U.S. Department of Education

Washington, D.C. 20202-5335

APPLICATION FOR GRANTS UNDER THE

NATIONAL PROFESSIONAL DEVELOPMENT PROGRAM
CFDA # 84.365Z
PR/Award # T365Z110010
Grants.gov Tracking#: GRANT10861300

Closing Date: MAY 09, 2011

Project Abstract

Name of IHE: Brown University

Title of Program: Project Apprentice

Consortium Partner: Rhode Island Department of Education

Project Description: The goal of Project Apprentice is to increase the capacity of Rhode Island's middle school Science, Mathematics, and Technology teachers to deliver high quality instruction to secondary level English learners. Through intensive and rigorous academic work and coaching in the areas of second language development, reading and writing across Science, Mathematics and Technology areas, and the use of data to inform instruction, the project will enhance the capacity of its 20 participants to address the academic needs of ELs in their classrooms and will prepare them to provide leadership in the area of EL education in their schools, districts and the state.

Project objectives	Activities	Outcomes/Outputs
1. To recruit twenty urban middle school teachers who (A) teach Science, Math, and/or other STEM related technical courses such as computer science, engineering/science technologies, and health/science technology; (B) have a Bachelor's Degree with concentration in the Math, Science, and/or Technology areas; (C) are fully employed as teachers at a middle school.	Collaborate with the RIDE to identify middle schools in greatest need of PD for teaching ELs. Identify and select STEM teachers Guide teachers in the application process	Recruit Cohort I in the fall of 2011 and Cohort II in the fall of 2013. Each cohort consists of 10 STEM middle school teachers
2. A cadre of 20 lead teachers will: (A) complete a Masters degree in ESL and Cross-Cultural Studies at Brown; (B) receive ESL endorsement from the Rhode Island Department of Education for "subject area content area teachers."	Document teacher completion of seven graduate courses. Document application for endorsement. Document coursework connection to science, mathematics, and technology. Document that teachers applied data-driven instructional strategies in course activities.	20 STEM teachers receive a Masters in ESL and Cross-cultural Studies and ESL endorsement for "subject area content teachers" from RIDE

Project Apprentice Narrative

(a) Quality of the project design

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

Brown University's Masters Degree Program in ESL and Crosscultural Studies is fully institutionalized, but funding to cover tuition costs and support professional development activities remains a critical need in the state. Project Apprentice supports Brown University's commitment to improve the instruction of middle school level English learners (ELs) in Math, Science and STEM related areas, with the articulated need of our collaborating agency, the Rhode Island Department of Education (RIDE).

Thirteen urban middle schools (grades 6-8) in Rhode Island (RI) serve the majority of students with a second language background in the state. The percentage of students with free and reduced lunch at these schools ranges from 58 percent to 95 percent. Eleven of these middle schools have a Latino student population that ranges from 54 to 73 percent of their total population. According to OCR data ELs are severely under-identified and underserved in these schools. Regardless of need, students who are transitioned into general education receive no additional second language acquisition support. RI urban middle schools also serve students from Southeast Asian countries (5%) as well as refugees from Iraq, Liberia, and Somalia. These students face great struggles as they try to adapt to the American school system.

Students from all of these backgrounds continue to be underrepresented in high level math and science classes as well as other STEM related courses. Through targeted professional development for bilingual, ESL and general education content area teachers,

and instructional audits at the request of states and municipalities, Project Apprentice's faculty have been able to fully document the paucity of qualified content area teachers who work with ELs. This situation is particularly acute in poor, urban areas where Latino students and other ELs are among those least represented in rigorous math, science, and STEM related classes.

Unless this situation is addressed at the middle school level, middle school ELs will continue to be unable to participate in high school classes that lead to successful college and career paths. Advanced Placement (AP) and high-level math courses in high schools continue to show the most severe racial and ethnic gaps in STEM classes (Reigle-Crumb & Grodsky, 2010). ELs are less likely to enroll in specialized STEM courses in high school despite the fact that this content is more accessible to ELs than that of humanities classes (Gandara, 2006). These inequities are linked to the lack of opportunities to learn prior to high school enrollment.

Brown's proposal will address persisting inequities in rigorous math, science, technology and STEM-related courses for ELs. The roots of these inequities are to be found in several factors. Generally, STEM curricula are not culturally and linguistically responsive to ELs, as STEM pedagogy still favors White male students. STEM courses are by nature high level; in many locations there is a lack of qualified teachers in STEM. Those teachers who are qualified to teach STEM courses may not be able to recognize the resources for learning that ELs bring to STEM and may perceive developing English proficiency as a deficit in learning. Differential enrollment of ELs in STEM courses reduces ELs' opportunities to meet related college and career ready standards. ELs' lack of positive experiences with STEM may generate poor attitudes toward STEM fields.

The stakes are rising for all students, but especially for ELs. Starting with the Class of 2012, RI high school seniors will have to meet new academic requirements for graduation. Students will be expected to take algebra I, algebra II, and geometry. Math courses that do not prepare students for college-level work have been phased out. Students will also be required to take a lab-based science course and take science courses in a particular order: biology, chemistry, and physics. If they are not introduced to high quality instruction in these disciplines in the middle school their chances of being placed in rigorous classes in high school are eliminated.

RI will implement several initiatives under RttT. Among these initiatives is a commitment to "ensuring effective teachers and leaders in all RI classrooms and schools. The state will make significant investments in professional development for teachers and school leaders in the areas of standards, curriculum alignments, and data driven instruction.

