

Literacy and Academic Success for English Learners through Science (LASERs)

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PROJECT NARRATIVE

A. Significance

1. Addressing Absolute Priority 4(b). Education Development Center (EDC), in collaboration with Hartford Public Schools (HPS), the Capitol Region Education Council (CREC), and Connecticut Science Center (CSC), proposes to implement *Literacy and Academic Success for English Learners through Science (LASErS)*. By providing teachers and instructional coaches with high-quality professional development (PD) and offering families compelling resources and educational events, *LASErS* will leverage formal and informal science learning as a vehicle to support young English learners' (ELs) literacy, language, and academic success. Aligned with the Conn. Early Learning and Development Standards (CT ELDS), Common Core ELA (CC), and Next Generation Science Standards (NGSS), *LASErS* will build HPS and CREC capacity to use research-based literacy practices to support ELs, creating resources and approaches that can be scaled statewide via the CREC and five other Regional Educational Service Centers (RESCs).

Nationwide, ELs lack the support they need to succeed in school. HPS, which serves over 20,000 students—50% of which are Hispanic/Latino and 85% of which qualify for free or reduced price lunches (Campbell & Gross, 2013)—is committed to addressing this problem. HPS has more ELs than any other Connecticut district, with 17% of its students identified as ELs in 2012–13 and 40% from homes where English is not the primary language. Although HPS has made some progress in meeting its goals to promote ELs' academic proficiency, the district still faces an urgent need to close opportunity and achievement gaps for ELs, as revealed by data from multiple measures (August, Garcia-Arena, & Myrtle, 2013).

At the preK–Grade 1(G1) level, many factors contribute to this complex societal problem, but two factors are especially germane to *LASErS*. First, most early childhood teachers and leaders are not prepared to provide ELs with the explicit vocabulary instruction, exposure to rich

language, and support for language development in context they need (Ballantyne, Sanderman, & Levy, 2008). Second, many ELs' families lack access to culturally sensitive, concrete, and specific information in their language on how to support their children's learning (Dickinson & Tabors, 2001). These factors, exacerbated by the lack of continuity as ELs transition from preK to the early grades (Guernsey & Mead, 2010), create a disjointed, insufficient support system for ELs' language, literacy, and academic development. While researchers have identified effective strategies to strengthen this system (see Appendix D), the challenge is to ensure training, accessibility, integration, and continuity in use of these research-based practices.

HPS is eager to surmount this challenge. In 2013, HPS signed an agreement with the U.S. Department of Education's Office of Civil Rights to improve identification, instruction, and supports to ensure ELs can access mainstream academic courses and commissioned a review of its policies, practices, and performance data for ELs (August et al., 2013). Two of the report's recommendations focus on providing PD and supports to EL coaches working with mainstream teachers and promoting family involvement/community outreach to support ELs' achievement. *LASErS* aligns with, and will greatly assist HPS in operationalizing, these recommendations.

2. Proposing a Novel Approach. *LASErS* will use a collaborative approach—featuring a blended model of face-to-face and online PD/coaching for preK–G1 teachers, online training for coaches, and resources to support lesson planning and assessment—to improve, focus, and connect instruction and family supports to positively impact young ELs. This approach is novel, yet draws on four research-based ideas (see Appendix D): 1) ELs need access to multiple communication pathways within and outside the classroom to scaffold their learning; 2) ELs' cultures and home languages must be appreciated, respected, and used to support their learning; 3) language/literacy and cognitive learning are accelerated when engaged in inquiry-based

science; and 4) ELs literacy gains are strengthened by continuity of approach from preK to Grade 1. The complementary strengths of EDC's partners support this approach: HPS's deep commitment to improve learning for ELs; CREC's effectiveness as a training and technical assistance provider and magnet school system; and CSC's history of providing high-quality informal science learning. Building on these strengths, *LASErS* offers multiple dimensions of innovation: 1) integrated supports for ELs across content domains, contexts (school, home, community), and grade levels to ensure coherence in learning and build on language gains made in preschool; 2) use of technology to support PD with a cross-site, cross-grade online professional learning community (PLC) and virtual training and support of coaches, to help establish a lasting PD infrastructure; and 3) a Leadership Alliance (the Alliance)—district and state leaders, EL literacy experts, and Conn. early learning system investors—to review *LASErS*' implementation, suggest enhancements, and support sustainability and statewide scaling. Below, in the discussion of contributions to advancement of theory and practice, and in the project design, we offer more detail about selected aspects of these innovations.

Science as a vehicle to support ELs' literacy, language, and academic success. High-quality inquiry-based science instruction provides rich, engaging sources for conversation; promotes purposeful language use, vocabulary development, and conceptual learning (National Research Council, 2007); and motivates young students to communicate about science observations and experiences (French, 2004). At school or at home, science can bolster ELs' language/literacy learning across the four CC strands, *Speaking and Listening, Language, Writing, and Reading*. *LASErS*' literacy-infused science instruction is based on EDC's IES-funded PD program—*Foundations of Science Literacy (FSL)*—a comprehensive PD program for preK teachers that combines face-to-face instruction, classroom science materials, EDC's *Young Scientist Series*

curriculum guidebooks, formative assessment tools, and instructional coaching to support teachers in implementing a topic-driven, student-centered, and language-intensive science curriculum. Teachers introduce a topic of science investigation, facilitate students' exploration of relevant science phenomena, and design future lessons to deepen learning based on students' interests and developing skills. *FSL* has been demonstrated to significantly improve the quality of teachers' language facilitation techniques and result in significant expressive vocabulary gains for ELs (see Appendix D). *LASErS* builds on these encouraging results to provide coaches, teachers, and families with instructional approaches and resources that are mutually reinforcing, iterative, and contribute to ELs' overall achievement and academic success across domains.

