

**Region 18 Education Service Center (ESC 18) –
Texas Center for Educator Excellence
(TxCEE)’s Self-Directed Professional Learning
Project (SDPLP)**

**Education Innovation and Research Program
Proposal (Early-Phase)**

CFDA #84.411C

September 10, 2020

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

TABLE OF CONTENTS

Demonstrates a Rationale	1
Section A. Quality of the Project Design	5
A.1 Replacement of 80% of State Mandated Professional Learning.....	5
A.2 Ensuring Stipends Are Used for High-Quality Professional Learning.....	6
A.3 Flexibility and Autonomy for Teachers in their Professional Learning Choices.....	8
A.4 Self-Directed Professional Learning Procedures and Processes.....	10
A.5 Clearly Specified and Measurable Goals, Objectives, and Outcomes.....	11
Section B. Adequacy of Resources and Quality of Management Plan	14
B.1 Sufficiency of Stipend to Enable PL Funded Through the Stipend to Replace a Significant Portion of Existing Mandatory PL for Participating Teachers	14
B.2 Extent to Which Costs Are Reasonable in Relation to Project Objectives, Design, and Potential Significance of the Proposed Project.....	14
B.3 The Extent to Which the Proposed Payment Structure Will Enable Teachers to Have an Opportunity to Apply For and Use the Stipend with Minimal Burden	16
B.4 Qualifications of Key Project Personnel	16
B.5 Adequacy of the Management Plan to Achieve Proposed Project Objectives....	18
B.6 Adequacy of Procedures to Leverage the Program to Inform Continuous Improvement and Systematic Changes to PL.....	18
Section C. Quality of the Project Evaluation	20
C1. The extent to which the methods of evaluation will produce evidence that meets What Works Clearinghouse (WWC) standards without reservations.....	20
C2. The extent to which the evaluation plan clearly articulates the key project components, mediators, outcomes, and measurable thresholds for acceptable implementation.....	23
C3. The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes.....	25
Bibliography	
Appendices	
A: Status Verification (Not Applicable)	
B: Resumes of Key Personnel	
C: Letters of Support and Memoranda of Understanding	
D: Waiver Request (Not Applicable)	
E: Proprietary Information (Not Applicable)	
F: Rural Locale Codes (Not Applicable)	
G: Demonstration of Match Contributions	
H: Indirect Cost Agreement	
I. Other Attachments	
I-1. <i>Overview of the SDPLP Recruitment Plan</i>	
I-2. <i>SDPLP Workflow Process</i>	

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

**TABLE OF CONTENTS
(Continued)**

I-3. SDPLP Management Plan

I-4. Data Sources, Purpose, Collection Methods and Timing for Each Evaluation Year

I-5. Planned Timeline for Data Collection, Analysis, and Reporting

I-6. Technical Details About Statistical Power Analyses

I-7 Statistical Models for the Impact Analyses

I-8 List of Constructs and Categories for the Teacher Survey, by Treatment Group and Survey Administration Window

I-9 Teacher Attitude and Belief Measure and Corresponding Items for the Teacher Survey

I-10 Dimensions of the Mathematical Scan (MSCAN) Observation Rubric

I-11 Application Requirements Crosswalk

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

Demonstrates a Rationale

Success in math has been linked to high school graduation, increased options for college and careers, and higher paying jobs (National Mathematics Advisory Panel, 2008), and has long been viewed by policy makers as critical for our country’s success and economic well-being (National Science Board, 2018). Yet less than half of 4th and 8th grade students scored “proficient” or higher on the most recent administration of the National Assessment for Educational Progress (National Center for Education Statistics [NCES], 2019) and less than half of U.S. students tested on an international exam showed an ability to apply mathematical understanding to solving problems and explain their reasoning (Provasnik et al., 2016). Results for the assessments revealed gaps in student performance along racial, ethnic, and economic lines (NCES, 2019; Provasnik et al., 2016). Texas mirrors the nation in terms of math achievement. Only half of students met state standards in 2018-19¹, with a smaller proportion of students classified as economically disadvantaged meeting standards (43%).

Teachers represent a key lever to address this challenge, as research has demonstrated the importance of teacher quality for student achievement above all other school-based factors (Aaronson, Barrow, & Sander, 2007; Goldhaber, 2002; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). Yet while states and districts have allocated significant resources toward professional learning (PL) aimed at improving instruction (Jacob & McGovern, 2015), challenges in math student achievement persist. One reason may be that the typical approaches to professional learning that are driven by district or campus priorities - rather than focusing on individual teacher needs - may fail to help teachers achieve their potential (Gates Foundation,

¹ <https://rptsvr1.tea.texas.gov/perfreport/tapr/2019/srch.html?srch=S>

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

2014; Guskey, 2009; Kennedy, 2016; McCarthy & James, 2017; Mushayikwa & Lubben, 2009).

Adult learning and motivation theories underscore the importance of allowing teachers autonomy over their own learning, as adults have "a deep psychological need to be perceived by others, and treated by others, as capable of taking responsibility for ourselves" (Knowles, 1984, p. 9). At worst, a prescriptive approach to PL may lead to resistance to the training or learning opportunities in which teachers participate (Merriam & Bierema, 2014; Knowles, 1984).

In response to this need in the field, the Texas Center for Educator Excellence (TxCEE), housed at Region 18 Education Service Center (ESC 18), is pleased to offer the U.S. Department of Education a proposed project that addresses two Absolute Priorities: **(1) Demonstrates a Rationale**; and **(3) Teacher-Directed Professional Learning**. The Self-Directed Professional Learning Project (SDPLP) will provide streamlined processes that allow teachers to select, participate in, and reflect on PL opportunities that will constitute at least 80% of their state-mandated time, with the goal of improving math achievement for high-need students.

