review Coversheet

Applicant: University of Texas Foundation (S411C230191)

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

	Points Possible	Points Scored
<b>Questions</b>		
<b>Selection Criteria</b>		
<b>Significance</b>		
1. Significance	20	20
<b>Quality of Project Design</b>		
1. Project Design	30	29
<b>Quality of Project Personnel</b>		
1. Project Personnel	10	7
<b>Quality of the Management Plan</b>		
1. Management Plan	10	8
<b>Sub Total</b>	70	64
<b>Priority Questions</b>		
<b>Competitive Preference Priority</b>		
<b>Competitive Preference Priority 1</b>		
1. Promoting Equity	5	5
<b>Competitive Preference Priority 2</b>		
1. Workforce Diversity	2	0
<b>Sub Total</b>	7	5
<b>Total</b>	77	69

# Technical Review Form

Panel #8 - EIR Early-Phase - 8: 84.411C

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

Applicant: University of Texas Foundation (S411C230191)

## Questions

### Selection Criteria - Significance

1. The Secretary considers the significance of the proposed project. In determining the significance of the proposed project, the Secretary considers the following factor:

Reader's Score: 20

#### Sub

1. (1) The extent to which the proposed project involves the development or demonstration of promising new strategies that build on, or are alternatives to, existing strategies. (20 points)

#### Strengths:

In this excellent proposed project, the applicant both builds on a successful existing strategy and conceives of an innovative strategy for K students, the Scientific Scouts Kindergarten science program. Science is typically not taught in K. This proposed project is unique in four ways: 1) It will promote a three-dimensional approach to science learning; 2) It offers teachers an instructional tool allowing them to differentiate science instruction for their students; 3) It will increase students' academic language and early number sense skills; and 4) It will bring evidence-based science instruction to K students (pp. e23 – e24).

This proposed project is built upon two methodologically rigorous studies in more than 30 second grade classrooms. These classrooms provided instruction for special needs students, primarily, special education students, students from a low socioeconomic background and English Language Learners (ELL) students. This program was successful, and researchers found that all students benefited from the intervention. (p. e24)

#### Weaknesses:

No weaknesses noted.

Reader's Score: 20

### Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project. In determining the quality of the design of the proposed project, the Secretary considers the following factors:

**Reader's Score: 29**

**Sub**

**1. (1) The extent to which there is a conceptual framework underlying the proposed research or demonstration activities and the quality of that framework. (10 points)**

**Strengths:**

The applicant provides a strong conceptual framework for all three core components of this proposed project. Table 1 (p. e27) summarizes the core components of this program.

Component 1: Bundles of three-dimensional science learning. Next Generation Science Standards (NGSS) are followed in this proposed project. Three-dimensional learning is essential to serving scientifically proficient students (NRC, 2012). Three bundles will be designed: Physical science, Life science, and Earth and Space science. (NGSS Lead States, 2013)

Component 2: Validated principles of instruction. Students require specifically designed and delivered science instruction so that it is effective (NCES, 2020). This includes gestures, science talk, and drawings. Successful research by Therrien et al., (2017) indicates that selected instructional tasks and activities should be incorporated into the design. (p. e27)

Component 3: Effective professional development. Teachers will receive in-class coaching, a model validated in previous efficacy trails (Doubler et al., 2016). (p. e27)

**Weaknesses:**

The applicant fails to provide a conceptual framework that includes the teaching of science to kindergarten students.

**Reader's Score: 9**

**2. (2) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable. (5 points)**

**Strengths:**

The applicant provides an acceptable set of goals, objective, and outcomes that are specified and measurable. Table 2 summarizes these well (pp. e31 – e32). The program design is grounded in a proven methodology, a series of development, testing, and revision cycles (Brown, 1992; Clements, 2007; Cobb et al., 2003; Doabler et al., 2015a) (p. e29).

For example, one objective with an accompanying measurable outcome states: Assess Sci-K impact on all outcomes and data are collected at specified time points and analyzed as planned (p. e32).

**Weaknesses:**

No weaknesses noted.