Wraparound support. *LASErS* will develop explicit mechanisms to integrate language and literacy support into all of the contexts in which ELs explore science, supported by the efforts of a dedicated bilingual Family Engagement Specialist. PD for teachers and coaches will include strategies to recruit, engage, and interact with EL families. Toolkits and activities for EL families, including family events held at the CSC and family science nights at HPS and CREC schools, will complement formal classroom learning, building students' conceptual knowledge and home language vocabulary as a springboard for improved comprehension during related classroom activities (August, Carlo, Dressler, & Snow, 2005; Dickinson & Tabors, 2001). The use of multiple, reciprocal mechanisms integrating wraparound support to ELs is both novel and more likely to lead to positive impacts and a sustainable system for producing positive impacts.

3. Advancement of Theory, Knowledge, and Practices. Three features of *LASErS* will contribute to the national dialogue on how best to support ELs' learning. First, the model builds ELs' language/literacy skills *cumulatively* over three years, bridging gaps between preK and the early grades. This is likely to attract attention as a national model because gains made in preK

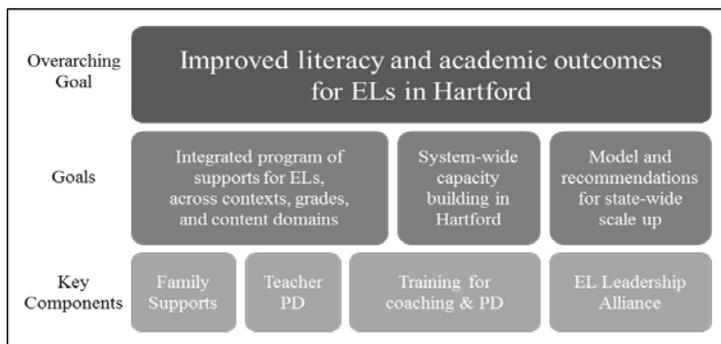
are often lost in the early grades unless educational practices intentionally support continuity. Second, although inquiry-based science instruction is recognized as a rich and productive context for learning language/literacy skills (Education Commission of the States, 2014; National Science Teachers Association, 2009), this topic is rarely afforded much time in early grades' curricula, and is often omitted entirely from preK instruction. And yet, young children have vibrant curiosity about their physical and natural world; the early years are precisely when young ELs stand to gain the most benefit from effective approaches to language/literacy instruction. *LASErS* offers a model of practice that enables preK–G1 teachers to provide effective instruction in content domains *at the same time* that they support language/literacy skills. Third, a fundamental idea in *LASErS* is that ELs need to experience related content in multiple contexts— at school, at home, and in the community—and that the content must be intentionally selected to help ELs build a rich network of conceptual knowledge in a domain and support ways to express it through vocabulary and grammar in both their home language and in English. As ELs build conceptual knowledge, vocabulary, and capacity for expression and comprehension, they are more able to communicate effectively with peers in English—especially if they can talk about common knowledge and experiences. As confirmed by partners' commitment letters (see Appendix G), *LASErS* goes well beyond the range of services usually offered to EL families, and has great potential to be integrated into family empowerment initiatives currently underway in Hartford and the state. By the project's end, HPS and CREC will have gained capacity to sustain the delivery of PD and coaching, and *LASErS* will have produced a set of recommendations for other schools to provide integrated, cross-grade language supports for ELs. In the short-term, expected outcomes for approximately 99 teachers include increased quality of literacy facilitation and science instruction for ELs; for coaches, increased capacity to support teachers of

ELs; for HPS, district-level changes in EL instructional practices; for ELs, improved speaking & listening, reading, writing, language, and science skills—with the intervention impacting approximately 792 ELs and 1,188 non-ELs (approximately 2,000 students); for families, greater engagement with school and community resources. Long-term, we expect that ELs impacted by *LASErS* will be on track to be college- and career-ready post-high school and that *LASErS* will be successfully scaled to other Connecticut districts and perhaps beyond.