The goal of Project Apprentice is to increase the capacity of Rhode Island's middle school Science, Mathematics, and Technology teachers to deliver high quality instruction to secondary level English learners. Through intensive and rigorous academic work and coaching in the areas of second language development, reading and writing across Science, Mathematics and Technology areas, and the use of data to inform instruction, the project will enhance the capacity of its 20 participants to address the academic needs of ELs in their classrooms and will prepare them to provide leadership in the area of EL education in their schools, districts and the state.

This project addresses the following priorities: Competitive Priority 2: Enabling More Data-Based Decision Making; and Competitive Preference Priority 3: Promoting

Science, Technology, Engineering, and Mathematics (STEM) Education. It is a high-quality professional development project that will contribute to the RIDE effort to increase the availability of teachers who can provide high-quality instruction to ELs. There is ample documentation to show that Black and Hispanic students who complete high-level classes in mathematics and science, particularly in calculus, chemistry and physics, are more likely to pursue STEM degrees in college than their White counterparts (Tyson, Lee, Borman, & Hanson, 2007).

To achieve its goal, **Project Apprentice** will meet the following objectives:

Objective 1: To recruit twenty urban **middle school** teachers who (A) teach Science, Math, and/or other STEM related technical courses such as computer science; (B) have a Bachelor's Degree with concentration in the Math, Science, and/or Technology areas; (C) are fully employed as teachers at a middle school.

Objective 2: A cadre of 20 lead teachers will: (A) complete a Masters degree in ESL and Cross-Cultural Studies at Brown; (B) receive ESL endorsement from the Rhode Island Department of Education for "subject area content area teachers."

Objective 3. To document the delivery of high-quality, rigorous instruction to ELs in STEM areas through (A) classroom observations with an observation protocol; (B) pre and post observation consultations and coaching; (C) a teacher portfolio of lessons and units adapted for ELs; (D) improvements in EL student achievement; (E) increased access and participation of ELs in STEM classes.

Objective 4. To assist the cadre in the successful completion of a leadership project in their schools and districts that addresses the education of ELs by (A) creating a professional development module that encompasses the material of the Masters program;

(B) presenting the project before a peer group in their schools and the project faculty; and (C) posting the project on the Education Alliance's professional development website and RIDE'S website for Promising Practices in the Education of English Language Learners.

To meet its four objectives, Project Apprentice is composed of four distinct components: Recruitment, Coursework, Coaching, and Development of a leadership project for dissemination to RI teachers.

Component 1: Recruitment of Math, Science and Technology teachers

Project Apprentice will recruit two 10-member cohorts of Math, Science, and Technology **middle school** teachers. Candidates must be highly qualified in their content areas. They must also be fully employed as teachers by a RI urban middle school.

Upon notice of award, the project director will confer with RIDE staff to determine which of the 15 middle schools in the RI urban core (Providence, Pawtucket, Central Falls, and Woonsocket) should be approached first. Once the schools are identified, Project Apprentice's staff will convene a meeting with RIDE staff, targeted superintendents and middle school administrators from the districts to revisit the project goals and plan for the recruitment of the first cohort group of ten STEM related lead teachers. District-level administrators and principals will assist in the recruitment process. Project staff will encourage a wide pool of applicants that includes representation of the demographics of the schools. The second cohort group will be selected using the same process in the fall semester of the third year of the project.

The project recruiting team will interview all the applicants who meet the criteria (BA in STEM related area, full employment in a HS), review their academic and professional status credentials, and select a slate of applicants for admission to Brown

University's Graduate School of Education. Project faculty will assist them in applying to the Brown Graduate School for admission in January of 2012. Even though Brown is an Ivy League institution that holds very high standards for admission into the graduate school, there has never been one candidate who after going through this rigorous screening has been denied admission. The Project Director will enter into a memorandum of agreement with each teacher stating they intend to participate in all of the project's activities and meet all of its requirements. Each candidate's standing in the program will be reviewed bi-annually.

Component 2: Project Apprentice will develop the cadre's expertise and leadership in EL education. Each participant will complete a Masters degree in English as a Second Language Education and Cross Cultural Studies at Brown University over a two and one-half year period. This timeframe allows fully employed teachers sufficient time to complete the program and to develop expertise and comfort in applying the Masters content. The first cohort of 10 candidates will participate in the Masters program from Spring 2012 to Spring 2014, and the second cohort will participate from Spring 2014 to Spring 2016.

To earn the Masters degree, each candidate must obtain 8 credits. In Project Apprentice, candidates will complete a sequence of seven graduate courses at Brown designed to provide the most recent knowledge of language and literacy theory and its methodological application in the education of middle school ELs. Each candidate will be allowed to transfer the eighth credit from another institution. The eighth credit will be in their content area to reflect current knowledge of the content area. If they do not have a credit to transfer, project staff will help them obtain graduate credit for the project's

professional development activities.

All courses will model educational strategies that support adult learning and address diverse teaching and learning styles, allowing candidates to experience the benefits of cooperative learning, peer tutoring, and student-centered learning in their own graduate program.

Courses will require students to learn about the use of data-driven instruction. Assignments in each course will require the use of quantitative and qualitative data to inform instruction. Teachers will use data tools to:

- learn who their ELs are
- learn about their ELs' resources for learning and the need to differentiate instruction
- gauge the effectiveness of their STEM-related instructional activities and lessons
- practice using ELs' achievement data from the ACCESS Test (RI's test for English proficiency) and NECAP (New England Common Assessment Program) to modify and enrich their curriculum
- analyze test items for linguistic and cultural implications
- look for biases in instruction, assessment and curriculum
- evaluate instructional interventions for their appropriateness for ELs.