**Reader's Score: 5**

**3. (3) 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. (15 points)**

**Sub**

**Strengths:**

This proposed project is comprehensive and plans to address improved early science instruction for high-need students. Therefore, the applicant plans to recruit K classrooms in Pine Bluff, AR where 24% of the families live below the poverty levels. Two additional participating districts, White Hall and Friendship Aspire Academy, are an appropriate fit for this project as over 55% their 3rd graders scored below the passing threshold in science. (p. e32)

**Weaknesses:**

No weaknesses noted.

**Reader's Score: 15**

**Selection Criteria - Quality of Project Personnel**

- 1. The Secretary considers the quality of the personnel who will carry out the proposed project. In determining the quality of project personnel, the Secretary considers the following factor:**

**Reader's Score: 7**

**Sub**

- 1. (1) The extent to which the applicant encourages applications for employment from persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, gender, age, or disability. In addition, the Secretary considers the qualifications, including relevant training and experience, of key project personnel. (10 points)**

**Strengths:**

The applicant provides an outstanding team of experienced key personnel. Team members have successfully conducted more 10 STEM-related programs for high-needs students (Doabler et al., 2013; Doabler et al., 2015b; Doabler et al., 2017; Hand, Hand, Therrien et al., 2009; Therrien et al., 2010). For example, Dr. Doabler has directed or co-directed eight federally funded projects involving high-needs students. Dr. Davis specializes in science instruction for students of marginalized groups. Dr. Martinez specializes in academic language development. (pp. e34 – e35).

Two of the four partner institutions, The University of Texas at Austin and the University of Arkansas at Pine Bluff, employ current team members who represent groups that have been underrepresented in the EIR program and STEM careers based on race and ethnicity (pp. e20 – e21).

**Weaknesses:**

The applicant fails to address how it will encourage applications for employment from persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, gender, age, or disability.

The application would benefit from encouraging participation from K teachers in the management plan.

**Reader's Score: 7**

## Selection Criteria - Quality of the Management Plan

1. The Secretary considers the quality of the management plan for the proposed project. In determining the adequacy of resources and quality of the management plan for the proposed project, the Secretary considers the following factors:

Reader's Score: 8

### 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 applicant presents a reasonable management plan. It is found in Appendix J.1. It incorporates five meaningful objectives and 43 clearly defined milestones. The responsibilities are assigned to participating institutions. (pp. e122 – e129)

For example, noteworthy objectives and related milestones include: 1) Data management and analysis with an important milestone, finalize data management; and 2) Collaboration and communication with research partners as one of its milestones (p. e128).

#### Weaknesses:

The proposed project would benefit greatly from assigning responsibilities to individuals as opposed to institutions. Additionally, it is unclear which individual is leading this project. (pp. e122 – e129)

Reader's Score: 8

## Priority Questions

### Competitive Preference Priority - Competitive Preference Priority 1

1. Competitive Preference Priority 1:

**Promoting Equity in Student Access to Educational Resources and Opportunities: Implementers and Partners (up to 5 points)**

Under this priority, an applicant must demonstrate how the project will be implemented by or in partnership with one or more of the following entities:

- (a) Community colleges (as defined in the NIA)
- (b) Historically Black colleges and universities (as defined in the NIA)
- (c) Tribal Colleges and Universities (as defined in the NIA)
- (d) Minority-serving institutions (as defined in the NIA)

#### Strengths:

The applicant plans to partner with the University of Arkansas at Pine Bluff which is designated as a HBCU (b) (p. e16). This partnership appears strong as Dr. Davis is sharing her expertise in science instruction for students from marginalized groups (p. e34). Additionally, this institution plays a strong role in the management plan (pp. e122 – e129).

**Weaknesses:**

No weaknesses noted.

**Reader's Score:** 5

**Competitive Preference Priority - Competitive Preference Priority 2**

**1. Competitive Preference Priority 2:**

**Supporting a Diverse Educator Workforce and Professional Growth to Strengthen Student Learning  
(up to 2 points)**

Projects that are designed to increase the proportion of well-prepared, diverse, and effective educators serving students, with a focus on underserved students, through building or expanding high-poverty school districts' capacity to hire, support, and retain an effective and diverse educator workforce, through adopting or expanding comprehensive, strategic career and compensation systems that provide competitive compensation and include opportunities for educators to serve as mentors and instructional coaches, or to take on additional leadership roles and responsibilities for which educators are compensated.

**Strengths:**

Not applicable.