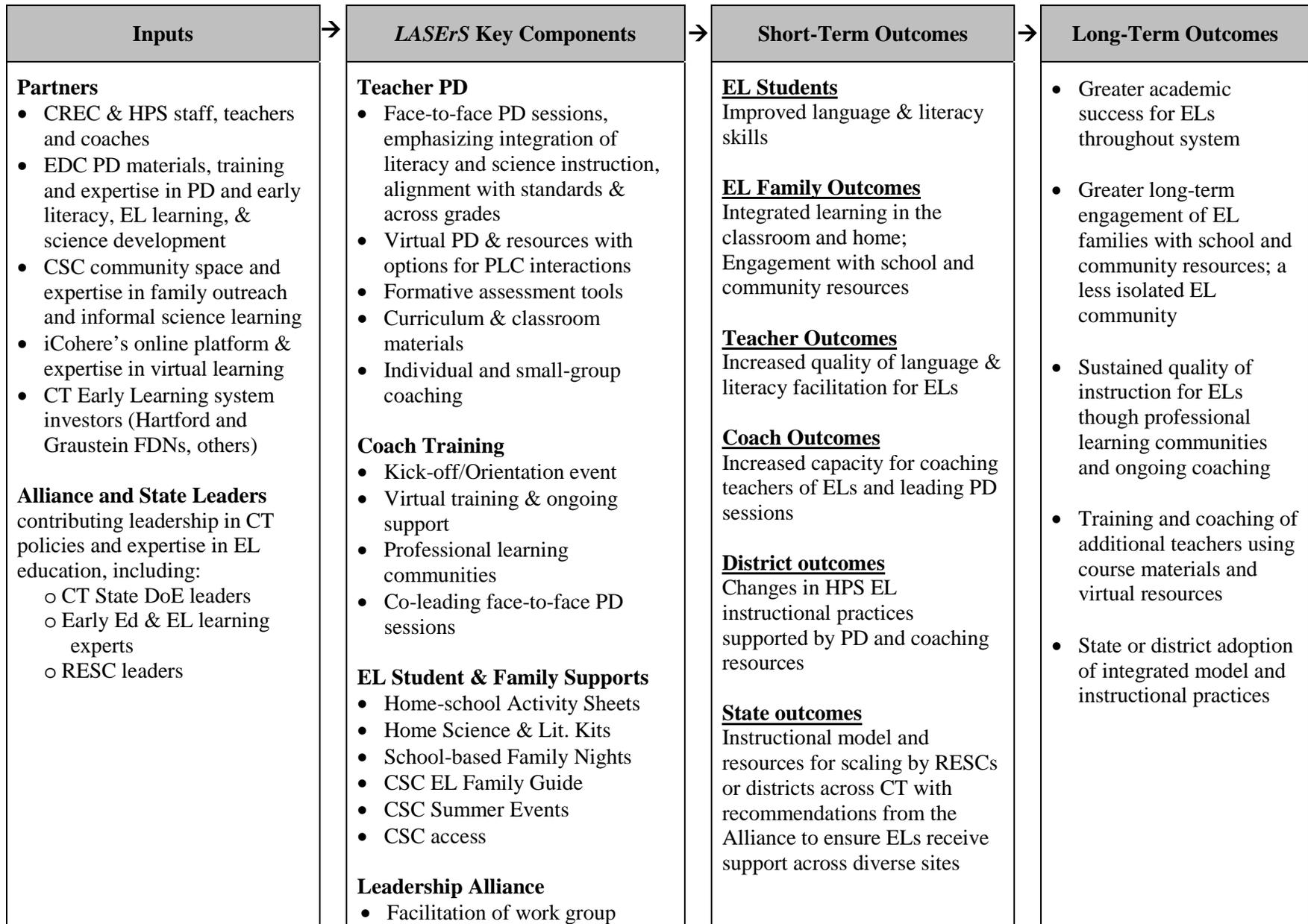
B. Project Design

1. Project Goals and Logic Model. *LASErS*’ overall goal is to harness the combined power of school, home, and community, and the engaging context of science, to bolster preK–G1 ELs’ language, literacy, and academic outcomes and to build system capacity within HPS to consistently utilize research-based literacy practices with ELs. Specific goals are to: 1) establish

a standards-aligned, cross-grade program of supports for preK–G1 ELs, integrated across school, home, and community contexts and across content domains; 2) build



system-wide capacity for supporting young ELs; 3) create a model and set of expert recommendations for supporting scalability statewide via CREC and five other RESCs. We will achieve Goal 1 (*integrated, aligned EL program*) through teacher PD and coaching focused on strategies for working with ELs and supports for EL families; Goal 2 (*increased system-wide capacity*) through training coaches to support teachers’ work with ELs and coaching resources; and Goal 3 (*scalable model*) through the Alliance’s support for *LASErS*’ adoption statewide. The Logic Model on the next page presents inputs, key components and goal-relevant outcomes.



2. Overview of Logic Model Inputs and Outcomes

Goal 1: Integrated, aligned EL program. Inputs: *LASErS* includes inputs that directly influence EL learning: families of ELs, teachers who work with ELs, and coaches who support teachers of ELs. HPS and CREC teachers and coaches will be trained to provide expert school-based EL literacy coaching. PD and instructional resources will be drawn from EDC's research-based programs in preK–G1 science and literacy, as well as effective practices proven to support ELs' language development (see Appendix D). Sources include: *FSL*; *Young Scientist Series*; *Insights*, an elementary hands-on inquiry science curriculum; *Technology-Enhanced Literacy Environment Enrichment Program*; and *Supporting Preschoolers with Language Differences*. CSC will provide expertise in family outreach and teacher PD from the informal learning perspective. Having extended its outreach to preK teachers through a previous collaboration with EDC, CSC will be a key partner in collaborating with the Family Engagement Specialist and in planning events at schools and the CSC. Outcomes: *LASErS* will directly produce short-term outcomes for project participants: ELs will gain language/literacy skills; their families will become more engaged in learning in multiple contexts; and teachers will demonstrate increased quality of language/literacy facilitation for ELs.

Goal 2: Increased system-wide capacity. *LASErS* will increase the system-wide capacity of HPS and CREC to support ELs through coach training. Inputs: By working with *LASErS* staff, HPS and CREC will co-deliver face-to-face PD sessions and acquire the capacity to deliver expert school-based and district-level EL literacy coaching to teachers, developing a sustainable support system for young ELs. EDC will provide its expertise in coach training, its research-based resources, and successful experience in developing and implementing effective literacy and science coaching for teachers (see Skiffington, Washburn, & Elliott, 2011). The use of an online

platform allows for scaling, enabling virtual training of coaches and virtual supports for teachers with features such as file and video sharing, virtual meeting spaces, threaded discussions, webinars, social media connections, and email push support. Outcomes: For HPS and CREC coaches, short-term outcomes will include an increased capacity for coaching teachers of ELs. At the district level, we expect short-term outcomes to include changes in HPS and CREC EL instructional practices, as supported by PD and coaching resources. We anticipate significant carry-over effects on other schools in the district given that participating coaches also work with other Hartford schools. Long-term outcomes include the sustained quality of instruction for ELs through PLCs and ongoing coaching, and the training and coaching of additional teachers using PD materials and virtual resources. Ultimately, we expect greater academic success for ELs across HPS and more EL families engaged with children's schools and community resources.

Goal 3: Scalable model. While the Alliance and partnering foundations will support sustainability across HPS (Goal 2), they will be particularly critical in maximizing *LASErS'* impact through state-wide scale up. Inputs: The Alliance members include key leadership staff from HPS and CREC, State Department of Education, the Connecticut Commission on Children, the RESCs; early EL education, literacy and family engagement experts; and the area's major early education investors including the Hartford Foundation and the Graustein Memorial Fund. Alliance members will have a multiplier effect on our resources, providing linkages to EL instructional supports and family engagement initiatives and enabling us to impact practices in other areas of the state and beyond. Outcomes: The Alliance will produce recommendations and supports to scale *LASErS'* model by RESCs and/or districts across Connecticut.

3. Description of Project Activities

Teacher PD. We will design and implement *LASErS* PD using a sequential phase-in model,

targeting 36 preK teachers in Year 1; 36 K teachers in Year 2; and 36 G1 teachers in Year 3.