The five-year project will begin with an initial Design phase, followed by a Pilot, and then a rigorous Evaluation phase to test the program impacts and disseminate findings. ESC 18-TxCEE will facilitate SDPLP as a local education agency who will work with partner districts and the evaluation team to (a) find and curate high quality PL options, (b) establish a straightforward workflow that allows for a simple approval process for teachers' PL selections, and (c) capitalize on an existing technology platform ("TEEMS") at ESC 18-TxCEE to manage PL stipend distribution and support tracking of teacher PL participation and ongoing teacher reflection of PL experiences. American Institutes for Research (AIR) will serve as the evaluation partner. AIR will support ESC 18-TxCEE to refine SDPLP during the Pilot with 20 teachers in

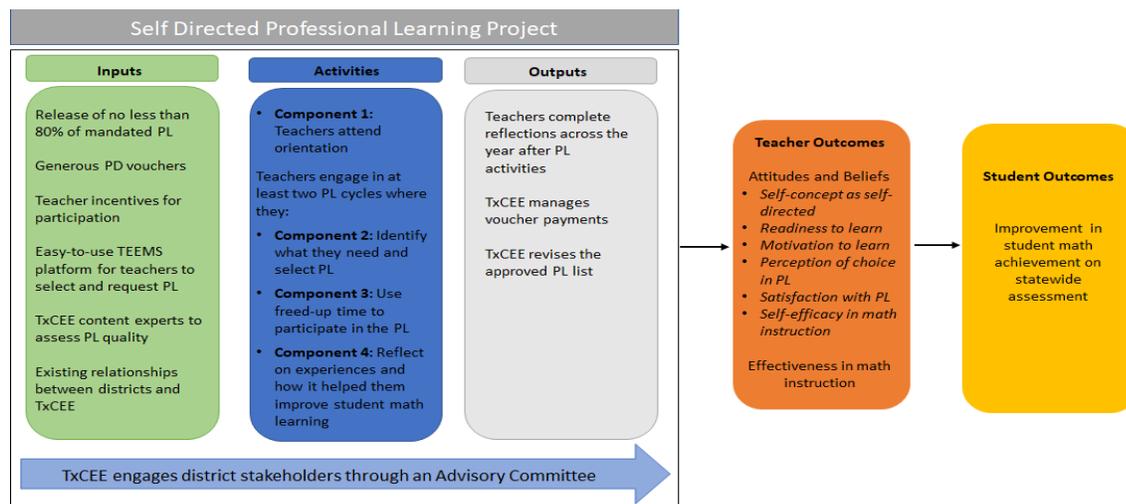
**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

five schools, and then conduct a robust evaluation using a two-cohort randomized controlled trial (RCT) that will include altogether 19,440 students with 486 teachers across 54 schools. Math teachers have been identified for the project given poor mathematics performance for students nationally and in Texas. All teachers who provide math instruction in grades 3-8 in participating schools will be eligible to participate in the stipend program. Teachers in “control group” schools during the evaluation will be offered the PL stipend in the year after their evaluation window. The evaluation will focus on producing research findings that meet **What Works Clearinghouse standards without reservations**, and it will provide rich information on the implementation of SDPLP to enhance knowledge regarding the contexts under which self-directed PL succeeds.

The project is guided by the **logic model** shown in Exhibit 1 specifying the inputs, key program components, and outputs that lead to the improved outcomes for teachers and students. The logic model is supported by rigorous research demonstrating the potential for PL to improve math instruction and student math achievement (Garrett, Citkowicz, & Williams, 2019; Lynch, Hill, Gonzalez, & Pollard, 2019; Williams et al., 2020) and the promise of enabling teachers to chose the PL that best meets their needs (Darling-Hammond et al., 2017; Gates Foundation, 2014; Kennedy, 2016; Knowles, 1984). As shown in Exhibit 1, SDPLP will offer inputs to create the conditions for effective PL activities by releasing teachers from mandatory PL, providing resources through voucher stipends, incentives for teacher participation, and leveraging the user-friendly TEEMS platform that teachers already use for annual performance evaluations.

ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal (Early-Phase) Self-Directed Professional Learning Project

Exhibit 1. Logic Model for SDPLP



Further complementary inputs include content expertise at ESC 18-TxCEE to curate high quality PL options, and existing relationships between ESC 18-TxCEE and a network of districts which will enable ESC 18-TxCEE to conduct need-sensing as districts begin the project to ensure SDPLP will adapt to local needs. The heart of SDPLP lies in the activities teachers engage in. An initial orientation helps teachers use student data and their existing PL plans to assess their own learning needs. Teachers then complete at least two learning cycles over the year. Each cycle starts with teachers selecting PL that meets their needs, either from a pre-approved list or by requesting another option not listed. Then, teachers participate in the PL and, within three weeks of completion, submit a reflection through TEEMS on the usefulness of the PL and the extent to which it helped them meet student math learning needs. ESC 18-TxCEE attends to voucher payments for teacher selected choices, and revises the pre-approved list to add newly approved options requested by teachers or potentially to remove options if teachers report poor experiences. Through this, teachers will improve in key attitudes and beliefs as well as in their math instruction effectiveness. In turn, student math achievement will improve.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project
Section A: Quality of Project Design**

A.1 Replacement of 80% of State Mandated Professional Learning Based on initial conversations with Texas school districts interested in this project, we have planned for districts to release 80% of mandatory teacher PL for teacher self-directed PL choices. The approach for released time will vary by district context: in some districts this will equate to a release of full-day PL activities while others will allow for a hybrid of daily release and release of time typically dedicated to job-embedded professional learning via professional learning communities. Across these approaches, release of 80% of mandated PD time equates to no less than four full days (or 24 hours) of teacher PL. Prior meta-analyses of teacher PL studies have demonstrated that this amount of PD across a school year is sufficient for improving teachers' instruction and student achievement (Garrett et al., 2019; Kraft, Blazar, & Hogan, 2018). In addition, the State of Texas requires classroom teachers with a standard certificate to participate in 150 continuing professional education (CPE) credits every five years. The expectation averages to 30 CPE credits per year. Teachers will be able to apply their self-directed PL toward the mandatory state requirement, allowing teachers to earn a minimum of 24 CPE credits in a year (80%) using self-directed PL choices.

