

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

Status: Submitted

Last Updated: 08/02/2018 09:25 PM

Technical Review Coversheet

Applicant: ExpandedED Schools (U411C180023)

Reader #2: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Significance		
1. Significance	30	27
Quality of the Project Design and Management Plan		
1. Project Design/Management	50	40
Total	80	67

Technical Review Form

Panel #14 - EIR Early Phase Tier 1 (Content) - 14: 84.411C

Reader #2: *****

Applicant: ExpandedED Schools (U411C180023)

Questions

Selection Criteria - Significance

1. In determining the significance of the project, the Secretary considers the following factors:

- (1) The national significance of the proposed project.
- (2) 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.
- (3) The extent to which the proposed project demonstrates a rationale (as defined in the NIA).
- (4) The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

Strengths:

(1) The proposal establishes the national significance of the proposed project by noting the increased need for STEM workers (an additional 2.6 million STEM jobs in the US by 2024; p. 1) along with the underrepresentation of Black and Latinx workers in STEM (representing 27% of the workforce but only 16% of STEM and 14% of computer science positions). The attitudes and expectations developed during high school, the proposal states, lead to these disparities, and a lack of employment for African and Latinx youth further exacerbates the issue. It is a strength of the proposal that it provides evidence of the underrepresentation in STEM, comparing the STEM workforce to the workforce population as a whole.

(2) This proposal would combine three existing strategies: credit-bearing apprenticeships in STEM fields as part of HS coursework, project-based learning (PBL), and paid summer teaching internships to develop. All three strategies have a focus on improving workplace preparation and interest in STEM careers and courses. This proposal addresses Invitational Priority 1: Personalized Learning, seeing the "student-driven projects" (p. 3) as a way to personalize student learning. It is a strength of the proposal that the apprenticeships are credit-bearing, the internships pay well above the federal minimum wage (\$15 per hour), and the project-based learning occurs in their apprenticeships sites. Additionally, the apprenticeships sites have all submitted letters of support and are in STEM fields (and all but two have a computer science focus).

(3) The proposal clearly demonstrates a rationale for each of the strategies it proposes, citing meta-analyses and other research studies to establish the effectiveness of the separate strategies. Many of these studies' participants are similar to the target students for this proposal, which is a real strength of the rationale.

(4) The proposal has clearly established that this is an exceptional approach to the priority or priorities established for the competition. To meet Absolute Priority 3, the proposal focuses on real-world skill development in STEM and workplace readiness through apprenticeships and internships developed with the project partners. This will help students develop general workplace skills and help them establish a network of professionals who may be willing to offer additional internship opportunities, write letters of recommendation, or serve as mentors. The proposal also addresses Invitational Priority 1 through the project-based initiatives occurring at the apprenticeship sites.

Weaknesses:

- (1) No weaknesses noted regarding national significance.
- (2) No weaknesses noted regarding promising strategies.
- (3) No weaknesses noted regarding the rationale.
- (4) While this is an exceptional design which will appeal to many high school students, and the apprenticeship/internship sites are documented, it is unclear about just how much STEM content the students will be learning at their 60-hour apprenticeship placements or in their teaching internships. One would hope that the apprenticeships will be significant and meaningful and not an exercise in making copies or answering phones and email. Because Absolute Priority 1 requires proposals to improve STEM achievement and attainment for high-need students, the lack of clarity about how much STEM learning will occur is problematic. There is no evidence that this project is providing strategies to improve student achievement (or to measure this outcome).

Additionally, while the proposal claims that Invitational Priority 1 is addressed through the project-based initiatives occurring at the apprenticeship sites, it is not clear that this priority is actually met. In particular, in the Federal Register, Volume 83, #76, page 17391, it states that one characteristic of personalized learning is that these approaches “use data to provide ongoing feedback about student progress to educators, students, and their families and to adjust learning strategies in real time.” There is no evidence in the grant that this will occur at the apprenticeship sites or with project staff, however as this is an invitational priority only, there was no deduction of points due to the lack of clarity around the invitational priority.

Reader's Score: 27

Selection Criteria - Quality of the Project Design and Management Plan**1. In determining the quality of the proposed project design, the Secretary considers the following factors:**

- (1) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable.**
- (2) 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.**
- (3) The extent to which performance feedback and continuous improvement are integral to the design of the proposed project.**
- (4) The mechanisms the applicant will use to broadly disseminate information on its project so as to support further development or replication.**

Strengths:

- (1) The proposal outlines two goals for the project: Provide HS students with STEM-focused work-based learning experiences to (1) increase interest and engagement in STEM, increase knowledge of and interest in careers in STEM, and help students develop workplace readiness skills (p. 13) and (2) keep students engaged and motivated to stay in school and prepare them for college and careers. To meet these goals, the proposal identifies outcomes for each goal. The outcomes listed in this section are specified.
- (2) The proposal includes the key personnel from ExpandedED (Table 3) and from the Research Alliance (Table 4) along with their responsibilities. Additionally, Table 5 outlines the timelines and milestones for major project activities. This table is quite detailed in providing the activities and timelines of the project. It is a strength of the proposal that this organization has a track record of success in providing opportunities for summer and after-school employment for high schoolers (p.