Teachers will be recruited from 12 schools (10 HPS and 2 CREC), with an average of 3 teachers per grade level per school (see Appendix C for selected schools). Beginning with preK, *LASerS* PD will expand on proven strategies for supporting EL literacy through science and foreground the strategies in the face-to-face instructional sessions, onsite coaching, and online PLC and supports. The Alliance members with EL and PD expertise will contribute to the PD, reviewing and providing input on an annotated outline and first and final drafts of the instructor guide (agendas for face-to-face sessions, lecture content, scope and sequence of activities, handouts, teacher classroom-based assignments and rubrics, coaching protocols). We will seek input on the use of best practices for ELs, age appropriateness, and alignment across grade levels and standards, and will use this template to develop the K and G1 PD.

Teachers will participate in two modules (Physical Science and Life Science) across one school year, each consisting of four full-day, face-to-face instructional sessions (approx. 28 hours per module) that teach

strategies and practices through lecture and discussion, classroom video and analysis, and small group activities. Resources for supporting literacy through science exploration will include

Science Focus of each Module

Grade	Module 1 (Physical Science)	Module 2 (Life Science)
PreK	Exploring properties of matter through <i>water</i>	Discovering <i>characteristics & needs</i> of living things
K	Exploring properties, matter and forces through <i>building structures</i>	Discovering living things' <i>dependence on the environment</i>
G1	Exploring energy through <i>light and shadow</i>	Discovering <i>structure & function, variation & diversity</i> of living things

EDC's *Young Scientist Series* curriculum guidebooks (Chalufour & Worth, 2003, 2004, 2005) and classroom science materials (e.g., for life science, children's books about living things, science notebooks, hand lenses, terraria, plant pots, seeds). In individual- and small-group

meetings between sessions, coaches will build teachers' capacity to apply strategies introduced in the face-to-face sessions. We will also provide formative assessment tools to help teachers assess ELs' literacy needs and skills in relation to relevant CC standards. After teachers have received a year of targeted PD, they will continue to receive coaching and resources in subsequent years as they implement strategies to support ELs' learning (see timeline below).

	Academic Year			
	Jan–Sept 2015	2015–2016	2016–2017	2017–2018
PreK	Development	Teacher PD Coach Training Family Supports	Cont. implementation with coaching, Family Supports	Cont. implementation with coaching, Family Supports
K		Development	Teacher PD Coach Training Family Supports	Cont. implementation with coaching, Family Supports
G1			Development	Teacher PD Coach Training Family Supports

Teaching strategies and practices for supporting ELs' literacy will be presented in a format that reflects the four CC ELA strands detailed above. A review of the crosswalk created by the State Department of Education indicates that using this approach is ideal; the CC is eminently compatible with the CT ELDS for preK and with the new *PreK Dual Language Development Framework: Learning Progressions for Second Language Acquisition* (in progress). The CC also aligns with the Conn. State ELA Standards, and the Conn. ELL Framework (PreK–G2). In addition, *LASErS'* PD will be anchored in the core science concepts and practices found in the CT ELDS (preK) and NGSS and Conn. Core Science Content Standards (K–G1). We have intentionally chosen a sequence for introducing the four CC strands that maps effectively onto the modules' science topics, concepts, and processes; teachers will engage students to build literacy and science inquiry capacities—from foundational to complex—in conjunction with one another. This sequencing also makes explicit the links between language/literacy learning and

science inquiry. For example, “science talks” feature embedded strategies for supporting ELs’ speaking and listening; strategies for supporting ELs’ writing will be emphasized in the context of scientific representation and recording. Across grade levels, literacy goals for ELs will reflect their increasing competence and the progression of standards and frameworks. In preK, the emphasis will be on speaking and listening and language as foundational to emerging reading and writing. As students move into K and G1, the emphasis will shift to reading and writing. Throughout, teachers will also learn research-based strategies to support the literacy of ELs (e.g. restating/reframing, providing definitions in context, encouraging interaction between ELs and non-EL “language helpers”) and create classroom cultures that foster social relationships between ELs and their English-speaking peers that promote language learning (Hirschler, 1994; 2005) (see Appendix D for details).

To support teachers’ pedagogical approaches to integrating literacy and science learning (NSTA, 2009), we will develop protocols for small-group and individual coach

meetings, taking advantage of the approach used by CREC coaches who engage teachers in videotaping and reflection. At each face-to-face session, teachers will receive a classroom-based assignment asking them to move from theory to practice and apply what they have learned to their own classrooms (e.g., plan and facilitate a literacy-enriched exploration of water flow and assess student learning of key vocabulary). Coaches will provide guidance as teachers complete

How inquiry-based science supports literacy across the four CC strands

- *Speaking and Listening* – Science incorporates “accountable talk,” in which participants are expected to maintain joint focus on a topic, back up their claims with evidence, and be responsive to one another’s contributions.
- *Language* – Science language can be used for a variety of purposes, including asking questions, making predictions, describing observations, explaining procedures, making comparisons, identifying relationships and patterns, and expressing conclusions.
- *Writing* – Recording information during science explorations is critical for sharing observations and data with others and documenting evidence-based claims.
- *Reading* – Reading is fundamental for sharing science information, observations, and results.

assignments, reinforcing concepts and strategies from the face-to-face and online PD. This repeated process will develop teachers' capacity to effectively plan, facilitate, and assess ELs' science-related language/literacy learning. *LASErS'* online learning platform will provide multiple opportunities for teachers to deepen their learning. Teachers can access and analyze readings and videos of practice, share assignments and their own classroom videos for discussion and analysis, and engage in a PLC with *LASErS'* staff, coaches, and other teachers.

Coach training. Three coaches for each grade level will participate in training (9 total, with 4 from CREC and 5 from HPS). Building on CREC and HPS coaches' strengths and needs, we will develop virtual coach training and resources that feature: 1) *narrated webinars* on specific science/literacy topics relevant to coaching teachers around EL literacy in the context of science; 2) *virtual meetings* to share, co-view, and analyze classroom videos and practice reflection strategies; and 3) an *online library* of instructional materials and videos used in the PD and resource materials (e.g., structured planning and formative assessment tools). Through the PLC component, coaches will have opportunities to work and learn together with coaches from across Hartford, in different schools, and across different grades. A kick-off event at the CSC, held at the beginning of each year of targeted PD, will allow participating school leaders, coaches, and the *LASErS* team to meet, plan the coming year, and discuss adaptations for the subsequent years. The event will include training on EL teaching/learning and family engagement; an overview of modules for that year and related standards; support for the reflective approach to coaching; and an introduction to the iCohere platform and virtual training materials.