ESC 18-TxCEE will leverage existing relationships to engage partners in high need districts to plan for the release of PL time for SDPLP (see Appendix Exhibit I.1 for the district recruitment plan). We will conduct stakeholder engagement sessions with each partner district that will include district administrators in addition to multiple principals and teachers. During the engagement sessions, we will present the SDPLP opportunity and the supports provided by ESC 18-TxCEE to vet PL options for quality and oversee the PL voucher process; we also will review

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

with stakeholders how PL occurs in their context, and collaboratively determine the best ways to maximize the amount of PL time that can be released (as districts may release more than 80%) while still adhering to school-specific needs for PL that requires all teachers to attend. These stakeholder engagement sessions will allow ESC 18-TxCEE to work with districts on understanding local priorities for supporting math instruction, and allow stakeholders to help shape processes for determining the logistics of replacing typical PL with teacher choices. This will help ensure buy-in and trust, maximize the amount of PL time that will be released, and set-up easy processes for teachers in the SDPLP.

A.2 Ensuring Stipends Are Used for High-Quality Professional Learning ESC 18-TxCEE will establish a workflow process that will ensure teacher PL stipends are used for vetted, high-quality PL to support math instruction (see Appendix Exhibit I.2). To help teachers in identifying high-quality PL options, the workflow begins during the Design Phase of the project (spring-summer 2021) with developing a rubric for assessing PD quality using research-based criteria outlined in Exhibit 2, and assessing costs. The rubric will require documentation of summary information for each PL opportunity, qualitative open-ended comments about quality, and assigning scores of low, mid, or high quality along each rubric dimension. ESC 18-TxCEE content experts will test application of the rubric to an initial number of PL offerings to help establish calibration and generate guidance for others to use the rubric.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)**

Self-Directed Professional Learning Project

Exhibit 2. Research-Based Criteria for Identifying High Quality Professional Learning

Research-Based¹ Criteria for High Quality Professional Learning	Details
Content-relevancy	Focuses on specific content and materials that are relevant to teachers' classroom contexts and students.
Timely	Offered as teachers need it, e.g. start of the school year, or after teachers identify student needs based on benchmark testing, to allow teachers fluid support and time to implement what they learn.
Job-embedded	Directly applicable to a teacher's day-to-day work with students.
Utilizes adult learning theory	Incorporates adult learning theory principles, e.g. allows teachers to direct their learning, draws from teacher experience, allows active application.
Supports collaboration	Supports collaboration with other teachers, either among existing colleagues or with new ones.
Encourages a sustained implementation and reflection process	Encourages iterative teacher implementation, reflection, and adjustment to their practice based on what they have learned.

¹ References: Darling-Hammond et al., 2017; Demonte, 2013; Gates Foundation, 2014; Kennedy, 2016.

ESC 18-TxCEE will then conduct a national scan to identify PD options by surveying PL opportunities endorsed by national organizations supporting mathematics education (e.g., the National Council of Teachers of Mathematics, Association of Mathematics Teacher Educators). Our content experts will also conduct a systematic research literature search for evidence-based PL opportunities, and will engage members of the project Advisory Committee to assist in the identification of additional PL options. Each identified option will be reviewed by ESC 18-TxCEE content experts using the developed rubric, and PL opportunities that meet a minimum quality score will be used to create an initial list of pre-approved high quality, cost-effective PL options for elementary and middle school math teachers. This national scan will provide critical information about high quality options in ways that are currently difficult for teachers and

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

districts to access given time and resource constraints. As a Gates Foundation report (2014) argues, only \$3 billion of \$18 spent annually on teacher PD comes from providers external to a district, with districts holding limited information on available options and teachers lacking input on which options would serve them best.

Several mechanisms will ensure teachers have information and access to high-quality PL options as the project moves into the Pilot and Evaluation phases. First, ESC 18-TxCEE will repeat this national scan prior to the start of each new project year. Also, ESC 18-TxCEE will provide teachers with a workshop at the start of each school year to educate them about the pre-vetted options, as well as the rubric to help teachers identify potential new options beyond the pre-approved list (see Section A.3). The list of pre-approved PL options (including their descriptions and rubric scoring, as well as information on options that were vetted and not approved) will be made available to teachers via ESC 18-TxCEE’s Texas Educator Excellence Management System (TEEMS) online platform. Across the year, teachers will use TEEMS to indicate their selected PL option either from the pre-approved list or to request another option, triggering an approval process routed through TEEMS to ensure that selections meet criteria for quality, timeliness, and cost. Finally, the evaluation team will utilize formative evaluation data to understand teachers’ experiences with PL activities, which will inform revisions to the list.

A.3 Flexibility and Autonomy for Teachers in their Professional Learning Choices. The proposed workflow is designed to allow teachers maximum autonomy and choice in selecting their PL; the only parameter required is the focus on improving student math achievement. This autonomy in choosing PL is critical from adult learning and motivational theory perspectives, allowing teachers to select the PD that will benefit them the most (Guskey, 2000; Knowles,

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

1984; McCarthy & James, 2017). As noted in a Gates Foundation report (2014), many teachers view PL as compulsory and compliance-oriented rather than a learning activity with true potential for generating improvements in their practice, observing that teachers were twice as satisfied with the PL opportunities they were allowed to choose. Other researchers have argued that teacher choice in PL not only improves teacher satisfaction, but also increases the likelihood they use the PL to improve their practice (Kennedy, 2016; Mushayikwa & Lubben, 2009).

To support teachers' self-direction in PL, SDPLP will prepare teachers to assess their own PL needs and provide flexibility for their choices. ESC 18-TxCEE will work with participating teachers during a yearly orientation workshop to identify and select the PL options most relevant for them. This process will help teachers think through their own personal PL goals and the needs of their students, and then reflect on which of the available PL offerings best meets those needs. Further, teachers will have the freedom to request PL opportunities that fall outside of the pre-approved PL list created by ESC 18-TxCEE. This process will be managed by ESC 18-TxCEE to ensure that there is no conflict of interest between districts and potential PL providers that would inhibit teachers' autonomy to select their own professional learning opportunities. At the orientation, teachers will learn about the rubric for assessing PD quality. If teachers decide to research a PL opportunity not on the pre-approved list, knowledge of the rubric for assessing quality will help teachers understand if newly identified options are likely qualified or not. Once teachers decide to submit a request for a newly identified PL opportunity, ESC 18-TxCEE will use the rubric to formally review the PL and ensure requests meet the quality and cost criteria. Newly approved teacher-identified choices will be added to the list as

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)**

Self-Directed Professional Learning Project

available for all teachers to consider, allowing the list of PD offerings to directly reflect teacher priorities as the project evolves.