**Weaknesses:**

Not applicable.

**Reader's Score:** 0

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**Status:** Submitted

**Last Updated:** 09/13/2023 03:31 PM

Status: Submitted

Last Updated: 09/12/2023 02:03 PM

## Technical Review Coversheet

Applicant: University of Texas Foundation (S411C230191)

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

	Points Possible	Points Scored
<b>Questions</b>		
<b>Selection Criteria</b>		
<b>Significance</b>		
1. Significance	20	20
<b>Quality of Project Design</b>		
1. Project Design	30	29
<b>Quality of Project Personnel</b>		
1. Project Personnel	10	5
<b>Quality of the Management Plan</b>		
1. Management Plan	10	7
<b>Sub Total</b>	70	61
<b>Priority Questions</b>		
<b>Competitive Preference Priority</b>		
<b>Competitive Preference Priority 1</b>		
1. Promoting Equity	5	5
<b>Competitive Preference Priority 2</b>		
1. Workforce Diversity	2	0
<b>Sub Total</b>	7	5
<b>Total</b>	77	66

# Technical Review Form

Panel #8 - EIR Early-Phase - 8: 84.411C

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

Applicant: University of Texas Foundation (S411C230191)

## Questions

### Selection Criteria - Significance

1. The Secretary considers the significance of the proposed project. In determining the significance of the proposed project, the Secretary considers the following factor:

Reader's Score: 20

#### Sub

1. (1) The extent to which the proposed project involves the development or demonstration of promising new strategies that build on, or are alternatives to, existing strategies. (20 points)

#### Strengths:

- This proposal discusses the Scientific Scouts Kindergarten science (Sci-K) program, which is a strategy that "empowers students from historically underserved communities to explore and excel in the world of science" (e19) due to inequities in science. Data from the Early Childhood Longitudinal Study- Kindergarten (ECLS-K) "suggest that opportunity gaps surface upon kindergarten entry and persist into the later grades...The ECLS-K dataset further indicate[s] that kindergarten students identifying as Black, Hispanic, and students from low-income backgrounds are disproportionately affected by these disparities in science achievement" (e21).
- Sci-K is innovative because it:
  - o Adheres to the Next Generation Science Standards (NGSS) by promoting a three-dimensional approach to learning science,
  - o Is grounded in validated principles of instruction,
  - o Uses science instruction to concurrently build students' academic language and early number sense skills, and
  - o It provides an evidence-based science program, which are currently in short supply for kindergarten classrooms (e16, e22 – e23).
- This project builds upon a highly related NSF-funded project developed for a 2nd grade science program and other funded work (e16, e24).

#### Weaknesses:

- No weaknesses noted.

Reader's Score: 20

### Selection Criteria - Quality of Project Design

1. The Secretary considers the quality of the design of the proposed project. In determining the quality of the design of the proposed project, the Secretary considers the following factors:



**Reader's Score: 29**

**Sub**

**1. (1) The extent to which there is a conceptual framework underlying the proposed research or demonstration activities and the quality of that framework. (10 points)**

**Strengths:**

- The applicant presents a strong conceptual framework for the basis of this project. This proposal's evidence-based conceptual framework includes:
  - o Bundles of Three-Dimensional Science Learning
    - The design team will assemble 18 weeks of science instruction into three "bundles" – Bundle 1: Physical Science (4 weeks); Bundle 2: Life Science (8 weeks), and Bundle 3: Earth and Space Science (6 weeks) (e25).
    - Each bundle will include 5 major activities that have demonstrated strong promise for promoting three-dimensional learning: Spark Your Thinking, Science Vocabulary, Shared Book Reading, Let's Explore, and Share Your Thinking (e26).
  - o Validated Principles of Instruction
    - For instance, purposefully selected instructional tasks and activities and teacher-provided academic feedback (e27).
  - o Effective Professional Development (PD)
    - Teachers will receive in-class coaching support from curriculum experts with specialized knowledge and training in elementary science instruction and the Sci-K program (e27).

**Weaknesses:**

- The proposal would benefit from citing research specifically for kindergarten age students and not just elementary students broadly (e27).