Family supports. The *LASErS* team will develop wraparound supports for EL families with input from the Alliance, which includes family engagement experts with deep understanding of our target community grounded in highly regarded family empowerment models (see commitment

letters from the Conn. Commission of Children and the Hartford and Graustein Foundations). These supports will foster integration of learning across school, home, and community contexts and will include home-school information/activity sheets that will help families engage with their children in fun science/literacy explorations, school-based family nights, home science and literacy kits, CSC summer events, and CSC EL Family Guides. All resources and events will seek to empower families to engage *with* their children in literacy-rich science explorations that dovetail with and reinforce their children’s classroom learning. To respond to the needs of specific EL populations, our Family Engagement Specialist will work with teachers and coaches to tailor family nights at each school, designing activities at each grade level to engage children and families in science explorations and related literacy activities. These events will be open to all participating ELs and their families—preK in 2015–16, preK–K in 2016–17, and preK–G1 in 2017–18—and will occur during module 1, between modules 1 and 2, and during module 2. Each family night team will begin with a brief orientation in English and Spanish; then families will go to their child’s classroom to take part in grade-level activities. Families will receive a “passport”—with pictures that represent the activities families can choose—and a bag to collect items for their home science and literacy kits at activity. For example, the life science kit might include books about living things in English and Spanish, bilingual instructions/DVDs on literacy enrichments, and assorted materials, including hand lenses, bug boxes, and seeds. Facilitators will support families’ engagement in activities, check off the activities on families’ passports, and give families their home science and literacy kit items. All family night events and kits will intimately connect to EL students’ current classroom learning. For example, during the K module on structures, children and families will enjoy several building challenges that engage them in exploring engineering concepts—an important component of the NGSS—in ways that

are developmentally appropriate and that emphasize language development. One challenge might be: “Can you build a bridge that will hold 5 toy cars?” Families might be asked to draw a plan for their bridge and talk about how they will build it before building and testing it together.

Summer CSC events, facilitated by the CSC team and Family Engagement Specialist, will be open to all participating EL families. Through activities supported by CSC staff as well as a CSC EL Family Guide, families will engage with interactive exhibits related to *LASErS* topics.

Written in English and Spanish, the Guide will include pictorial maps and exhibit information, tips and tricks for interacting with children around exhibits, information about what children can learn from exhibits, and how learning connects to children’s school and at-home learning. We will provide prompts and props to stimulate conversations and children’s reflection. We will also provide families with passes to visit the CSC during the year, and encourage use of the CSC EL Family Guide to support these visits.

Leadership Alliance. This group will meet quarterly—via three video conferences and one face-to-face event—to provide inputs, receive updates on project status, identify responses to challenges, and discuss adaptations to enhance and tailor *LASErS* for use in diverse contexts throughout the state. In Years 3 and 4, Alliance members will help plan half-day Knowledge Transfer events at CSC where the Alliance, *LASErS* staff, and representative participating EL families will share results, experiences, and lessons learned with other schools and districts to foster knowledge transfer and collect robust recommendations for scaling.

4. Potential Risks and Strategies to Mitigate Risks. Several factors pose risks to reaching our goals. First, successful recruitment and retention of teachers is essential. We will communicate regularly with CREC and HPS administrators to maintain coordination and ensure provision of support that teachers need to continue to participate. To address attrition, we will oversample

teachers at each grade level to ensure a final projected minimum sample of 30 teachers in each cohort (see Evaluation Plan). Second, although we chose a virtual training method for coaches to increase the efficiency of providing support at a distance and to enhance the sustainability of the coaching, we recognize that virtual learning might pose a challenge to coaches who are unfamiliar with related technologies. We will provide in-person support for using the iCohere platform at our kick-off events for coaches; give coaches supported opportunities to interact with the platform; and guide them through logging into the website, navigating to different resources, uploading videos, and using video conferencing. Finally, we acknowledge significant risks to family participation. ELs' families may not feel confident speaking English and may be reluctant to engage with a predominantly English-speaking school system. Our bilingual Family Engagement Specialist will reach out to families and maintain supportive relationships with them, using multiple methods of communication as necessary (phone calls, email, written communication), and working with teachers to identify family leaders at each school who can serve as a point of contact within their cultural community and translate for other families. The Family Engagement Specialist will also be present at all EL family events. Many families may also be limited in their ability to participate in events because of limited time, transportation access, and child care for other children. To address these issues, we will provide dinner at all family events, encourage siblings to participate, and the Family Engagement Specialist will troubleshoot transportation challenges, with access to funding to support needed transportation.

C. Management Plan

1. Timelines, Activities, Roles and Responsibilities, Milestones, Metrics, and Targets.

Below we present a timeline of management activities and a metric for their assessment (see pages 2–4 of Appendix J for an expanded, detailed Timeline with Milestones/Products).

Tasks	2015												2016												2017												2018											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Project Mgmt.	x	■																																														
Start-up/developmt	●																																															
Teacher PD								*											*												*													*				
Coach Training								+																																								
Fam. Supports								*											*												*													*				
Leadership Alliance								★											★												★													★				
Evaluation								◆																																								

Key: x-partner meetings ■-leadership team meetings ▣-sub team meetings ☑-annual report
 ●-planning/materials preparation ○-kick-off *-PD sessions +-coach training/support x-teacher coaching
 *-family school events *-CSC family event ★-annual LA mt. ★-LA mts ◆-data collection ◇-data analysis
 ◆-formative data reporting

The leadership team—LASErS key leaders from EDC, HPS, CREC, and CSC—will meet monthly. EDC staff will meet every other week. Other component-specific meetings will occur weekly, if not more frequently. The Alliance meetings will take place quarterly—three virtual and one in-person meeting. Each year, the evaluator will participate in the in-person meeting. Key staff and partners will attend the ED i3 meetings and be active in other i3 communities. With community partners (e.g., foundations, family centers, others), the PI and Project Director will hold quarterly conference calls. The evaluator will meet with the PI and Project Director monthly. All meetings will serve as vehicles to report and receive feedback on progress, identify challenges and problem-solve, review schedules and workplan details, and plan.