A.4 Self-Directed Professional Learning Procedures and Processes. SDPLP will offer a simple, streamlined process for teachers which will begin during the initial orientation workshop; ESC 18-TxCEE staff will support teachers in the identification of the PL goals and the selection of their PL and, importantly, will initiate this process through TEEMS, which will house and capture information on PL selections and implementation. After the orientation, teachers will be prepared to engage in at least two learning cycles across the year that include the steps outlined in Exhibit 3, all of which will be documented within TEEMS to ensure implementation fidelity.

Exhibit 3. Simple Teacher Process for Teacher Selection and Implementation of PL

SDPLP Activity	Description
Step 1: Teachers identify their PL needs.	Using annual professional learning plans and evidence of student learning needs (e.g. test results), teachers determine their PL focus.
Step 2: Teachers select their PL option(s)	In TEEMS, teachers submit their PL selection from the pre-approved list, or submit a non-listed option for approval by ESC 18-TxCEE. ²
Step 3: Teachers participate in the selected PL.	Depending on the PL activity, teacher participation may occur during designated district or school professional learning time, during non-instructional hours, or during instructional hours with a substitute teacher filling in for the teacher.
Step 4: Teachers reflect on PL activity	Within three weeks of participation, teachers complete a reflection in TEEMS, reflecting on the quality of PL, their implementation of what they have learned, and the extent to which students may have benefitted as evidenced by student data (e.g. formative performance assessment). This reflection may feed into the first step of the next learning cycle, as teachers identify new areas of need or focus for their next PL activity.

This simple process will provide both support and flexibility so that teachers can select and put into use PL that meets their specific needs for helping high-needs students to achieve in math.

² ESC 18-TxCEE will reimburse districts for vouchers provided to teachers to pay for PL activities.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)**

Self-Directed Professional Learning Project

A.5 Clearly Specified and Measurable Goals, Objectives, and Outcomes. We will meet the overarching goal of building and testing a PL program that gives teachers control over their own PL experiences and improves student math achievement through meeting our project objectives. SDPLP includes multiple, clearly specified and measurable objectives, included in Exhibit 4: (1) Collaboratively develop the SDPLP program, (2) Pilot and refine SDPLP, (3) Rigorously test the impact of SDPLP on hypothesized teacher and student outcomes; and (4) Disseminate learnings.

Exhibit 4. Strategies, Outcomes, and Measures for Performance Objectives

Strategies	Outcomes	Measures
Performance Objective 1: Collaboratively Develop Program Inputs and Processes		
Strategy 1.a. Conduct stakeholder engagement sessions with stakeholders in each partnering district	Written instructions on the agreed upon approach for each district to release PL time and for teachers to request vouchers for PL selections	Measure 1.a. A representative from each district provides a signature confirming acceptance of the specifications and plan
Strategy 1.b. Create and meet with Advisory Committee to gather input on design and suggested revisions over course of the project	Advisory Committee participates in meetings twice a year during the pilot and RCT phases of the project (once during Design phase)	Measure 1.b. Notes are produced from each completed meeting which capture stakeholder feedback
Strategy 1.c. Develop a research-based rubric for assessing PL quality and cost	A rubric that can be used by both content experts and practitioners, with associated guidance for use	Measure 1.c. At least 90% of the Advisory Committee members agree that the rubric can be used to assess high-quality PL options for teachers in their district
Strategy 1.d. Develop (and revise) a pre-approved list of vetted PL options for teachers to select from, based on a national scan of offerings	Information on each vetted option is available to participating teachers through TEEMS	Measure 1.d. At least 90% of the Advisory Committee members agree that list of pre-approved PL options will meet the needs for teachers in their districts
Strategy 1.e. Develop an orientation workshop to prepare teachers to implement SDPLP	Teachers and district and state leaders can access information about PL offerings online. Teachers can log into an online portal to view, browse, and sign up for PL offerings	Measure 1.e. TEEMS is populated with the title, a description, and the time commitment of each PL offering in the library
Strategy 1.f. Create easy-to-use processes for teachers to view vetted PL options, make PL requests, track voucher payments and complete a reflection after PL activities	Simple procedures with a user-friendly interface are available for participating teachers within TEEMS	Measure 1.f. Teachers can access within TEEMS the information on the pre-approved PL, the voucher request function, and the reflection function
Performance Objective 2: Pilot and Refine SDPLP (Year 2: SY 2021-22)		

