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**NATIONAL PROFESSIONAL DEVELOPMENT PROGRAM
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Project Abstract

Name of the IHE: University of North Texas, Denton

Title of Program: Title III National Professional Development

Title of Project: NEXUS

Consortia Partners: Denton Independent School District, Lewisville Independent School District, TEA Region 10 Education Service Center

Project Description:

Project NEXUS represents a unique and collaborative partnership between the University of North Texas, Denton Independent School District, Lewisville Independent School District, and the Texas Education Agency's Region 10 Education Service Center. This partnership aims to provide high quality professional development for in-service teachers, teacher education faculty, teacher education candidates, and administrators to enhance their knowledge and skills on how to improve the mathematics and science academic and linguistic achievement of secondary English language learners (ELLs). The basis of the professional development will be the research-based mathematics and science training materials from the Sheltered Instructional Observation Protocol (SIOP) model (Short, Vogt & Echevarria, 2011). These materials have been specifically designed for teaching ELLs. Also, the professional development will include how to incorporate the English Language Proficiency Standards (ELPS) into the mathematics and science curricula.

Performance goals, objective and measurable outcomes include the following:

Goal 1 is to enhance the knowledge base of middle and high school in-service teachers in mathematics and science from the two surrounding local educational agencies (LEAs), Denton and Lewisville, through customized professional development for teachers to acquire the instructional skills and strategies to teach academic content and language development and acquisition to increase the academic achievement, graduation rates and entry into postsecondary education institutions for middle and high school ELLs. This includes two objectives:

Objective 1 aims to have 200 6-12 grade in-service mathematics and science teachers complete innovative professional development workshops on effective teaching of language and content to ELLs infused with evidence-based research and aligned to standards by the end of the project. Activities aligned to objective 1 include: Project director and Co-Principal Investigator hiring project staff, setting up project office and budget; Project director and ESL Coordinators recruiting 40 teachers; Project coordinator defining location, dates, buying books and hiring 2 instructional coaches; Instructional coaches offering 40 teachers, per year, a two-day professional development workshop; Instructional coaches offering 40 teachers, per year, a two-day additional professional development workshop; ESL Coordinator and Instructional and School coaches recruiting 10 teachers annually for individual coaching; Project staff designing and updating UNT ELL web-portal; a total of up to 50 in-service teachers taking ESL supplemental TExES exam by the end of the project; and, a total of 10 in-service teachers enrolling in EDBE 5590 and EDBE 5570 web-based courses each academic year.

Objective 2 aims to have improvements in instructional practices resulting from the professional development activities, teacher preparation and follow-up activities to narrow the

achievement gap in mathematics and science performance between ELLs and non-ELLs as measured by achievement gains in 2012 STAARs results (year of baseline data) and subsequent annual results in 2013, 2014, 2015 and 2016. Activities aligned with objective 2 include External evaluation team collecting STAAR tests data; and, External evaluation team disseminating results of STARR test data to UNT teacher education faculty for research and publication.

Goal 2 is to enhance the knowledge-base of the UNT education faculty in the mathematics and science 9-12 teacher certification programs through ongoing course content analysis and advanced professional development to integrate current evidence-based research and standards-based instruction into the certification degree-granting programs for effective instruction and assessment for ELLs. This goal includes two objectives:

Objective 1 aims to have the mathematics and science secondary teacher education faculty integrate English Language Proficiency Standards and features of the Sheltered Instruction Observation Protocol Model into their course curricula, syllabi and instruction by the end of the project. Activities aligned to objective 1 include Project coordinator defining location, dates, purchasing books and hiring 2 instructional coaches; Instructional Coaches conducting a two-day professional development for 20 Teacher education faculty; Instructional Coaches conducting a follow-up professional development for 20 Teacher education faculty; Teacher education faculty implementing SIOP and ELPS into their methods courses; and Teacher education faculty attending and presenting at state /national conferences on ELL instruction and assessment for teacher candidates.