Every course will organize participants into a learning community in which they observe, reflect, write, learn by doing, assist each other, collaborate, and articulate their own teaching and learning. For each course, each participant will fulfill the general requirements of the course and complete a classroom-based project, applying the

knowledge and skills learned in the course. These projects, each requiring 20 hours of work with ELs, will integrate language, literacy, and subject-area content. A short summary of each of the required courses follows.

Course: Theories in First and Second Language Acquisition introduces seminal and current research on ways languages are learned. The course presents studies exploring how learner characteristics, social contexts, and learning conditions affect the language acquisition process and the implications for teaching English to adolescent ELLs. Course activities will center on the acquisition of academic language within the STEM areas. Participants will use data tools to learn about their ELs.

Course: Language, Culture, and Society investigates the meanings of and interrelationship among language, culture, race, gender and ethnicity. The course explores the development of cultural competence for all members of the high-school community as a means of engaging the whole school in the education of ELs. Course participants will learn to infuse activities into their STEM lessons that make them more culturally responsive to the diversity of the learners. Participants will use data tools to evaluate a curriculum or instructional intervention for cultural relevance and appropriateness for ELs. In the process, the course expands the participants' cross-cultural communication skills, and helps them to develop an understanding of the relationship between culture and learning.

Course: Literacy Theory, Practice, and Current Issues for Middle school ELs presents the latest research-based theory and practice related to adolescent reading and writing in a second language. The course focuses on learning to read and write in English for STEM courses, and reading and writing to learn STEM content in English. Oral discourse and

rhetorical conventions of various languages and cultures are examined and implications for instruction of adolescent ELs are explored. Participants will use data tools to examine their ELs' literacy levels in English and, if appropriate, in the native language. They will collect, analyze and use data to assess the effectiveness of classroom interventions targeting ELs.

Course: Applied Linguistics for Teachers of Adolescent ELs offers an introduction to fundamental linguistic theory with a focus on the linguistic development of bilingual adolescents. The course explores psychological, cognitive, psycholinguistic, and socio-linguistic developmental stages as they affect the acquisition of a second language. The features and functions of language are described and applied to EL contexts with detailed examples used to illustrate specific language constructions and how they contribute to students' linguistic skill in STEM. Participants will analyze multiple samples of students' work to practice applying the course's content in realistic tasks.

Course: Integrating Content, Language, and Literacy in Middle School Curriculum focuses on applying language and literacy theory and methodology to the curriculum development process, so that Common Core Standards, English language proficiency standards (i.e., WIDA standards) and literacy standards and requirements are aligned to create an enriched, integrated curriculum for middle school ELs. Participants will practice aligning their lessons with English language proficiency standards and strategies to reach every EL in their classrooms. They will practice using data from the ACCESS and NECAP tests to guide them in modifying lessons, and to assess the effectiveness of their practice.

Course: Assessing Content, Language, and Literacy of Middle School ELs focuses on

classroom assessments that provide teachers with data they can record, analyze, and use to inform decisions about future lessons and to differentiate instruction appropriately. During this course participants learn about large-scale and formative assessments as they relate to EL education. Participants also analyze test items from large-scale assessments to identify linguistic and cultural implications leading to flawed interpretations of ELs' abilities and potential for learning. The course introduces a variety of formative assessment methods designed to enable ELs at various English proficiency levels to show what they have learned. Participants practice using multimodal, dynamic types of assessment to create more realistic profiles on their ELs and to be able to gauge instructional practice.

Course: The Research Seminar helps teachers recognize that the skills of research are central to the educational model of reflective practice. In this course, teachers learn to conduct research on their own practice by designing and implementing a study in their own classrooms. Becoming a part of the intellectual conversations of one's field by reading other people's research and conducting one's own are rewarding forms of professional development. In this course, we use research methods appropriate to the critical analysis of the teaching and learning processes in educational settings. In particular, the course will emphasize the methods and methodologies (e.g., the use of various types of data to inform instruction, logic models, etc.) appropriate for "teacher research" or "action research" as a means of creating educational change.

Component 3: Classroom Observations and Coaching/Consultation

The purpose of this component is to document the delivery of high-quality, rigorous instruction to ELs in STEM areas through (A) classroom observations with an

observation protocol; (B) pre and post observation consultations and coaching; (C) building of a teacher portfolio of lessons and units adapted for ELs; (D) documentation of improvements in EL student achievement; (E) documentation of increased access and participation of ELs in STEM classes.

Twice each semester Project Apprentice's staff will visit each participant at his/her school. Visits will entail a classroom observation and individual consultation for each participant. For each visit staff will observe classes using a protocol designed with the content area in mind and with a focus on the most recent course content. The purpose of the observations will be to explore the extent to which the project's material is being implemented and how implementation could be strengthened. Individual consultation between staff and participants will take place before and after observations to set goals and expectations and to provide feedback, recommendations and resources. Staff will offer assistance with using data to plan instruction, differentiating within the lesson, and extending lessons. Staff will assist participants in building a portfolio of lessons and activities, and collecting documentation of ELs' progress in accessing and achieving in STEM related courses. These data may contribute to course projects.

Component 4: The purpose of component four is to assist the cohorts in the successful completion of a leadership project in their schools and districts that addresses the education of ELs by (A) creating a professional development module that encompasses the material of the Masters program; (B) presenting the project before a peer group in their schools and the project faculty; and (C) posting the project on the Education Alliance's professional development website and RIDE'S website for Promising Practices in the Education of English Language Learners.

This component provides the link between the Masters program, the classroom, and the school community. The courses offer the content and theoretical background. The application activities integrate content with language and literacy strategies for EL success. This supplies participants with the knowledge and skills required to translate research into practice, including how to design standards-based STEM lessons that integrate academic language with rigorous content. The leadership project is required for graduation and requires teachers to prepare a professional development module that integrates the knowledge and skills acquired during five semesters of study. This project will be reviewed by a committee of peers and faculty, and presented to their school community. A final step will be the review by a joint team composed of Project staff, RIDE and peers who will decide on which projects meet the criteria of rigor, usefulness and relevance to be posted online for the use and consultation of other teachers in the areas of STEM.