2. Commitment of Partners. LASErS has commitments from district and state education leaders and other partners as outlined below. In addition, the Yale Child Study Center will serve as external evaluator and iCohere Learning System will provide a technology platform.

Commitment letters in Appendix G outline mechanisms by which these partners will participate, including their contributions to cost-share, and how they will help align, maximize, and

coordinate activities with relevant community resources and initiatives to ensure we are building capacity to both sustain and scale the approach.

Building internal capacity to better serve EL learners and scale within partner organizations

HPS	10 HPS schools will serve as sites; HPS coaches will be trained to support the approach during and beyond the project.
CREC	2 CREC schools will serve as sites; its coaches trained to support approach during and beyond the project. CREC manages 10 Hartford preK–6 schools & provides PD/coaching to HPS.
CSC	CSC leadership and staff will contribute to PD, family engagement and knowledge transfer events. PD staff will be trained to support the approach during and beyond the project, impacting ongoing CSC offerings to families and schools through on-site and off-site programs.
RESC	RESC leadership will promote use of the approach and coaching/PD resources state-wide by all RESCs which support all school districts across Connecticut.

Leveraging project approach to scale beyond project partners

CT State Dept. of Education	Dianna Roberge-Wenzel, Chief Academic Officer and Myra Jones Taylor, Commissioner, Office of Early Childhood will coordinate project input from and sharing with state EL and early learning leaders to support scalability.
CT Comm. on Children	Elaine Zimmerman, Executive Director, will coordinate project input from and sharing with state EL and early learning leaders and family engagement initiatives to support scalability.
Hartford Foundation	Elysa Gordon will actively connect <i>LASErS</i> with early learning and family engagement initiatives serving EL students and families to encourage coordination with and use of resources during and beyond the life of the project.
Graustein Fund	WCGM will facilitate dissemination to the 52 CT communities it supports by building capacity to improve instructional practices and engage families in education for children 0–8.
EL and literacy experts	Experts will advise on approach, implementation and scalability. Linda Espinosa, Early Childhood Education Professor Emeritus, University of Missouri; Patrick Proctor, Assoc. Professor, Boston College; George Coleman, Former Acting Commissioner, CT Dept. of Ed.

3. Quality Control and Continuous Improvement. Upon notice of funding, all key partners will establish clear benchmarks and detailed indicators of success that reflect our agreed-upon goals and components. During its monthly conference calls, the leadership team will coordinate and manage the upcoming month’s activities and resolve any issues. Each call will begin by reviewing agreements made the previous month, soliciting feedback from staff about input from and activities with teachers, families, and community members, and discussing and adjusting activities to ensure activities and milestones are met. The evaluator will join calls quarterly to present and discuss evaluation data. We will use these data to make operational and managerial adjustments. Key points discussed and recorded after each call will serve as a record of progress.

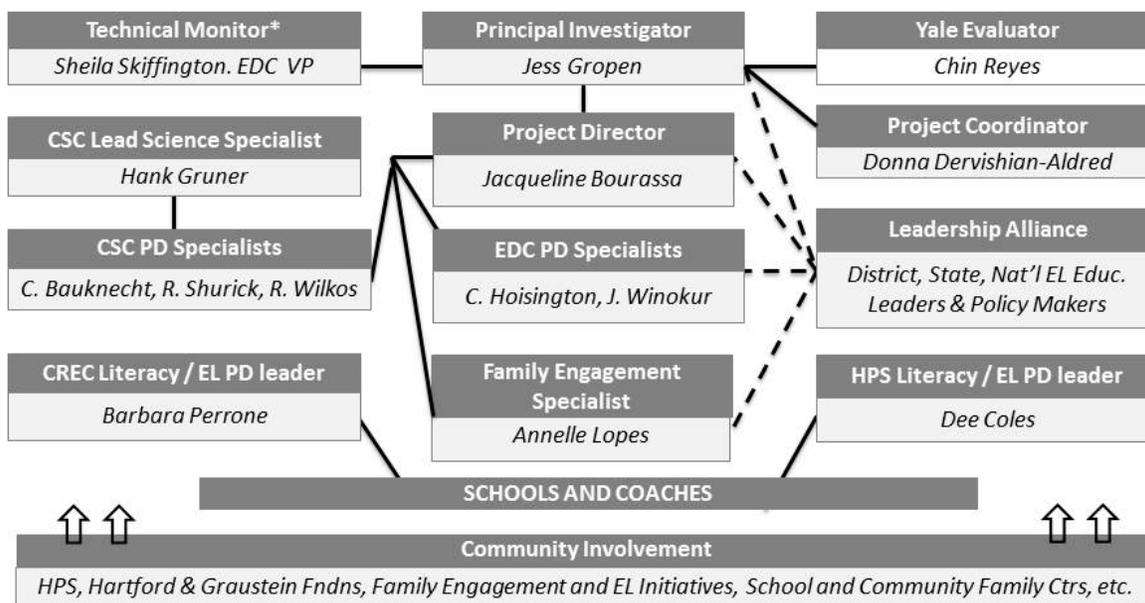
EDC brings long-standing success with monitoring technical and fiscal performance of all aspects of grants management by employing proven management and technologically advanced systems and approaches that enable us to plan effectively, resolve problems, and monitor performance and budgets to produce quality work, on time, within budget, and to high standards.