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

Strategies	Outcomes	Measures
Strategy 2.a. Identify 20 teachers providing math instruction across five schools in the Pilot partner district, Los Fresnos Consolidated Independent School District	Twenty teachers agree to participate in the pilot and provide feedback to inform continuous improvement over SY 2022-23	Measure 2.a. Principals and teachers sign agreements to participate
Strategy 2.b. Provide the orientation workshop to Pilot teachers and ongoing support for their PL cycles across the year	Teachers attend orientation and are provided instructions for use and support	Measure 2.b. All 20 teachers attend the orientation workshop and initiate PL cycles
Strategy 2.c. Revise the program based on implementation feasibility, participant and stakeholder feedback	Implementation data on program completion and usefulness are analyzed monthly by AIR, and used as a basis for ongoing program improvements	Measure 2.c. AIR reports at the end of the pilot on completion rates, plus the feedback received and corresponding changes made to program approach
Performance Objective 3: Rigorously Test the Impact of SDPLP on Teacher and Student Outcomes (Years 3-4: SY 2022-23, and SY 2023-24)		
Strategy 3.a. AIR randomly assigns 54 schools (27 in each of two cohorts) to treatment and control groups	Schools in treatment and control groups are equivalent in key teacher and student characteristics	Measure 3.a. AIR reports findings from analyses to demonstrate baseline equivalence
Strategy 3.b. Implement SDPLP in schools randomly assigned to the treatment group ¹	SDPLP implementation is completed in all treatment schools across both cohorts	Measure 3.b. All fidelity indicators in the fidelity matrix meet adequate thresholds of fidelity for each implementation year
Strategy 3.3. AIR conducts an implementation study to assess fidelity and quality	Implementation is analyzed according to thresholds for low, mid, and high fidelity; participant perspectives are analyzed to assess quality	Measures 3.c. AIR reports findings from all planned implementation analyses, including an interim assessment between the two cohorts to demonstrate progress toward the goal of acceptable levels of fidelity for all schools
Strategy 3.4. AIR conducts an impact study to assess teacher and student outcomes	Data on teacher attitudes and classroom practice, and student math achievement, are collected and analyzed	Measure 3.d. AIR publicly reports findings on impacts that meet What Works Clearinghouse (WWC) standards with or without reservations; AIR provides an interim report between the two cohorts to demonstrate progress toward goals for teacher outcomes
Performance Objective 4: Disseminate Learnings (Years 3-5)		
Strategy 4.a. Share findings with participants and local stakeholders and collaboratively co-interpret findings with the project team	Participants and local stakeholders learn about updates on progress toward goals and help shape final interpretation of findings	Measure 4.2. Annual meetings are held with each district and Advisory Committee; meeting notes document key takeaways from the co-interpretation of findings
Strategy 4.b. Publicly disseminate findings about impacts and implications for practice via publications and conference presentations	Information about the project and findings are spread among the broader education field	Measure 4.1. At least two blog posts are published at the end of each evaluation year, and one referred-journal article is submitted for publication by the project end

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

¹Note: To support equity in opportunity, schools assigned to the control group are offered participation in SDPLP in the year following their cohort evaluation window, meaning either SY 2023-24 or 2024-25.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)**

Self-Directed Professional Learning Project

Section B: Adequacy of Resources and Quality of Management Plan

B.1 Sufficiency of Stipend to Enable PL Funded Through the Stipend to Replace a Significant Portion of Existing Mandatory PL for Participating Teachers. Over the five-year grant period, the project will utilize [REDACTED], or [REDACTED] of grant funds, directly for teacher selected PL and participation stipends. SDPLP will allow over 500 elementary and middle school mathematics teachers to replace a minimum of 80% of state-mandated PL with self-directed PL opportunities, designed to ensure that PL opportunities are research-based, relevant, and high quality to improve teachers’ instructional practices. ESC 18-TxCEE will allocate [REDACTED] per teacher participant in the SDPLP, which will directly pay for approximately 24 hours, or four days, of self-directed PL per teacher and cover up to [REDACTED] of travel costs³. Teachers will also receive a stipend of [REDACTED] to compensate for teacher time participating in the RCT.

B.2 Extent to Which Costs Are Reasonable in Relation to Project Objectives, Design, and Potential Significance of the Proposed Project. The proposed project design and budget provide over 500 math teachers with high quality PL at a cost equivalent or lower than what school districts typically spend per teacher on the same amount of PL annually. This will bring value by eliminating mandatory PL that may not be relevant for teachers, and instead, focus funds on teacher-selected PL better positioned to an impact on teacher and student outcomes. While the costs of PL are notoriously difficult to pin down, several researchers have found that PL spending typically accounts for roughly 5% of districts’ instructional budgets (Cocoran, 1995; Little, 1987). According to expenditure reports made available by the Texas Education

³ Travel costs are estimated at [REDACTED] per trip, based on the 2020 General Services Administration average state rates (see Budget Narrative for a breakdown of costs).

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

Agency, five percent of the overall state’s instructional expenditures amounted to roughly \$4,600 per teacher during the 2018-19 school year⁴. However, as noted in Odden, Archibald, Fermanich, and Gallagher (2002), these estimates may not account for costs such as teacher time, costs of the trainings, materials, travel and other fees. With more of these “hidden” costs included, recent estimates range from annual expenditures of \$7,000 to \$18,000 per teacher (Jacob & McGovern, 2015; Sawchuck, 2010). Therefore, with the goal of ensuring that SDPLP stipends cover the various costs associated with professional learning while still being cost effective, the project will provide ██████ per teacher to cover 80% of a teacher’s PL time. This investment is further justified based on the potential for long-term benefits for students. Chetty, Friedman and Rockoff (2011) found that students taught by high-quality teachers are more likely to attend college and earn higher salaries. They estimated having a highly effective teacher for one year increases a student’s cumulative lifetime earnings by \$80,000. By reaching 19,500 students, the project costs represent a potential future economic value of \$1.56 billion if teachers are more effective when allowed to select PL best tailored to their and their students’ needs.

The project costs are also reasonable given the potential for continuation beyond the grant given the plans to build on existing relationships and infrastructure - thereby reaching even more teachers and students. ESC 18-TxCEE works with a network of districts that can engage in this work, during the grant and afterward. Further, ESC 18-TxCEE will use its TEEMS platform for the program, which it developed and uses in ongoing support of its partner districts to house teacher evaluation data, so that teachers can establish their own professional learning and growth

⁵ AIR has substantial experience conducting large-scale, school-level RCTs with little to zero school attrition; however, the approaches being used to minimize teacher- and student-level attrition will also be applied to schools.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

goals for each school year. Incorporating SDPLP processes into an existing platform districts and teachers already use represents a cost-effective approach to project infrastructure, and sets up long-term use if evaluation demonstrates positive results. Finally, the costs bring value given the project's strong dissemination plan, which will allow states and districts nationally to learn about teacher-directed PL and consider implementing it themselves.

B.3 The Extent to Which the Proposed Payment Structure Will Enable Teachers to Have an Opportunity to Apply For and Use the Stipend with Minimal Burden. The proposed system for selecting PL and initiating stipend payments through TEEMS will ensure minimal burden for teachers. Teachers will simply access resources added to the platform, which will allow them to search for PL options, select their choice and reflect afterward. As teachers make requests and ESC 18-TxCEE confirms approval, partner districts will provide a voucher to pay for the teacher's chosen PL activities, with funds going directly to the PL vendor. ESC 18-TxCEE will then reimburse the district via a monthly expenditure report process. This will ensure that teachers do not experience a delay in the PL process, and it will not require teachers to provide payment of any type for the PL itself. Tracking completion of these procedures will all be captured through TEEMS, for a streamlined, minimal burden process.