**Reader's Score: 9**

**2. (2) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable. (5 points)**

**Strengths:**

- The proposal's goals, objectives and outcomes are clearly specified:
  - o Years 1 and 2: Develop and Test Bundle 1
  - o Years 2 and 3: Develop and Test Bundle 2
  - o Years 3 and 4: Develop and Test Bundle 3
  - o Years 4 and 5: Conduct Impact Study of Sci-K (e31 – e32)
- The applicants describe Rapid Activity Testing Experiment (RATE) to test the bundles' feasibility, usability, and likeability (e28).
- Formative data, such as teacher interviews, will also be collected to measure outcomes.

**Weaknesses:**

- No weaknesses noted.

**Reader's Score: 5**

**3. (3) 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. (15**

Sub  
points)

**Strengths:**

- This project design is excellent and will successfully address the needs of the target population. Specifically, the applicant proposes to work with over 1,200 "high need" kindergarten students from Pine Bluff, Arkansas, with "high need" students being from low-income backgrounds who enter school at a significant risk for low academic performance and are members of groups traditionally underrepresented ...based on race and ethnicity" (e20).
  - o On the 3rd grade Arkansas state science assessment, over 55% of students from Pine Bluff districts scored below the passing threshold (e20).
  - o For 4th grade students from Arkansas, over 2/3 of the students did not reach basic proficiency levels in science (e21).
- The applicant has previously done work with a similar population of 2nd grade students.

**Weaknesses:**

- No weaknesses noted.

**Reader's Score: 15**

**Selection Criteria - Quality of Project Personnel**

**1. The Secretary considers the quality of the personnel who will carry out the proposed project. In determining the quality of project personnel, the Secretary considers the following factor:**

**Reader's Score: 5**

Sub

**1. (1) The extent to which the applicant encourages applications for employment from persons who are members of groups that have traditionally been underrepresented based on race, color, national origin, gender, age, or disability. In addition, the Secretary considers the qualifications, including relevant training and experience, of key project personnel. (10 points)**

**Strengths:**

- The experiences of key project personnel are extensive, relevant to the proposal activities, and will likely add significant value to the project's overall impact (e34 – e36). For instance, the project leader, Dr. Christian Doabler has successfully directed or co-directed eight federally-funded design and development projects and seven large-scale efficacy trials for high-need students (e34).

**Weaknesses:**

- The applicant does not mention how applications for employment will be inclusive of persons who are members of groups that have been traditionally underrepresented based on race, color, national origin, gender, age, or disability.
- There is a lack of personnel with kindergarten experience, only Dr. Scott Grapin (e35). The project would benefit from including kindergarten teachers and/or others with kindergarten experience to lead or co-lead the grant.

Sub

Reader's Score: 5

**Selection Criteria - Quality of the Management Plan**

1. The Secretary considers the quality of the management plan for the proposed project. In determining the adequacy of resources and quality of the management plan for the proposed project, the Secretary considers the following factors:

Reader's Score: 7

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 proposal states the roles of each team member, and these responsibilities seem appropriate given the described skills and experiences of the team members (e34 – e36).
- The timelines describes key milestones that seem can be reasonably managed and accomplished within the specified time period (e122 – e129).

**Weaknesses:**

- The applicant would benefit from breaking down the tasks for each team member as it relates to milestones in the management plan (e122 – e129).

Reader's Score: 7

**Priority Questions**

**Competitive Preference Priority - Competitive Preference Priority 1**

1. Competitive Preference Priority 1:

**Promoting Equity in Student Access to Educational Resources and Opportunities: Implementers and Partners (up to 5 points)**

Under this priority, an applicant must demonstrate how the project will be implemented by or in partnership with one or more of the following entities:

- (a) Community colleges (as defined in the NIA)
- (b) Historically Black colleges and universities (as defined in the NIA)
- (c) Tribal Colleges and Universities (as defined in the NIA)
- (d) Minority-serving institutions (as defined in the NIA)

**Strengths:**

- This project involves researchers from the University of Arkansas at Pine Bluff, a recognized Historically Black College and University (HBCU) (e20 - e21).

**Weaknesses:**

- No weaknesses noted.