(a)(2) The design of the proposed project reflects up-to-date knowledge from research and effective practice.

The National Staff Development Council's (NSDC) Standards for Staff Development call on schools to organize adults into learning communities to improve the learning of all students (NSCD, 2001). In policy statements The National Science Teachers Association (2009) and the National Council for Teachers of Mathematics (2008) both recommend that professional development programs for all science and math teachers focus on pedagogy for English learners (ELs). School principals identify professional development and effective instructional strategies as the most important factors in the success of their ELs (Rivera, et al., 2010).

A 2009 NSDC report on what research has revealed about professional learning, several key issues emerged. Sustained, intensive professional development for teachers is related to student achievement gains. Collaborative approaches to professional development can lead to change beyond the scope of the classroom. Effective professional development is intensive, ongoing, and connected to practice, focusing on the teaching of specific content areas (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

Echevarria and Short (2010) have identified eight critical elements of teacher training for ELs: theoretical knowledge; instructional strategies; lesson planning; modeling; guided practice; in-class coaching and feedback; independent practice, analysis, and reflection; and agreed-upon practice and terminology among peers. The National Education Association (2011) maintains that general education teachers of ELs need practical, research-based information, resources, and strategies, with a focus on several essential components: 1) lesson planning and instruction built on high standards for English language acquisition and academic content; 2) integration of academic content and English-language proficiency objectives into instruction and assessment; 3) effective pedagogy -- teaching methods and assessments specifically for ELs; 4) methods to ensure academic instruction in English is meaningful and comprehensible to ELs; 5) strategies to integrate language acquisition and academic content; 6) practice using multiple approaches to instruction; 7) tools to enhance and improve instruction for ELs, based on assessment results; 8) understanding and appreciating students' different cultural backgrounds.

Crandall (2011) found that most mainstream teachers need knowledge of how

students acquire first and second language and literacy, and of cross-cultural differences in communication. Teachers also need skill in adapting instruction to multiple English proficiency levels, in assessing learning in multiple ways, and in conferring with parents who may not speak English well and whose expectations may differ from their own.

Several instructional practices have been found to be effective in developing secondary EL language and literacy. Especially important is teaching content with a focus on academic language functions, the linguistic skills an individual needs to accomplish specific tasks (Dutro & Kinsella, 2010). Such academic functions include presenting logical arguments, analyzing, evaluating alternatives, justifying, synthesizing and integrating information, giving and following complex instructions, hypothesizing, and questioning. Other effective instructional practices include: integration of oral language and literacy skills into instruction (Genesee et al., 2006); explicitly teaching the processes and strategies of reading and writing for academic purposes (Ferris & Hedgcock, 2005; August & Shanahan, 2006; Francis, Rivera, Lesaux, Keiffer, & Rivera, 2006); instruction targeted to academic language (Francis, et al., 2006, p. 13); frequent opportunities to engage in academic talk (Francis, et al., 2006); building on ELs' funds of knowledge (Moje et al., 2004); and using technology to enhance language and literacy acquisition (Kamil, Intrator, & Kim, 2000). Dutro and Kinsella (2010) have identified instructional features beneficial for building EL language and literacy: a strong emphasis on vocabulary, attention to how to use vocabulary in correct sentences (syntax), scaffolded note-taking, and supported opportunities for purposeful, oral communication. Sheltered Instruction promotes the use of graphic organizers, hands-on cooperative learning, activities that teach signal words and text features, and vocabulary development

through discussion (Echevarria, Vogt, & Short, 2008).

Teaching specific reading and writing strategies is beneficial to ELs (Shanahan & Beck, 2006). Of critical importance is instruction in specific genres students need for academic and occupational purposes (Hyland, 2004). Showing the relevant features of text in specific genres helps ELs in comprehension, analysis and composition. Teacher feedback on student writing is most successful for EL adolescents when it is specific, identifies examples from the student's writing, and uses indirect error correction which requires the student to correct the error (Ferris, 2002).

ELLs are a heterogeneous group; instruction must be designed to take differences into account (August & Erickson, 2006). Teachers' expectations for students with differing levels of English proficiency, and the instructional approaches aligned with these expectations, often leads to instructional practices that pose little challenge (August & Erickson, 2006) which may impede literacy development.

ELLs need multiple options for showing what they have learned. *Double the Work* (Short & Fitzsimmons, 2007) recommends multiple measures to assess ELs' knowledge. Accommodations for ELs during formal assessments have been shown to yield more accurate representations of student knowledge. Data recording, retrieval, and analysis systems should be in place to provide opportunities for using assessment data to inform instruction.

(b) Quality of project personnel.

In the recruitment and employment of individuals through Brown University, Project Apprentice will ensure that procedures for the selection of personnel follow federal and state rules and regulations without regard to race, color, national origin,

gender, age, or disability. Equal opportunity employment is an explicit policy at Brown, including women and minorities in all aspects of University activities. The University has identified and adopted specific procedures to avoid discriminatory behavior and promote inclusion. These policies and practices will guide the project in its recruitment efforts.

(1) The Principal Investigator and Director position requires experience in program development and supervision, as well as deep knowledge of the research in EL education. The Principal Investigator will provide oversight of all facets of the project; serve as liaison to Brown University, RIDE, and LEAs; and teach two courses per year. Dr. Maria Pacheco is highly qualified to serve as Principal Investigator and Director, through her expertise in current research in EL education, her career as an Assistant Professor at Brown University, and her 25 year experience in personnel supervision, budget management, evaluation, and collaboration with RIDE and RI LEAs as Director of Equity and Diversity Programs at The Education Alliance. She holds masters degrees in Bilingual/Bicultural Education and in School Administration, and a doctorate in Leadership in Schooling.