15), and thus it is likely that ExpandED will be able to accomplish its goals.

(3) It is a strength of this proposal that the continuous quality improvement activities are included in the management plan, indicating that continuous improvement is integral to the design of the project. The activities include curricular institutes (fall), learning communities (3x/year), "Step Back and Share" (summer partner meetings), and intervisitations (three per partner). Additionally, the first year of the grant is a pilot, which will allow for "refinement of the model and the evaluation tools" (p. 7).

(4) The proposal outlines a dissemination plan that includes policy and practice briefs, research briefs, and informal updates on social media. There is a plan to present at conferences and educational forums on webinars. It is a strength of the proposal that there are several dissemination mechanisms outlined, and that the groups identified include NSTA and STEM Learning Ecosystems.

Weaknesses:

(1) While outcomes are specified in this section, they are not detailed enough to know if they are measurable. Nothing is listed about the measurement of the goals, possible baselines or improvement numbers, or intermediate goals to monitor the completion of the objectives. However, this information was found on page e112 of the grant, where the project objectives and performance measures are noted. While the survey instruments for the STEM interest and engagement and knowledge of STEM careers are listed, the tools used to measure workforce readiness are not. Additionally, this list of objectives does not match the list of outcomes (there are additional objectives not included in the outcomes list) and there is no indication of baselines for the measures or how much improvement the students should show to meet the objectives.

(2) Although Table 5 outlines milestones and major activities, in order to more effectively determine the adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, it would have been helpful for the activities/milestones to be matched with the objectives and for the key personnel responsible to be identified. Additionally, there is nothing in the application to address how the objectives of the proposed project will be met within budget. Finally, although this is a five-year grant, there are only two full years of implementation of the project, with the final two years focused on evaluation and dissemination. Whether or not the project will be able to meet the outcomes after only two years is questionable.

(3) As there is only two full years of implementation of the project, the continuous improvement (CI) becomes an even more important aspect of the project. While there are several continuous improvement activities outlined in the proposal, and 25 hours per year are dedicated to such activities, it is not clear what data may be collected and shared in order to pursue CI or how CI may occur within the design of the project.

(4) As one goal of the dissemination is to present information to support further development or replication, it would have been good to see the dissemination plan attend to that purpose. So, dissemination to other school districts or LEAs and potential community partners for example, might support replication and extension of the project. Also, submitting to peer-reviewed journals could be a useful dissemination platform.

Reader's Score: **40**

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Technical Review Coversheet

Applicant: ExpandedED Schools (U411C180023)

Reader #3: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Significance		
1. Significance	30	28
Quality of the Project Design and Management Plan		
1. Project Design/Management	50	42
Total	80	70

Technical Review Form

Panel #14 - EIR Early Phase Tier 1 (Content) - 14: 84.411C

Reader #3: *****

Applicant: Expanded Schools (U411C180023)

Questions

Selection Criteria - Significance

1. In determining the significance of the project, the Secretary considers the following factors:

- (1) The national significance of the proposed project.
- (2) 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.
- (3) The extent to which the proposed project demonstrates a rationale (as defined in the NIA).
- (4) The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

Strengths:

The Applicant is responding to Absolute Priority 1 (Demonstrates a Rationale), Absolute Priority 3 (Field-Initiated Innovations—Promoting STEM Education with a Particular Focus on Computer Science) and Invitational Priority One—Personalized Learning. Targeting high school students, the proposed project seeks to demonstrate a replicable strategy that features credit-bearing apprenticeships in STEM fields, project-based learning, and summer teaching internships for high school students. The three-year project would serve 320 students in grades 10 – 12 from 20 schools in New York City. The project would include six STEM partnerships and one evaluator.

The Applicant proposes to demonstrate the effectiveness of its project to equip high-needs students with STEM skills, increased school and career interest, and workplace readiness skills (p.1). Its project would include three strategies: credit-bearing apprenticeships with STEM business partners, project-based learning and teaching internships to demonstrate the STEM skills they have learned.