4. Personnel. Qualifications and roles of LASErS' team follows (see Appendix F for resumes).

Qualifications (Q) and Project Role (R)	
<i>Jess Gropen, Ph.D., Principal Investigator (35% time)</i>	
Q	10 yrs. experience leading large scale, similar efforts; extensive experience in teacher PD and in early literacy and early science education; decades of content knowledge in language acquisition and cognitive development
R	Oversee PD and subject area content; facilitate Leadership Alliance; interface with evaluator; produce reports; assume fiscal oversight; lead sustainability initiatives; access greater agency resources; lead key team meetings; engage with federal i3 leaders & grantees
<i>Jacqueline Bourassa, Ed.D., Project Director (55% time)</i>	
Q	30 yrs. language/literacy experience, extensive experience with EL, team leadership, & management experience; facility with CC State Standards, state early learning standards, & formative assessment; uses data for planning; 20 yrs. teacher PD & coaching; early grades teaching experience; managed/led large scale projects
R	Utilize meetings, management software tools, & clear management principles to oversee & guide team; work closely and coordinate with HPS, CREC, and CSC leads; oversee day-to-day operations & team meetings; lead community outreach; present project in the community; assist with reporting & fiscal management; work with foundations, donors, & Leadership Alliance
<i>Annelle Lopes, Family Engagement (FE) Specialist (50% Y1; 100% Y2-4)</i>	
Q	30 yrs. bilingual education experience; extensive experience working with families of EL students; family engagement experience; community involvement; curriculum planning
R	Coordinate FE activities; align/coordinate with other community FE activities; work with CSC; coordinate with schools' staff; support FE materials development; provide FE leadership
<i>C. Hoisington, M.Ed. (70% Y1-2; 60% Y3-4), J. Winokur, M.Ed., (25% Y1-2; 30% Y3-4)</i> <i>Professional Development Specialists</i>	
Q	Decades of preK–G1 content knowledge in language, literacy, & science; extensive EL experience; worked with hundreds of teachers & trained scores of coaches on research- & evidence-based teaching strategies proven to enhance EL & non-EL students' learning outcomes; experienced materials/PD developers; engaged families in promoting their children's school success; higher ed. & early ed. teaching experience
R	Design/conduct teacher & coach PD—preK & K (Hoisington), G1 (Winokur); co-lead PD with HPS-CREC staff; train coaches for alignment & platform use; coordinate with community; develop teacher & family materials; work with other community initiatives; coordinate with HPS & CREC point persons; contribute to report development
<i>Chin Reyes, Ph.D., Evaluator</i>	
Q	Experience leading large-scale evaluations and research of school intervention projects, data analysis and reporting & formative evaluations; design & lead data collectors training & collection efforts; experience in early education & family engagement; policy experience

R	Conduct all aspects of evaluation; attend annual Leadership Alliance meetings; provide PI with data & feedback; meet with <i>LASerS</i> key staff regularly; produce reports
<i>Hank Gruner, Lead Science Specialist, CSC Vice President</i>	
Q	Oversight & development of science education; successful cultivation of community work; supervision of staff; successfully secures resources; strong community & state relationships
R	Serve as CSC point person; direct science staff in <i>LASerS</i> project work; coordinate kick off meeting; support distribution of information/materials; provide science content knowledge; review& provide feedback on science materials; support EL involvement at the CSC
<i>Courtney Bauknecht, Rachel Shurick, Robert Wilkos, Science Specialists, CSC</i>	
Q	Science education program design; teacher PD; experience in delivering science education programs in HPS & CREC; materials and exhibit design; community involvement
R	Conduct teacher PD; contribute to design of teacher & family engagement materials; support family engagement activities; attend team meetings; support sustainability
<i>Dee Cole, HPS and Barbara Perrone, CREC—Early Literacy/Family Engagement Directors</i>	
Q	Decades of leadership in early education initiatives for their respective HPS & CREC; long standing commitment to early learning advancements; productive relationships with principals, teachers, and coaches; understanding of broader community initiatives; content knowledge in language/literacy; deep understanding of ELs’ needs and educational goals/benchmarks
R	Serve as point person in districts; work with principals; assign & oversee coaches; support PD implementation; assign co-leads to conduct PD; support school coordination & communication; distribute materials; provide evaluator with student assessment data; participate/contribute to team meetings; attend Leadership Alliance meetings; support scale up throughout HPS

Project Organizational Chart



*All EDC projects are assigned a technical monitor at no cost to projects to oversee implementation and ensure success. Sheila Skiffington will serve in this role.

D. Quality of Project Evaluation

The Yale Child Study Center will conduct a rigorous evaluation that will document the extent of *LASErS* implementation across 12 HPS and CREC schools, and identify the impact of *LASErS* participation on students, teachers, families, coaches, and the Alliance. The evaluation will employ a mixed methods design. Quantitative and qualitative data will be obtained from classroom observations, student achievement data collected from existing school records, online surveys, site visits, work samples, web analytics and observations of activity in iCohere, and interviews with families and the Leadership Alliance. Online surveys will be managed using the iCohere platform, making data collection and management more efficient. At the end of each program year, the evaluator will analyze impact and implementation of *LASErS*; explore how varying levels of implementation fidelity influence hypothesized outcomes; use findings to provide feedback to EDC; and document all aspects of the evaluation in a report.

1. Evaluation Questions. The evaluation will address these impact, implementation fidelity, and exploratory questions: ***Impact.*** (1) Does *LASErS* participation result in: (a) increased quality of teachers' language/literacy facilitation?; (b) improved language/literacy proficiency and achievement for ELs?; (c) increased capacity for coaching teachers of ELs?; and (d) greater integration of learning in the classroom and home and greater engagement with school and community resources? ***Implementation fidelity.*** (1) What is the level of implementation fidelity among the different stakeholders?; (2) In what ways does *LASErS* implementation differ within and across the 12 schools?; and (3) Does implementation fidelity moderate the program's effects on hypothesized outcomes? ***Exploratory.*** (1) Does increased quality of language/literacy facilitation mediate the association between *LASErS* participation and language/literacy

proficiency and achievement?; and **(2)** Is the association between *LASErS* participation and language/literacy outcomes more pronounced for ELs than non-ELs?