The Assistant Project Director position requires successful experience in educational program management and teacher professional development, as well as deep, extensive knowledge of current research and best practice for EL education. The Assistant Director will supervise project personnel, oversee the budget, translate research on instruction of ELs into syllabus design, provide academic advising to participants; teach two courses per year; and supervise final projects. Sara Smith is highly qualified to serve as Assistant Director. In her 30-year career as director of educational programs, adjunct lecturer at Brown University, and successful professional developer for teachers

of ELs, Ms. Smith has developed extensive expertise as a highly effective trainer of educators. Ms. Smith holds a masters degree in ESL Education and Cross Cultural Studies.

(2) Key Personnel: The Program Specialist will visit each project participant twice each semester to observe classroom practice. Using an observation protocol designed to collect data on the application of key knowledge and skills in classroom instruction, the Program Specialist will hold a pre-observation conference with the participant to clarify the objectives of the observation, observe instruction for one class period, and hold a post observation conference, reflecting with the teacher and giving feedback. The Program Specialist will enter data collected into the project database. Donalda Silva is highly qualified to serve as Program Specialist. She has over 20 years experience in public school programs for ELs, and several years experience coaching secondary content area teachers and collecting and storing data related to classroom instruction of ELs.

The External Evaluator will manage the project evaluation: analyze data, complete reports for ED; monitor and document project outputs and outcomes; collect and analyze quantitative and qualitative data to measure progress towards meeting the goal, objectives, and GPRA indicators as well as the project objectives and performance measures; and describe the pre-interventions, conditions, and outcomes of clients served by the project. Brach Evaluation & Consulting, LLC is a highly experienced independent evaluation firm that has evaluated multiple federally funded educational programs, including Title III programs.

(c) Quality of the Management Plan

(1) Adequacy of management plan to achieve objectives on time within budget

Project Apprentice will be managed at Brown University by The Education Alliance. Dr. Pacheco and Ms. Smith will be responsible for overseeing all facets of project operation. Operational management of the project has five major elements. The first focuses on planning and involves a weekly analysis of tasks to be accomplished assuring coordination among activities and attaching time frames to planned activities. The second focuses on maximizing availability of resources and allocating resources to needs in an effective fashion. The third focuses on control of resource expenditures and ensuring that staff capabilities are optimally utilized and material specifications established. The fourth focuses on monitoring, control, and integration of project activities, ensuring that planned activities contribute to overall program goals and that unforeseen problems are discovered and resolved. The final element focuses on maintaining working relationships with project partners: RIDE and LEA leaders.

FALL 2011	
Objective 1	Convene RIDE and LEA staff with Project staff (Maria Pacheco) Recruit Cohort 1— 10 Middle school Teachers (MP & Sara Smith) Guide the cohort through the application process to Brown (MP&SS)
SPRING 2012	
Objective 2	Course 1: *Theories in First and Second Language Acquisition* (SS) Course 2: *Language, Culture, and Society* (MP) End of semester meeting with students (MP & SS)
Objective 3	Collect baseline data on candidates, their schools, & their students (2 half-days per student) (Donalda Silva)
FALL 2012	

Objective 2	Course 3: *Literacy Theory, Practice, and Current Issues for Middle school ELLs* (SS) Course 4: *Assessing Content, Language, and Literacy of Middle school ELLs* (MP) End of semester meeting with students (MP & SS)
Objective 3	10 days of coaching & feedback (2 half-days per student) (DS)
SPRING 2013	
Objective 2	Course 5: *Applied Linguistics for Teachers of Adolescent ELLs* (SS) Course 6: *Integrating Content, Language, and Literacy in Middle school STEM Curriculum* (MP) End of semester meeting with students (MP & SS)
Objective 3	10 days of coaching & feedback (2 half-days per student) (DS)
FALL 2013	
Objective 1	Convene RIDE and LEA staff with Project staff (MP) Recruit Cohort 2—10 Middle school Teachers (MP & SS) Guide the cohort through the application process to Brown (MP&SS)
Objective 2	Course 7: *Research Seminar* (MP) End of semester meeting with students. (MP & SS)
Objective 3	10 days of coaching & feedback (2 half-days per student) (DS)
SPRING 2014	
Objective 2	Course 1 for Cohort 2: *Theories of First and Second Language Acquisition* (SS) Course 2 for Cohort 2: *Language, Culture, and Society* (MP)

	End of semester meeting with students. (MP & SS)
Objective 3	Collect baseline data on cohort 2 candidates, their schools, & their students (2 half-days per student) (Donalda Silva)
Objective 4	Final leadership project and graduation for Cohort 1
FALL 2014	
Objective 2	Course 3: *Literacy Theory, Practice, and Current Issues for Middle school ELLs* (SS) Course 4: *Assessing Content, Language, and Literacy of Middle school ELLs* (MP) End of semester meeting with students (MP & SS)
Objective 3	10 days of coaching & feedback (2 half-days per student) (DS)
SPRING 2015	
Objective 2	Course 5: *Integrating Content, Language, and Literacy in Middle school STEM Curriculum* (MP) End of semester meeting with students. (MP & SS)
Objective 3	10 days of coaching & feedback (2 half-days per student) (DS)
FALL 2015	
Objective 2	Course 6: *Applied Linguistics for Teachers of Adolescent ELLs* (SS) Course 7: *Research Seminar* (MP) End of semester meeting with students (MP & SS)
Objective 3	10 days of coaching & feedback (2 half-days per student) (DS)
SPRING 2016	
Objective 4	Final leadership project and graduation for Cohort 2