Objective 2 aims to have the mathematics and science secondary education teacher candidates taught by faculty participating in the project and trained in SIOP to demonstrate the incorporation of the English Language Proficiency Standards and the Sheltered Instruction Observation Protocol Model features in their mathematics and science lesson plans and units by the end of the project. Activities aligned to objective 2 include Project coordinator defining location, dates, buying books and hiring 2 instructional coaches; Teacher education faculty recruiting 20 teacher candidates; Instructional Coaches conducting a two-day professional development workshop for 20 teacher candidates; Teacher education faculty enrolling 10 Teacher candidates in EDBE 4490 and EDBE 4470; Teacher education candidates taking ESL supplemental TExES exam; and, Teacher education candidates accessing UNT ELL web portal

Goal 3 is to analyze and evaluate project data to make project improvement decisions in order to impact the knowledge and skills of project participants, and make instructional improvement decisions in order to further ELL content mastery and narrow the achievement gap. This includes two objectives.

Objective 1 aims to make data-driven decision making an integral component for improving project activities throughout the project. Activities aligned to objective 1 include External evaluation team and Project staff collecting and analyzing data on the impact of professional development on in-service teachers; External evaluation team and Project staff collecting and analyzing data on the impact of professional development on teacher candidates; External evaluation team and Project staff collecting and analyzing data on the impact of professional development on teacher education faculty; and External evaluation team and Project staff collecting and analyzing data on the number of Passes in ESL Supplemental TEXES exam.

Objective 2 aims to have 22 administrators (9 principals, 4 mathematics and science district curriculum coordinators, and 9 school coaches) from the two school districts complete a two-day professional development workshop on SIOP for teacher assessment and coaching and ELL data-based decision making by the end of the project. Activities aligned to objective 2

include Project coordinator defining location and dates, purchasing books and hiring instructional coaches; Instructional Coach conducting a two-day professional development for 9 principals, 4 mathematics and science district curriculum coordinators and 9 school-based academic coaches; and Principals and District curriculum coordinators observing and assessing in-service teachers' classroom instruction including hired UNT graduates.

Project NEXUS meets the Competitive Preference Priority 3, "To Promote Science, Technology, Engineering, and Mathematics (STEM) Education." by providing quality professional development for secondary mathematics and science in-service teachers to augment their professional knowledge and skills to effectively address the linguistic and academic challenges of ELLs in grades 6 to 12. Project NEXUS meets Invitational Priority 3, "Improving the Preparation of Teachers to Better Serve English Learners" by targeting the professional development of teacher education faculty and the preparation of teacher candidates to teach standards-based, grade-level language development, acquisition and academic content knowledge simultaneously to ELLs to ensure access to academic content. The project also meets Competitive Preference Priority 2, "Enabling More Data-Based Decision Making" by ongoing and meticulous data collection and analysis to drive annual program modifications, and to support the improvement of teacher candidates', teacher education faculty's, in-service teachers' instructional practices to increase the achievement of ELLs in grades 6-12.

The table below details the GPRA measure targets for each proposed year.

Number of Participants	Year 1	Year 2	Year 3	Year 4	Year 5	Totals
Teacher candidates expected to be served	20	20	20	20	20	100
Teacher candidates completers expected	20	20	20	20	20	100
Teacher candidate completers expected to be placed in instructional settings serving ELLs	20	20	20	20	20	100
Teacher candidates expected to complete coursework and become certified in ELL instruction	10	10	10	10	10	50
Teacher candidates completers expected to be certified in ELL instruction	10	10	10	10	10	50
Administrators expected to be served		22				22
In-service teachers expected to be served who already teach ELLs	40	40	40	40	40	200
In-service teachers expected to complete coursework and become certified in ELL instruction		10	10	10	10	40

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PROJECT NEXUS

(a) *Quality of the project design.*

Project NEXUS represents a unique and collaborative partnership between the University of North Texas, Denton Independent School District, Lewisville Independent School District, and the Texas Education Agency's Region 10 Education Service Center. This partnership aims to provide high quality professional development for in-service teachers, teacher education faculty, teacher education candidates, and administrators to enhance their knowledge and skills on how to improve the mathematics and science academic and linguistic achievement of secondary English language learners (ELLs).