The Applicant does a good job demonstrating the national significance of its proposed project with citation of research from the U.S. Bureau of Labor Statistics and Pew Research Center showing the growth in STEM jobs in the U.S. labor market within the next six years will reach more than two million jobs (pp. 1, 2). Yet, while making up 27% of the U.S. workforce, African- American and Hispanic workers are underrepresented in STEM jobs at 16% and in computer sciences specifically at 14 percent. The applicant posits that such disparity will affect the nation's ability to fill STEM jobs with a diverse workforce (p.2). Its proposal would address the disparity by demonstrating ways to provide STEM learning and practice opportunities to low-income Hispanic and African-Americans beginning at the high school level. The Applicant is convinced that its proposed combination of apprenticeships, project-based learning and internships will positively affect the attitude of "disconnection" that research (p. 2, e54, e55) shows develops at the high school level and is especially prevalent among Hispanic and African-American students, and negatively influences post-secondary decisions related to STEM careers.

The Applicant's proposal to employ apprenticeships, project-based learning and internships is creative and should heighten the likelihood of success by combining these three approaches. Each approach has separate research supporting its effectiveness (p. e53, e54). The proposal presents a well thought-out design that should keep student participants fully engaged. The apprenticeships provide students with opportunities for off-site, hands-on learning in apprenticeships with STEM professionals as they create and implement projects that can be assessed for immediate feedback.

A second strength is that the summer internships are planned to occur within a short time span of the PBL apprenticeships. Students would know that they are learning something which they will be able to immediately demonstrate in a real-world situation.

An additional strength is the cohort model—allowing for support and sharing of ideas with a small group of students going through similar experiences. There is a plan for a certified teacher to provide oversight at each participating school.

All partner schools have more than 70% of students living in poverty.

It is also a positive that six of the targeted schools include 20 percent or more students with disabilities (SWD, p.6). The Applicant states it will make provision for students with Individualized Educational Plans (IEPs). Such students will be provided individualized support and professional development will be provided to staff and partners on how to support students with special learning needs (p. e17).

It does not appear that grades or prior STEM aptitude would be part of selection criteria (p. 8).

The Applicant's logic model includes three components which research has shown to be effective individually (p.e53). Its logic model shows project goals, outputs and outcomes expected to result from proposed projects activities. The workplace learning experiences and opportunities to teach learned skills are linked to increased STEM interest and - knowledge as well as preparing students for college and workplace readiness. The plan to administer a post-secondary follow-up survey would be a good way to demonstrate the impact of the program beyond high school.

The Applicant, a not-for-profit organization, includes partnerships with schools predominantly high-needs students, including more than 70% high poverty, Hispanic and African-American populations and more than 20% students with disability (p. 6). The planned partnerships (pp. 11-13) with STEM businesses would allow students to build a diversity of knowledge and skills useful in the workforce: STEM principles and theories, building engineering/coding devices, designing and programming robotic devices, creating apps that address health issues, and designing interactive web-sites. A final plus of the proposal would be the opportunity for students to practice applying what they learn by teaching it to others during paid summer internships. The apprenticeship and paid internship components are likely to engage students who have little or no familiarity with STEM.

Weaknesses:

The proposal limits its assessment of student academic growth to reference of annual science and math assessments only. It is not stated if or how the required certified teachers and apprenticeship professionals would work together on student assessment, e.g., developing a rubric or applying a performance-based assessment.

The Applicant provides no background information on the proposed STEM partners or their business focus. Nor does it indicate if they have prior relationships/partnerships with them which determined their selection for participation in the proposed project.

The Applicant does not include the total student enrollment of participating schools (p.6). Nor is criteria for selection cited if there is more than the expected number of 14 students per school who apply for the program.

The Applicant does not state how it defines "student-driven" (p.2), i.e., if/how students would determine the project-based learning projects to be completed during the apprenticeships.

Reader's Score: 28

Selection Criteria - Quality of the Project Design and Management Plan

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

- (1) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable.**
- (2) 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.**
- (3) The extent to which performance feedback and continuous improvement are integral to the design of the proposed project.**
- (4) The mechanisms the applicant will use to broadly disseminate information on its project so as to support further development or replication.**

Strengths:

The Applicant includes a Logic model that succinctly cites measurable goals, outputs and outcomes that are both short-term and long-term for the project (e104). They are also directly related to proposed activities: total number of partner schools, students, STEM business partners, apprenticeships, interns, and scheduled evaluation reports.

The management plan identifies specific personnel (pp. 15, 16) assigned to key project responsibilities: general project oversight; school partnerships and student recruitment; curriculum, apprenticeships with STEM partnerships; external evaluation; and dissemination activities about the project. Also included is a calendar or timeline (pp. 16, 17, 18) for key activities for each of the four phases of the project, with completion dates for evaluation, implementation and continuous quality improvement (CQI).