B.4 Qualifications of Key Project Personnel. ESC 18-TxCEE and AIR bring experience and capacity to this project through managing statewide initiatives and federal grants, combined with expertise in high quality teacher PL (see resumes in Appendix B). *Joann Taylor, SDPLP Project Director* and Chief TxCEE Officer at ESC 18, will be responsible for overseeing the direction, monitoring, and evaluation of the project as well as managing ESC 18-TxCEE math content experts and staff supporting TEEMS and the PL selection process. Ms. Taylor has extensive

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

experience in managing large-scale initiatives, including serving as the Project Director of ESC 18-TxCEE’s federal Teacher and School Leader (TSL) Incentive grant and Austin ISD’s Teacher Incentive Fund (TIF) grant. Ms. Taylor also managed the development and implementation of the teacher self-directed professional development units (PDU) process used in Austin ISD’s human capital management system Professional Pathways for Teachers. **Jessica Navarro**, Director of Partnerships, will oversee business operations, including stipend reimbursements and contracts, and also coordinate the PL review and approval process. She has more than 15 years managing large-scale initiatives, including previously serving as the TIF 3 Project Director, as well as extensive experience in managing budgets and coordinating district reimbursements. **Dana Fincher** and **Natalie Vela** will serve as Math Content Leads, and will develop the PL quality review rubric and vet PL options for approval. Ms. Fincher and Ms. Vela both have served as mathematics instructional coaches at both the campus- and district-levels, and currently provide job-embedded PL across three Texas school districts through ESC 18-TXCEE’s TSL grant. **Shana Shaw**, ESC 18-TxCEE’s Director of Research, Evaluation and Data Systems, will oversee development of TEEMS and coordinate with AIR on the evaluation. She has 10 years of research, evaluation and data management experience in education, including overseeing research and evaluation activities for ESC 18-TxCEE’s TIF and TSL grants, and on two IES-funded researcher-practitioner partnership grants. Further support from ESC 18-TxCEE’s staff is outlined in the Budget Narrative. In addition, **Michael Vaden-Kiernan**, *evaluation principal investigator* (PI) and Managing Researcher at AIR, will provide guidance and support for the RCT. He has over 20 years of experience conducting education intervention research in PK–12 settings, and has served as PI on multiple, federally-funded RCTs. **Elizabeth Barkowski**,

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

evaluation project director, will oversee management of evaluation activities. She has more than 12 years of experience in education program evaluation, and currently directs ESC 18-TxCEE’s TSL grant evaluation and the evaluation of IDEA Public Schools’ EIR grant focused on redesigning math and computer science curricula.

B.5 Adequacy of the Management Plan to Achieve Proposed Project Objectives. The goal of SDPLP is to improve math teaching practices for high-need students by offering high-quality, instructionally relevant, and cost-effective teacher-directed PL opportunities and stipends. The management plan includes focused and measurable performance objectives and timeline as detailed in Appendix Exhibit I.3 (see also Appendix Exhibit I.5 for details on the evaluation plan). The management plan demonstrates how these and all planning, pilot, and study activities will be executed on time, within budget and with high quality per the expertise of the key personnel (see Section B.4).

B.6 Adequacy of Procedures to Leverage the Program to Inform Continuous Improvement and Systematic Changes to PL. During the pilot phase of the project, AIR will work with ESC 18-TxCEE to facilitate continuous monitoring of project implementation through analysis of teacher feedback on PL opportunities, complemented by implementation analyses from AIR (see Section C.3). ESC 18-TxCEE will also collect and analyze informal feedback from district and campus key stakeholders to guide appropriate adjustments to the project and district- and school-level implementation. This information will also allow for project modifications to ensure an increasing number of teachers have the opportunity to select relevant, research-based PL. Using stakeholder input, formative feedback and outcome data, ESC 18-TxCEE will assist partner

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

districts in assessing adequacy and cost effectiveness of teacher-directed PL stipends in comparison with existing district PL efforts.

Beginning with the pilot in 2021-22, an Advisory Committee, composed of district administrators, principals, and teachers, will meet twice a year to review the implementation and evaluation findings to determine if any changes are needed to the quality rubric or stipend process. Administrators will then determine if there is a need to reallocate existing PL funds to provide more high quality, relevant self-directed PL efforts. Additional opportunities to replace at least 80% of the partner districts' required PL efforts will be provided once the stipend process and PL rubric are refined for the RCT. This ongoing stakeholder engagement process will ensure relevant, systemic change in PL systems across partner districts.

Commitment to Partner LEAs and Application Requirements. Over the last decade, ESC 18-TxCEE has received three Teacher Incentive Fund (TIF) Grants and one Teacher and School Leader (TSL) Grant from the U.S. Department of Education to develop and implement innovative models that systematically enhance instructional and leadership skills. Outside of federal grants, ESC 18-TxCEE has also developed strong relationships across urban, suburban, and rural Texas districts through partnerships to provide differentiated, sustained professional learning opportunities to support educator success and ultimately improve student learning. Therefore, ESC 18-TxCEE is poised to expand the reach of SDPLP through these partnerships, as well as through ESC 18's involvement in a statewide network of other regional ESCs (see Appendix Exhibit I.1). As a part of SDPLP, partner districts will commit to maintain current levels of teacher PL efforts, engage stakeholders in identifying and implementing necessary changes to their local PL practices, utilize TEEMS to manage PL selections, and implement

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

stipends to systemically and sustainably build educator capacity (see Appendix C for letters of support). Districts will commit to PL opportunities that are only instructionally relevant (e.g., not for personal enrichment).