(2) Time Commitments of Project Personnel Are Appropriate

As Principal Investigator and Director, Dr. Pacheco will spend 30% of her time, or 77 days per year, on the project. Dr. Pacheco will spend approximately 7 days on meeting with RIDE and LEA leaders; 45 days on teaching, preparation of coursework and advising; and 25 days on the evaluation and reporting process. As Assistant Project Director, Ms. Smith will devote 30% of her time, or 77 days per year, to the project. Ms. Smith will spend approximately, 26 days on overseeing daily operations, 45 days on teaching, preparation of coursework, and advising, and 6 days working with the project evaluator on evaluation related activities. Donalda Silva will spend 20% of her time, or 52 days, on the project. Ms. Silva will spend 40 days providing coaching and feedback to participants and 12 days on data collection and storage.

To ensure feedback and continuous improvement in project operation, Project Apprentice staff will employ a management model that is divided into three phases, each generating feedback for program improvement. During the first phase, project staff will focus on revisiting project requirements. This involves revising and continuing to collect needs-oriented data, reviewing the project goals and performance objectives, and revisiting specific district and state needs related to project goals. During the second phase, project staff will focus on ensuring that course syllabi adequately incorporate STEM content and conducting the coursework. This involves defining the instructional objectives, developing instructional frameworks for the courses, and selecting or developing appropriate instructional materials. During the third phase, project staff will focus on validating the program. This involves defining effectiveness criteria for the program, developing proficiency measures for each component, conducting the

coursework, trainings, observations, leadership projects, and evaluations, and updating the instructional materials and program activities.

Additional resources: The commitment of Brown University to this work is extensive. In addition to the project's personnel resources, Project Apprentice will leverage many other resources available through Brown University. As a part of the Brown University community, Project Apprentice has access to a plethora of relevant resources in the areas of STEM research, language and culture studies. Some of the university's resources that inform our work in carrying out the objectives are: The New Scientist Program aimed at increasing the number of minority students in science, technology, engineering, and mathematics; the Leadership Alliance consortium comprised of 31 higher education institutions that focuses on developing underrepresented students into outstanding leaders and role models in STEM, business and the public sector; the Pembroke Center which focuses on cultural studies differences; the Third World Center which promotes cross-cultural understanding; and the Office of Education Outreach which seeks points of collaboration between the university and RI schools. Through research, guest lectures, conferences and campus events, these centers provide Project Apprentice's faculty and participants access to a richness of information that they would not be able to access anywhere else in RI. In addition, the project has access to two graduate and/or undergraduate student interns per semester who work with the various centers and help to connect project participants with these resources. These students, who are highly skilled in research and writing, help in the preparation of course materials and the identification of related resources. They also guide the participants in the use of library resources and offer support in academic writing to participants who seek help.

(d) Quality of Project Evaluation

(1) The methods of evaluation are thorough, feasible, and appropriate to the goals, objectives, and outcomes of the proposed project.

The objective of the evaluation will be to monitor and document project outputs (teacher development activities, and products) and outcomes (resulting data) to enhance Project Apprentice programming. The evaluator will collect and analyze quantitative and qualitative data for 2 purposes: (i) to measure progress towards meeting the U.S. Department of Education's National Professional Development (NPD) Program Objective and GPRA indicators (ii) to measure progress towards meeting the objectives, performance measures, and benchmarks as stated in the Project Apprentice proposal.

The evaluation measures will address 2 domains of inquiry:

- the effect of the project activities on teacher knowledge acquisition, instructional practice and leadership,
- the effect of enhanced teacher practice on the achievement of their middle school EL students.

Evaluation of this project will be conducted by Brach Evaluation & Consulting, LLC, a highly experienced independent evaluation firm that has evaluated multiple federally funded education programs, including regional Equity Assistance Centers, Magnet School Assistance Programs, state-wide Even Start Programs, Title III training programs, professional development projects for university faculty, and federally funded state-wide mentoring initiatives.

Dr. Brach will direct the evaluation and will be involved throughout the project from the planning year through the conclusion of the grant. The implementation of the evaluation will be a cooperative effort between the evaluator, the faculty of Project Apprentice, and the practice-based specialists of The Education Alliance. Both the quantitative and qualitative data generated will be explicitly linked to the purpose of The U.S. Department of Education's National Professional Development Program. As stated in the project indicators, each product or service will be appropriate to improving "instruction for students with limited English proficiency" and assisting "educational personnel working with such children to meet high professional standards."

The evaluation plan has been customized to address every activity or service provided by Project Apprentice specialists including: the documentation of project participants and the selection criteria used, the knowledge gained through coursework, observations of participant practice documenting the application of lessons and units adapted for ELs, the resulting effect of enhanced instruction on the achievement of EL students, the resulting effect of enhanced practice on their larger school communities through the implementation of leadership projects, and the receipt of the formal RI State endorsement credential. The collection of data to address the GPRA Performance Measures is also specified in this plan.

Methods described in detail below are feasible because Project Apprentice faculty and specialists at Brown University have extensive experience with the development and implementation of tools for documenting their work through the collection of project data. They are fluent in the development and use of tracking relational databases, observation protocols, pre-post surveys, and internet-based survey software. The

collection of the project data has been embedded within project activities to ensure that the collection is not intrusive in any way and is convenient to implement. Participant progress will be monitored through the teacher database, built largely from objective university records. Outcome data will be analyzed by the evaluator and presented to staff to catalyze program development.