**Reader's Score:** 5

**Competitive Preference Priority - Competitive Preference Priority 2**

**1. Competitive Preference Priority 2:**

**Supporting a Diverse Educator Workforce and Professional Growth to Strengthen Student Learning  
(up to 2 points)**

Projects that are designed to increase the proportion of well-prepared, diverse, and effective educators serving students, with a focus on underserved students, through building or expanding high-poverty school districts' capacity to hire, support, and retain an effective and diverse educator workforce, through adopting or expanding comprehensive, strategic career and compensation systems that provide competitive compensation and include opportunities for educators to serve as mentors and instructional coaches, or to take on additional leadership roles and responsibilities for which educators are compensated.

**Strengths:**

N/A

**Weaknesses:**

N/A

**Reader's Score:** 0

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**Status:** Submitted

**Last Updated:** 09/12/2023 02:03 PM

Status: Submitted

Last Updated: 09/28/2023 02:57 PM

## Technical Review Coversheet

**Applicant:** University of Texas Foundation (S411C230191)

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

	Points Possible	Points Scored
<b>Questions</b>		
<b>Selection Criteria</b>		
<b>Quality of the Project Evaluation</b>		
1. Project Evaluation	30	28
<b>Sub Total</b>	30	28
<b>Total</b>	30	28

# Technical Review Form

Panel #11 - Early-phase Tier II Panel - 11: 84.411C

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

Applicant: University of Texas Foundation (S411C230191)

## 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:

Reader's Score: 28

#### 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). (20 points)

#### Strengths:

The proposed impact evaluation utilizing a blocked by classrooms-level characteristics randomized control trial for the proposed study design has the potential to meet the What Works Clearinghouse standards without reservations. In addition, in the case of attrition, the proposed blocking will establish baseline equivalence to assure the evaluation methods have the potential to meet the What Works Clearinghouse evidence standards with reservations.

Also, the evaluation includes an appropriate analysis using a multi-level statistical model (p. e134) and relevant valid and reliable measures of student and teacher outcomes specified for study research questions (p. e40, e127).

Finally, the proposed evaluation plan includes relevant measures of calculated statistical power for detection of minimum detectable effect sizes for confirmatory impacts on proximal student outcomes (p. e39-40, e134). These components contribute to a design that has the potential to generate relevant outcomes to inform the greater field of research.

#### Weaknesses:

The narrative does not clearly include methodology for identification or a relevant discussion of potential confounding factors to the study. It is not clear if the evaluation team has clearly considered these components in the design of the study.

Reader's Score: 19

2. (2) The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes. (5 points)

**Sub**

**Strengths:**

The contracted external evaluation company employees have sufficient experience and training to be capable of successfully conducting an evaluation for a project of this magnitude.

The narrative includes a comprehensive fidelity of implementation evaluation plan designed to provide performance feedback and assessment of progress effectively and periodically toward achieving intended outcomes. The planned utilization of a multi-faceted approach, including monthly teacher practice logs, surveys, and interviews will provide relevant input. This will allow the project to engage in formative assessment of the progress of the project in alignment with relevant goals.

**Weaknesses:**

The designated resources in terms of budget and staff may be insufficient to ensure that comprehensive performance feedback and periodic assessment will occur. In particular, the total evaluation budget (p. e170, e177) is only 7.2% of the total federal funds requested. In addition, the total number of work days allocated for evaluation team members over the entire 5-year project is only 173, or the equivalent of 34.6 days per year total split among all evaluation team members. This allocation of resources does not clearly match up with the proposed scope of work, which makes it challenging to determine if the proposed evaluation plan is likely to take place as presented.

**Reader's Score:** 4

**3. (3) 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. (5 points)**

**Strengths:**

The narrative includes a comprehensive articulation of three key project components specifically, science activities, instruction, and professional development. The applicant presents the identified mediator of instructional interactions, and outcomes clearly aligned with the proposed program logic model (p. e112).

Additionally, the plan includes relevant evaluation questions (p. e38) to assess confirmatory and exploratory impacts.

Finally, Appendix J.2 (p. e130) includes identification of relevant project measurements of student-level impacts and teacher measures.

The narrative indicates that the evaluation team will confirm fidelity thresholds (p. e43) and the evaluation includes measurable thresholds for acceptable implementation (p. e42) for delivery of professional development and teacher delivery of program curriculum components. These components contribute to a robust evaluation design.

**Weaknesses:**

No weaknesses are noted.