The Applicant demonstrates its commitment to continuous improvement for the project with quarterly calls and nine regularly scheduled continuous quality improvements meetings (p. 18). Two include a 2-day Curricular Institutes that would bring project partners together to ensure academic standards are aligned. Partners would be given much time to reflect on lessons learned and share promising strategies in most of the other meetings. Such meetings should guarantee that all parties are on the same page and allow for time intervention when/if needed.

Weaknesses:

The objectives in the narrative on pages 13 and 14 are not the same as those listed in attachments on pages e112 – e166.

This is an after-school program, requiring additional time from the students beyond the normal school day. However, the Applicant does not include any measurable outcomes for student completion of the apprenticeships specifically. It would be good to know their expectation for the rate of student success in completing the program.

Monitoring the progression of the project could be strengthened by identifying specific milestones within the general Category column. Right now that Category column labels everything as Evaluation, Implementation or CQI. Then every adjacent activity is identified as a milestone. Additionally, the timeline shows no indication of how activities shown under Milestone column would be measured, i.e., what and how information would be gathered. While the Applicant states its commitment to supporting students with special learning needs or IEPs (p. e17), the management plan does not indicate when individualized support to students or professional development for teachers or STEM professionals would occur.

The continuous improvement plans do not show any formal meetings of cohort students to share or reflect on their experiences. Nor is there any indication that students would be present at any of the scheduled CQI meetings with the partner groups. Such cohort meetings could also be informative and beneficial to the project.

The Applicant's management plan for dissemination of information appears mainly limited to end-of-year evaluation reports for implementation years one and two and two post-project policy briefs highlighting results, lessons learned and best practices (p.17, 18). Its narrative, however, states that five informal updates (e.g. blog posts and infographics) will be released via social media tools such as Facebook and Twitter (p. 19). Although it says it would submit at least two proposals per year to present at annual educational and STEM conferences and on webinars, the Applicant does not

seem confident of such proposals would be accepted. Perhaps it could produce and promote its own webinar. There is no reference to using traditional media tools like press releases or articles in academic journals or STEM industry publications, for instance.

Reader's Score: 42

Status: Submitted

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Status: Submitted

Last Updated: 08/09/2018 04:21 PM

Technical Review Coversheet

Applicant: ExpandedED Schools (U411C180023)

Reader #1: *****

	Points Possible	Points Scored
Questions		
Selection Criteria		
Significance		
1. Significance	30	27
Quality of the Project Design and Management Plan		
1. Project Design/Management	50	47
Total	80	74

Technical Review Form

Panel #14 - EIR Early Phase Tier 1 (Content) - 14: 84.411C

Reader #1: *****

Applicant: ExpandedED Schools (U411C180023)

Questions

Selection Criteria - Significance

1. In determining the significance of the project, the Secretary considers the following factors:

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- (3) The extent to which the proposed project demonstrates a rationale (as defined in the NIA).
- (4) The extent to which the proposed project represents an exceptional approach to the priority or priorities established for the competition.

Strengths:

ExpandedED STEM project named the national significance and provided strategies on how they will address the significance of their project. The use of project-based learning will help facilitate student learning and growth in the STEM field. Their innovative idea of ensure students in the program will have paid internships will support learning and ensure that students stick with the program rather than leave for financial reasons.

The team's plan for sharing information is strong, using social media and planning to attend at least two conferences to share their findings.

Weaknesses:

The proposal would be stronger if the applicant thought through how this project could be scaled in a non-urban setting.

Reader's Score: 27

Selection Criteria - Quality of the Project Design and Management Plan

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

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- (2) 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.
- (3) The extent to which performance feedback and continuous improvement are integral to the design of the proposed project.
- (4) The mechanisms the applicant will use to broadly disseminate information on its project so as to support further development or replication.

Strengths:

ExpandEd STEM has a strong plan to meet goals and objectives with an 11month piloting and refining phase which will support the growth and fine tuning of management. During the project, the group has several platforms that they will be able to share their findings.

In order to strengthen students' passion about STEM, the paid internships will allow for students to get hands-on training and help students to also make the decisions to stay in the program, rather than having to find a job to support themselves or family. The strategy of having students teach other in order to "stamp" their learning is a proven teaching strategy that will increase knowledge for their content.

Weaknesses:

The proposal would have been stronger if the goal for attendance for the apprenticeship was higher. 85% is not a realistic goal for college and/or career readiness.

Reader's Score: **47**

Status: Submitted
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