(2) The extent to which the methods of evaluation include the use of objective performance measures that are clearly related to the intended outcomes of the project and will produce quantitative and qualitative data to the extent possible.

Project Goal: The goal of Project Apprentice is to increase the capacity of Rhode Island's middle school Science, Mathematics, and Technology teachers to deliver high quality instruction to secondary level English learners.

Project Objective 1: To recruit twenty urban middle school teachers who (A) teach Science, Math, and/or other STEM related technical courses such as computer science, engineering/science technologies, and health/science technology; (B) have a Bachelor's Degree with concentration in the Math, Science, and/or Technology areas; (C) are fully employed as teachers at a middle school.

Evaluation Question 1:

1. How many qualified middle school teachers, who meet selection criteria described in Project Objective 1, have been selected to participate?

Evaluation Method: *Teacher Database Analysis*

Specialized IT staff at The Education Alliance will create a database describing teacher recruitment credentials and demographics, such as content area, academic and state credentials and employment history.

Data Source The database will be built from school records and official documentation provided by the recruit.

Project Objective 2: A cadre of 20 lead teachers will: (A) complete a Masters degree in ESL and Cross-Cultural Studies at Brown; (B) receive ESL endorsement from the Rhode Island Department of Education for "subject area content area teachers."

Evaluation Questions 2 and 3:

2. How many teachers have completed the Masters Degree and have received an ESL endorsement as specified in Project Objective 2?

Evaluation Method: *Teacher Database Analysis, Document Review*

The database will track program progress including courses/trainings completed, grades received, final projects completed, and degrees conferred.

Data Source The source of these data will be Brown University records documenting course completion, grades, and conferral of degrees.

Completion of the Masters Degree specified in Project Objective 2 is aligned with Rhode Island Department of Education requirements for endorsement of a content area certificate for teachers of LEP students, grades 7 through 12. The receipt of the RI State Endorsement credential will be documented through completion of paperwork signed conjointly by the applicant and Project Apprentice specialists as well as notification by the Rhode Island Department of Education (RIDE). (GPRA Measure 1.5)

3. What is the percentage of in-service teacher completers who are providing instructional services to EL students? (GPRA Measure 1.6)

The percentage of teachers providing high quality instructional services to LEP students, both during and at project completion is expected to be 100% for two reasons;

(i) Teachers served will originate from urban communities that host the largest percentages of ELs and (ii) Project Apprentice participation criteria specify recruiting fully employed, practicing teachers that are expected to continue teaching following the completion of this program to enhance their skills.

Data Source The current practice in Rhode Island schools regarding the identifying of EL or LEP students within general education classrooms is inconsistent. There are no procedures for teachers to learn this information about their students, and can only be obtained informally especially at the middle school level.

Recognizing that learning about their students is a basis for the adaptation of instruction, Project Apprentice specialists will teach participants how to identify their ELs, using questionnaires and/or interviews to learn the students' language capabilities as well as their culture and background knowledge, schooling history in their home country, etc. Participants will also be required to learn about their students' previous performance on RI state assessments.

Teachers will be asked throughout their participation in Project Apprentice to provide numbers of EL students they are serving in their classroom. These data will be verified during the classroom observations (described below) and will be entered into the Project Apprentice database each semester/year. (GPRA Measure 1.6)

Project Objective 3. To document the delivery of high-quality, rigorous instruction to ELs in STEM areas through (A) classroom observations with an observation protocol; (B) pre and post observation consultations and coaching; (C) a teacher portfolio of lessons and units adapted for ELs; (D) improvements in EL student achievement; (E) increased access and participation of ELs in STEM classes.

Evaluation Questions 4-8

4. To what extent is the coursework effective in developing teachers' expertise in EL education?

Evaluation Method: *Pre - Post Intervention Teacher Surveys*

Teachers will complete yearly pre - intervention surveys describing aspects of their current state of knowledge and expectations for the courses/professional development activities they are enrolled in.

Post - intervention surveys will be completed at the end of each semester by participating teachers to assess the knowledge acquired, the degree to which it met teachers' expectations, and the degree to which the knowledge was applicable to their current professional practice, including aspects of their practice that they plan to change.

Data Source Surveys will produce both quantitative and qualitative data describing levels of teacher satisfaction, knowledge they acquired, anecdotes, and recommendations for improvement. Survey data will be analyzed by the evaluator. Pre-surveys will be compared to post-surveys to quantify increases in knowledge and levels of client satisfaction across the sample. Qualitative data will be summarized and coded.

5. To what extent are the project's instructional materials and methods being implemented by the participating teachers?

Evaluation Method: *Classroom Observations*

Project staff will conduct 2 classroom observations per semester of each participating teacher, using a protocol designed to record the implementation of classroom strategies in the STEM area. This will include how instruction and assessment are differentiated to facilitate access to STEM content for the ELs.

The specialist will hold individual consultations with the teacher both before and after the observation, providing immediate feedback and discussion on the observational findings.

Data Source Data documenting the implementation of strategies, both the quantity and quality, will be recorded by the specialist on protocol recording templates. The evaluator will analyze data from observations (e.g., student participation, teaching strategies, groupings, differentiation and others) to study the increasing use of strategies and materials over time by each teacher. Data will also be summarized across the sample to describe the types of modifications teachers are using.

6. Are teacher participants creating portfolios of lessons and units adapted for ELs?

Evaluation Method: *Teacher Portfolio Review*

In each course teachers will create portfolios of their lesson plans and units, modified for ELs. These portfolios will be available as source material for their middle school STEM departments.

Data Source Project faculty and staff will apply a rubric to review each portfolio and provide feedback. These data will be entered into the teacher database monitoring teacher progress towards completion.