**Reader's Score:** 5

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**Status:** Submitted

**Last Updated:** 09/28/2023 02:57 PM





Status: Submitted

Last Updated: 09/28/2023 03:10 PM

## Technical Review Coversheet

**Applicant:** University of Texas Foundation (S411C230191)

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

	Points Possible	Points Scored
<b>Questions</b>		
<b>Selection Criteria</b>		
<b>Quality of the Project Evaluation</b>		
1. Project Evaluation	30	28
<b>Sub Total</b>	30	28
<b>Total</b>	30	28

# Technical Review Form

Panel #11 - Early-phase Tier II Panel - 11: 84.411C

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

Applicant: University of Texas Foundation (S411C230191)

## 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:

Reader's Score: 28

#### 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). (20 points)

#### Strengths:

The applicant proposes meeting What Works Clearinghouse (WWC) standards without reservations in designing a randomized control trial (RCT) (pg. e39). The RCT will be a cluster-level randomized assignment. Each assignment unit will have a non-zero probability of being in either the intervention or control group. There were no concerns in evaluating the applicant's assignment process to conditions. The information presented suggests a clear understanding of the WWC standards. Additionally, the cluster-level assignment will be at the classroom level within schools. The applicant addresses compositional changes, that is, what would be done to mitigate attrition and other compositional changes of the initial randomized sample (pg. e39). For example, an intent-to-treat impact analysis will be used, and this is encouraged by WWC (2022). Furthermore, there will be reasonable, IRB-approved financial incentives to encourage teachers to remain in the study. Given that the RCT is at the classroom level, the applicant appropriately addressed the potential for contamination (pg. e39). Finally, the applicant has at least one identified outcome measure to meet the What Works Clearinghouse standards with or without reservations designation (pg. e131). The applicant provided the power analysis, hence, the required sample size to meet the generally accepted power of .80. Furthermore, the power analysis, hence, the required sample size was based on achieving a minimally detectable effect size (MDES).

#### Weaknesses:

The only concern related to the applicant's narrative about meeting this criterion was a lack of addressing confounding variables. The applicant did not discuss how confounds would not be an issue for this intervention. This is critical in meeting What Works Clearinghouse standards with or without reservations.

Reader's Score: 19

2. (2) The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes. (5 points)

**Sub**

**Strengths:**

The applicant articulated the importance of designing an evaluation with a formative component (pg. e43). The applicant's formative evaluation is designed to provide frequent performance feedback to key project stakeholders, with the primary objective of assessing the project's progress toward achieving the project's milestones. The applicant's formative plan may allow for ongoing continuous improvement and refinement of the project's key components if necessary. Also, the applicant designed specific formative evaluation questions critical to guiding the continuous feedback. Some of the formative data sources will come from teacher implementation logs, which will be collected monthly. Furthermore, the applicant plans to sample and interview 10 of the intervention teachers. These data will be used to develop themes about what is or is not working to inform the refinement of the project implementation.

**Weaknesses:**

The allocated days for the evaluation team, being only 34 total days out of a calendar year, do not appear sufficient to carry out a formative evaluation of this magnitude (pg. e177). Given this concern, it is unclear whether this would allow for the comprehensive periodic assessment of achieving the milestones as proposed for this project due to the lack of resources to support time and effort.

**Reader's Score: 4**

3. (3) **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. (5 points)**

**Strengths:**

The applicant identified the intervention's key components in the logic model (pg. e112) and described them in the supporting narrative. The key components of the intervention are a science learning program, validated principles of instruction, and an effective professional development program for teachers. The applicant identified what they considered to be the mediating variable for this intervention including implementation fidelity, teacher science practices, science discourse, and instructional interactions (pg. e38). All of these are appropriate mediators based on this project's intervention. Additionally, the applicant identified outcomes in Appendix J. Finally, the applicant discussed measurable thresholds for acceptable implementation (pg. e42). As one example of a measurable threshold, workshops, and ongoing performance feedback are delivered to 100% of teachers. Other measurable thresholds were provided, which will allow the project to evaluate the role of implementation on intended outcomes.

**Weaknesses:**

There were no weaknesses noted.

**Reader's Score: 5**

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**Status:** Submitted  
**Last Updated:** 09/28/2023 03:10 PM