Section C. Quality of the Project Evaluation

AIR will conduct an independent evaluation of SDPLP that will include an implementation study designed to inform immediate program improvement and an impact study designed to meet What Works Clearinghouse (WWC) standards without reservations (see Appendix Exhibits I.4 and I.5 for evaluation plan details). As shown in Exhibit 5, research questions (RQs) 1–5 focus on the impact of SDPLP on teachers’ attitudes and beliefs, on teachers’ classroom practice, and on students’ mathematics achievement, while RQs 6–8 focus on program implementation.

Exhibit 5. Research Questions and Data Sources

Research Question	Data Sources
RQ1: What is the impact of SDPLP on teachers’ attitudes and beliefs?	<ul style="list-style-type: none"> • Teacher surveys
RQ2: What is the impact of SDPLP on teachers’ classroom practice?	<ul style="list-style-type: none"> • Classroom observations
RQ3: What is the impact of SDPLP on student mathematics achievement in Grades 3–8?	<ul style="list-style-type: none"> • State of Texas Assessments of Academic Readiness (STAAR) scores
RQ4: To what extent does teachers’ classroom practice mediate the impact of SDPLP on student mathematics achievement?	<ul style="list-style-type: none"> • Classroom observations • STAAR scores
RQ5: To what extent do student or teacher characteristics moderate the impact of SDPLP on classroom practice or mathematics achievement?	<ul style="list-style-type: none"> • Classroom observations • Teacher surveys • STAAR scores
RQ6: To what degree are key components of SDPLP implemented with fidelity?	<ul style="list-style-type: none"> • Attendance data • TEEMS usage data
RQ7: What are teachers’ perceptions of and experiences with SDPLP?	<ul style="list-style-type: none"> • Teacher interviews • Teacher surveys
RQ8: What are the barriers to and facilitators of SDPLP implementation?	<ul style="list-style-type: none"> • Teacher interviews • District staff interviews

C1. The extent to which the methods of evaluation will produce evidence that meets What Works Clearinghouse (WWC) standards without reservations. We will produce strong

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

evidence about SDPLP effectiveness using an experimental design expected to meet WWC evidence standards without reservations. The impact evaluation will focus on mathematics instruction in Grades 3–8, the focus of SDPLP. We will address RQs 1–5 through a multisite cluster randomized controlled trial (RCT) that will involve 54 schools pooled across two cohorts (school years [SYs] 2022–23 and 2023–24), with 486 teachers in approximately six school districts. Each school will participate in the evaluation for 1 year, in either the first or second cohort. Schools will be randomly assigned at the beginning of their cohort evaluation year, with equal probability, to either the treatment group or the control group, blocked within district and school type (elementary versus middle). All teachers who provide mathematics instruction in Grades 3–8 in participating schools will be included in the evaluation. This school-level randomization design has strong internal validity and is associated with a low risk of contamination, which is more likely to occur when teachers are randomly assigned within schools. Risks of attrition are minimized by conducting the random assignment at the start of the school year. Attrition risk is also lower because schools participate in the evaluation over only 1 school year, compared with the risk of losing participants in multiyear interventions.

Potential threats to internal validity. A primary threat to the internal validity of the proposed evaluation is nonequivalence of units at baseline due to chance, which, in this case, refers to differences in certain characteristics of schools, teachers, and/or students between the treatment and control groups. Our blocked (within district and school type) approach to random assignment mitigates this risk by imposing internal controls to ensure that similar types of schools within each site are equally represented in the treatment and control groups. In addition, we will assess baseline equivalence on all available pretreatment variables at the school, teacher, and student

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

levels. These baseline covariates will be included in the impact models to both adjust for baseline differences between the study groups and to improve the precision of impact estimates. A second potential threat to internal validity is attrition from the study.⁵ The design will lessen the risk of attrition by conducting random assignment for each cohort at the beginning of the intervention school year, rather than in the spring of the prior school year. This will allow the study to confirm school and teacher participation and the accuracy of student lists before randomization, minimizing attrition due to teacher or student mobility, which typically occurs during the summer. Attrition can also result from missing outcome data, which this design minimizes by leveraging student achievement based on district administrative records and by providing incentives to teachers for data collection (e.g., surveys, classroom observations). To examine whether bias has been introduced via attrition, we will compute overall and differential attrition at the cluster (school) and subcluster (teacher and student) levels, and test for baseline equivalence in teacher and student background characteristics for the impact analysis sample.

Sample. The study will include a large sample representing urban and rural settings across Texas, with racial diversity. It will include 486 teachers and 19,440 students in 54 schools pooled across 2 years (SYs 2022–23 and 2023–24). The evaluation is powered to detect a minimum detectable effect size (MDES) of 0.28 for survey-based teacher outcomes, 0.38 for teacher classroom observation–based outcomes, and 0.15 for student mathematics achievement. (See power calculations and MDES justifications in Appendix I.6.)

⁵ AIR has substantial experience conducting large-scale, school-level RCTs with little to zero school attrition; however, the approaches being used to minimize teacher- and student-level attrition will also be applied to schools.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)**

Self-Directed Professional Learning Project

Analyses of impact (RQs 1–5). We will employ intent-to-treat (ITT) analyses to estimate the impact of being randomly assigned to participate in SDPLP (see Appendix I.7 for technical details of all analytic models). To answer RQs 1 and 2, we will use a two-level model that includes randomization block fixed effects to measure impacts on teachers’ attitudes and beliefs (e.g., self-efficacy in mathematics instruction) and classroom practice. Controlling for randomization blocks ensures that only teachers within the same district and school type are compared with one another, which is most appropriate in this design. We will also control for teacher/classroom characteristics, such as grade(s) taught and classroom demographic composition, to increase the precision of our impact estimates. To answer RQ3, we will assess impacts on student mathematics achievement using a three-level model that nests students within teachers and schools. We will again control for teacher/classroom characteristics, student-level characteristics (e.g., race, gender), and randomization blocks. To answer RQ4, we will estimate the extent to which teacher classroom practice mediates the impact of SDPLP on student mathematics achievement. We will run multiple models (see Appendix Exhibit I.7.1) to calculate the mediated effect, conducting two-level models when estimating teacher outcomes and three-level models when estimating student achievement outcomes. We will assess moderator effects (RQ5) by incorporating treatment-by-moderator interaction terms in the models for RQs 1–3. As in RQs 1–4, the models will control for student- and teacher/classroom-level characteristics as appropriate, as well as randomization blocks.