7. To what extent is EL student achievement impacted by teachers' instructional practice?

Evaluation Method: *Analysis of EL Student Achievement Data to Inform Practice*

Data Source The data that teachers will use for this analysis are the ongoing grades from classroom-based activities such as chapter tests, quizzes, or graded work products.

During the fall semester 2012, participants will take a course on student assessment: Assessing Content, Language, and Literacy of Middle school ELs. The objective of the course is to teach participants to analyze tests for linguistic demands and cultural relevance and to develop effective strategies to assess ELs progress in their courses.

The evaluator, in collaboration with the course instructor will develop a template either on paper or electronically, using EXCEL, for each teacher to record the grades of their identified EL students, with the class mean score on the same record as a general benchmark. Teachers will be required to keep track of ELs' student performance noting if they are scoring below, on a par with, or above their classroom means and by how much.

As part of their studies, teachers will analyze their ELs' performance and assess how they can address the needs of each student as demonstrated on the tests. For example, a teacher may become aware that an EL has performed a partially correct computation, but did not receive full credit because they did not complete the problem due to a misreading of a linguistic nuance. The teacher will modify further tests, and evaluate progress.

Teachers will collect and analyze data on each EL over the course of one academic year: (i) to inform instructional practice over the course of the year and to evaluate its effectiveness, (ii) to measure change in student progress over time as the teacher becomes increasingly comfortable with the strategies and has compiled a skill set of strategies and methods to make their STEM instruction accessible to their ELs.

Teachers will also consider their students' performance on the state standardized tests as part of their study.

At the end of the year, the evaluator will receive the data from individual teachers, compile an electronic database for analysis, develop a coding metric to reduce the different data sets to uniform, likely interval, scores. The evaluator will analyze these data across the sample of all teachers to study the growth of the ELs over time as compared to the classroom benchmarks. To protect student privacy, names will not be used; scores will be listed by an assigned ID number.

As a result of this study in the second year of the project, teachers will assess student achievement using practical, feasible assessment tools. They will have learned how their instructional methods affect their students' learning through this continuous daily encounter with student performance in their practice.

Rationale for Data Analysis Classroom grades and scores are sensitive to content that is taught at the present moment and presents a direct way for teachers to examine their practice and assess their students' learning. Participants in Project Apprentice will come from different districts, schools, middle school grade levels, and content areas. Project designers recognize the crucial importance of studying student performance, but there are currently no standardized testing protocols that will equalize all of these conditions and deliver feedback on an immediate basis so teachers can respond to the findings in real time.

8. Have ELs achieved increased access and participation in STEM classes?

Evaluation Method *Database Analysis*

Data Source As described above, under Project Objective 2, teachers will be asked at the end of each semester to record the numbers of ELs that are enrolled in their classes. A summary of these data will determine if teachers are accepting increasing numbers of EL students into their classes as they become more proficient in serving these students.

Project Objective 4. To assist the cadre in the successful completion of a leadership project in their schools and districts that addresses the education of ELs by (A) creating a professional development module that encompasses the material of the Masters program; (B) presenting the project before a peer group and the project faculty; and (C) posting the project on the Education Alliance's professional development website and RIDE'S website for Promising Practices in the Education of English Language Learners.

Evaluation Question 9

9. Are teachers able to design and implement a professional development module on a topic in their content area that meets specified criteria to be presented to their schools and posted on the state and Education Alliance websites?

Evaluation Method: *Teacher Database Analysis*

The leadership project is required for the completion of Project Apprentice. Project staff will assess the quality of each unit using coding rubrics developed to rate the project for relevance, usefulness and rigor. Projects will be presented at their school communities. Feedback will be collected and analyzed. Project staff in consultation with RIDE will select projects most relevant to their needs and post them for public access.

Data Source Website "hits" and requests that are generated from the posting will be compiled as an indicator of the reach of the work.

Data Source Data on the completion of benchmarks of the leadership project will be collected from the teacher database sources from university records.

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

Evaluation Question 10

10. How will data be used to provide performance feedback and support assessment of progress towards achieving project objectives?

Evaluation Method: *Data Analysis and Presentation*

As has been proposed above, data will be collected from multiple sources documenting the progress towards each of the four Project Objectives declared by Project Apprentice. Data documenting the achievement of project benchmarks by tracking the rates of participant completion are recorded in the teacher database. Data describing program outcomes are analyzed separately by the evaluator. These data will be the focus of presentations to staff and teacher participants according to the following schedule. The independent evaluator will convene project staff for 2 conferences per year and will also present to the teachers. Following each presentation discussion will be encouraged, to assess expected progress and adjust program features as necessary to strengthen outcomes.

(1) The February conference will focus on strengthening project methods or training as indicated by the formative implementation data. Data describing each program activity will be compiled by the evaluator and presented in a *PowerPoint* format. Data will

include pre-post tests evaluating coursework and knowledge acquisition at midyear, classroom observations, and teacher progress through the program.

(2) At the end of the academic year, the evaluator will present the compiled student achievement data to the teacher participants to illustrate how their ELs performed as a group. Discussion and assessment of the impact of high-quality instruction and its affect on EL grades will follow.

(3) The June conference will feature an analysis of both outcome and process data to describe the impact of high-quality instruction on the achievement of ELs. Project Apprentice staff as well as project stakeholders will be invited.

Pre-post survey data and observations from a full year will describe the effectiveness of the coursework in the acquisition of knowledge, the implementation of strategies in the practice of the teacher participants, and client satisfaction with the program. Quantitative data on the impact of high quality instruction on EL classroom grades will also be presented. Discussion will focus on the assessment of progress towards goals and program adjustments to address any concerns that arise following the presentation of the data.