2. Sample. PreK, K and G1 classrooms from 10 Hartford and 2 CREC schools will participate in *LASErS* (~3-4 classrooms/grade level/school, ~30% ELs, ~3 coaches/grade level/school) using a sequential phase-in model. In the 2015–2016 school year, *LASErS* will begin to be implemented in preK classrooms, with a total of 36 teachers (classroom) and roughly 288 ELs participating in the program (Cohort A). In 2016–2017, *LASErS* will be implemented in preK (Cohort B) and K classrooms, with an estimated 69 teachers and 552 ELs (assuming 10% attrition rate for continuing teachers). In 2017–2018, *LASErS* will be implemented in preK (Cohort C) to G1, with an estimated 99 teachers and 792 ELs (again assuming 10% attrition rate for continuing teachers). Because there is no random assignment, a comparison group of students will be created by collecting student achievement data from approximately 288 students at each grade level in the classrooms of participating teachers in the year prior to the implementation of *LASErS*—spring 2015 (preK), spring 2016 (K), and spring 2017 (G1) (see timeline).

		Jan – Sept. 2015	2015–2016	2016–2017	2017–2018
Teachers	PreK	<i>(Baseline)</i>	<u>Time 1</u> N=36	<u>Time 2</u> N=33	<u>Time 3</u> N=30
	K		<i>(Baseline)</i>	<u>Time 1</u> N=36	<u>Time 2</u> N=33
	G1			<i>(Baseline)</i>	<u>Time 1</u> N=36
<i>LASErS</i> Total			N=36	N=69	N=99
Students	PreK	<i>(Comparison Cohort)</i>	Cohort A N=288	Cohort B N=264	Cohort C N=240
	K		<i>(Comparison Cohort)</i>	Cohort A N=288	Cohort B N=264
	G1			<i>(Comparison Cohort)</i>	Cohort A N=288
<i>LASErS</i> Total			N=288	N=552	N=792

3. Measures. For a complete description of measurement tools, see pages 5–6 of Appendix J.

Outcomes. To assess quality of language/literacy facilitation, each spring, trained observers will observe randomly selected classrooms (1 classroom per grade) in each school using the *Early Language and Literacy Classroom Observation (ELLCO) Toolkit Pre-K* and *ELLCO K–3* (Smith et al., 2002; Smith et al., 2008). To assess student achievement, the evaluator will collect teacher ratings of preK performance using the Connecticut *Preschool Assessment Framework (PAF)* (Connecticut State Board of Education, 2008) and K–G1 student performance using the *Developmental Reading Assessment (DRA2)*, obtained from the HPS Office of Research and Assessment. To assess increased capacity for coaching, coaches will rate themselves on the *Perceived Efficacy in Coaching Scale* (to be developed) and program staff will rate coaches (scale to be developed). To assess family outcomes, the evaluator will interview families by phone using items to be adapted from the *Family Involvement Questionnaire* (Fantuzzo, Tighe, & Childs, 2000). Families will rate how frequently they engage in language/science activities with their children (including at home, school, and the CSC).

Implementation fidelity. Evaluations of school-based programs (Durlak & DuPre, 2008; Reyes et al., 2012) indicate 5 dimensions for assessing implementation fidelity: *adherence* (compliance), *dosage* (quantity), *quality of delivery*, *participant responsiveness*, and *program differentiation* (compared to other programs and practices in the school). Each dimension will be examined across different stakeholders at the end of each academic year (see page 6 of Appendix J). Teacher and coach implementation will be assessed using data from online surveys and supplemented by data from site visits, web analytics, and video observations using the iCohere platform. Family implementation will be assessed using data from “passport” samples, observations during family events, and on-site focus groups. Finally, the Alliance members will

be interviewed at the end of each program year to assess progress in the process of planning for scale-up of the program.

4. Analysis Plan

Analyses of impacts. To estimate the impact of *LASErS* participation on language facilitation, the evaluator will compare baseline *ELLCO* scores, collected previous to *LASErS* implementation at each grade level, with end-of-year *ELLCO* scores during implementation, adjusting for teacher background characteristics. Qualitative data from site visits, interviews, and teacher and coaches' reports will be used to complement and enrich quantitative findings. To assess impacts on coaches and EL families, pre-post comparisons on the surveys will be made at the end of each year. With respect to *LASErS*' impact on student achievement, analyses will be conducted separately for each cohort and separately for only ELs and for all students. Analyses will involve hierarchical linear modeling procedures (HLM) (Raudenbush & Bryk, 2002) by nesting students within teachers, with *LASErS* participation estimated at the teacher level (classroom- and student-level covariates will be added to the models). With an estimated 99 classrooms ($\sim N=2,000$ students) by the end of the project period, $MDES=.21$, assuming $\alpha=.05$, $R^2=.35$. Data from family interviews will be used to enrich findings.

Analyses of implementation fidelity. The evaluator will use multiple methods to assess implementation fidelity. Prior to implementation, the program development team will determine thresholds. A summary of the level of, and variation in, implementation fidelity across different key players will be documented (Implementation Questions 1&2). Findings will be shared with the *LASErS* team to guide improvements to the model. To quantitatively assess if variability in the level of implementation fidelity moderates *LASErS*' effects on primary outcomes of interest (Implementation Question 3), an omnibus measure using key items across various dimensions of

implementation fidelity will be generated using Rasch analysis (O'Donnell & Lynch, 2008). This technique allows investigators to distinguish between classrooms which may have the same total fidelity score but have two very different profiles. Qualitative data will be transcribed, segmented, and coded, applying the constant comparison method (MacQueen et al., 2008; Glaser & Strauss, 1967).

Analyses of exploratory questions. Multilevel mediation analyses described in Zhang, Zyphur, & Preacher (2009) will be applied to test how improved teacher instructional practices promoting language (Level 2) mediate the association between teachers' *LASErS* participation (Level 2) and students' language/literacy outcomes (Level 1). To test if the association between *LASErS* participation (Level 2) and language/literacy outcomes (Level 1) is more pronounced for ELs than non-ELs, cross-level interactions (*LASErS* x EL) in HLM will be examined.

5. Evaluation Resources. The evaluator is based at Yale Child Study Center, home to some of the world's leaders in early childhood development and education. The Center is known for its work on parenting programs, educational achievement, and community mobilization around the importance of preschool and early education. The Center has its own dedicated team of IT professionals, with additional services and support from the university-wide IT department available as needed.

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