C2. The extent to which the evaluation plan clearly articulates the key project components, mediators, outcomes, and measurable thresholds for acceptable implementation. The proposed evaluation design is informed by clearly articulated key components, mediators, and

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

outcomes of teacher-directed professional development (PD), as depicted in the logic model (Exhibit 1). The key components of SDPLP together provide access to high-quality, teacher-selected PD opportunities that will replace at least 80% of district-mandated PD time. These components are designed to improve teachers' (a) attitudes and beliefs, and (b) classroom practices in their mathematics classes. These outcomes for teachers will, in turn, mediate the impact of SDPLP on student math achievement. The mediation analyses (RQ4) will examine the relationships between teacher outcomes (e.g., classroom practice) and student math achievement.

Outcome measures. AIR will use multiple well-established, valid, and reliable measures that capture the outcomes specified in the logic model. AIR will administer surveys to all treatment and control teachers at the beginning and end of each intervention year to measure teacher **attitudes and beliefs** prior to and after cohort implementation. Surveys will include measures of teachers' perceptions of themselves as self-directed learners, their readiness and motivation to learn, and their perceptions of self-efficacy in mathematics instruction, as well as their perceptions of choice in professional learning and their satisfaction with professional learning experiences over the year (see Appendix Exhibits I.8 and I.9 for further details and scale reliability). The end-of-year survey will also include items to assess service contrast and treatment teacher program feedback. AIR will measure the second key outcome in the logic model, **improved classroom practice**, by collecting video-based classroom observations from a subsample of teachers during the spring of each evaluation year, focusing on all third- and sixth-grade teachers in both treatment and control groups ($n=216$). Teachers will each self-record one lesson, and videos will be coded remotely by mathematics instruction experts (blind to teacher treatment condition) using the Mathematics Scan observation rubric (MSCAN; see Appendix

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

Exhibit I.10 for rubric domains and indicators) (Berry et al, 2012). MSCAN assesses teacher facilitation of standards-based mathematics instruction and student engagement and has established reliability and validity ($r=0.74$; Walkowiak et al, 2014).

AIR will measure the final key outcome, **student mathematics achievement**, in Grades 3–8 by collecting student spring performance data using STAAR for each evaluation year. As a statewide standardized test, this measure is considered valid and reliable based on WWC standards. STAAR also represents a policy-relevant assessment that is already embedded in the educational settings where the evaluation will take place.

Measurable implementation thresholds. The evaluation will measure four key program components: (a) teacher participation in the initial workshop (based on training attendance data); (b) teacher selection/request of PD offerings (based on TEEMS usage data); (c) teacher participation in and completion of self-directed PD (based on TEEMS usage data); and (d) teacher usage reporting of PD learnings in their classes (based on reflection surveys). Based on prior research on fidelity in RCTs (Durlak & DuPre, 2008; Hill & Erickson, 2019), we propose the following initial implementation fidelity thresholds for each key program component: low fidelity (less than 60% of study teachers in treatment schools participate/complete/use the program component), moderate fidelity (60%–80%), and high fidelity (above 80%).

C3. The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes. During both the SDPLP pilot (see Section B.6) and across the 2 evaluation years, AIR will collect and use performance feedback and implementation data to address RQs 6–8.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

Performance feedback. To provide the Texas Center for Educator Excellence (TxCEE) at Region 18 Education Service Center (ESC 18) with meaningful performance feedback, AIR will evaluate fidelity (RQ6) of teacher progress and program completion by conducting descriptive analyses of attendance records and usage data from the TEEMS online platform (see Section C.2 for specific thresholds to assess acceptable implementation). AIR will collect attendance records from ESC 18-TxCEE to document teacher participation in the initial workshop to start the program. AIR will also collect monthly downloads from the TEEMS platform to document and monitor teacher PD selections, attendance at the selected PD, completion of the follow-up reflection surveys and expenditures per teacher and district. AIR will meet each month with ESC 18-TxCEE to discuss the findings from the prior month’s data. This will provide information not only on fidelity, but also on the feasibility of implementing the program as designed. For example, if participation or activity completion is low, ESC 18-TxCEE may need to consider program modifications to improve feasibility.

To understand teacher perceptions of program quality and the factors that hinder and facilitate implementation (RQs 7–8), AIR will conduct semistructured interviews with a sample of 20 participating teachers⁶ with varying levels of program fidelity (see Section D2) midway through each implementation year. Interview protocols will capture teacher perceptions of the quality of PD offerings; their ability to select PD that meets their and their students’ needs; and the usability and usefulness of TEEMS, the PD selection and attendance process, and the reflection survey process. Teacher perceptions of and experiences with SDPLP (RQ7) will also be gathered from treatment group teachers in the spring teacher survey, allowing reporting from

⁶ This sample size is large enough for the identification and saturation of themes (Guest et al., 2006).

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project**

all participants (see Appendix Exhibit I.8). To further address RQ8, AIR will conduct interviews with one to two district staff (e.g., superintendent of curriculum and instruction) from each district to provide insights into implementation (e.g., feedback on collaborating with ESC 18-TxCEE to establish PD needs). AIR will thematically code the interview data and triangulate them with other implementation data to enable a systematic review across sources.

Progress toward intended outcomes. This will be addressed in two ways. First, AIR’s monthly monitoring of activity among teachers participating in the program will support ongoing understanding of progress toward program completion as intended. Second, AIR will examine initial estimates of program impacts on teacher attitudes and beliefs (as measured via a survey of treatment and control group teachers) at the end of participation for the first cohort, providing an opportunity to gauge progress toward key outcomes midway through the evaluation.

**ESC 18-TxCEE Education Innovation and Research (EIR) Program Proposal
(Early-Phase)
Self-Directed Professional Learning Project
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(Early-Phase)
Self-Directed Professional Learning Project**

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(Early-Phase)
Self-Directed Professional Learning Project**

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