Project NEXUS meets the Competitive Preference Priority 3, **“To Promote Science, Technology, Engineering, and Mathematics (STEM) Education.”** by providing quality professional development for secondary mathematics and science in-service teachers to augment their professional knowledge and skills to effectively address the linguistic and academic challenges of ELLs in grades 6 to 12. Project NEXUS meets **Invitational Priority 3, “Improving the Preparation of Teachers to Better Serve English Learners”** by targeting the professional development of teacher education faculty and the preparation of teacher candidates to teach standards-based, grade-level language development, acquisition and academic content knowledge simultaneously to ELLs to ensure access to academic content. The project also meets **Competitive Preference Priority 2, “Enabling More Data-Based Decision Making”** by ongoing and meticulous data collection and analysis to drive annual program modifications, and to support the improvement of teacher candidates', teacher education faculty's, in-service teachers' instructional practices to increase the achievement of ELLs in grades 6-12.

The basis of the professional development will be the research-based mathematics and science training materials from the Sheltered Instructional Observation Protocol (SIOP) model (Short, Vogt & Echevarria, 2011). These materials have been specifically designed for teaching ELLs. This model is supported empirically (Ballantyne, Sanderman, & Levy, 2008; Perez & Holmes, 2010; Sunal, Sunal & Wright, 2010) and advocates current strategies on how to integrate content and language instruction to effectively address the academic and linguistic needs of ELLs. This model focuses on clear goals, realistic student expectations, a variety of interactive and culturally appropriate strategies, integrated subject matter, and promotes the delivery of standards-based equitable instruction. Also, the professional development will include how to incorporate the English Language Proficiency Standards (ELPS) into the mathematics and science curricula.

The fiscal agency is the **University of North Texas (UNT)**, a public, student-centered university, serving 35,000 students, located about 40 miles from Dallas and Fort Worth in North Texas. Started as a teaching college in 1890, it has now become a leading public university in Texas. U.S. News & World Report has recently identified UNT as the top nine universities in the nation for making “the most and innovative changes in academics, faculty, students, and campus or facilities.”

UNT’s Department of Teacher Education and Administration coordinates with the Departments of Science and Mathematics to offer courses that lead to teaching certification in mathematics and science education for grades 4-8 and 9-12. Currently, UNT’s mathematics and science teacher candidates for grades 4-8 already have English as a Second Language (ESL) supplemental certification as part of their degree plan. However, candidates pursuing certification in 9-12 grade mathematics and science do not have courses in their degree plan that

prepare them to effectively educate ELLs. Presently, the department's current course content in secondary mathematics and science education does not address the underlying challenges ELLs experience in classroom instruction to simultaneously learn rigorous mathematics and science content while acquiring the necessary linguistic skills in English to master the Texas state achievement standards and objectives established for all students. Therefore, the mathematics and science teacher education faculty members at UNT are committed to transforming the course content and participating in advanced professional development anchored in evidence-based research to learn how to incorporate the Texas State English Language Proficiency Standards (ELPS) and the Sheltered Instruction Observation Protocol (SIOP) features in their course syllabi and instruction. Teacher education faculty members will also learn how to prepare integrated lessons and share the new knowledge and skills with the teacher candidates enrolled in the mathematics and science teacher education programs. This new approach is designed to better prepare teacher candidates to instruct ELLs and help the candidates pass the Pedagogy and Professional Responsibilities (PPR) EC-12 TEXES Examination for Educator Certification, which now includes the Texas State English Language Proficiency Standards.

UNT serves the complex and geographically expansive North Texas Metroplex that encompasses more than 350 square miles and is the home to over 200,000 ELLs who settle in this rapidly growing semi-rural community. The U. S. Census Bureau's decennial report published April, 2011, states that the north Texas region experienced the largest demographic growth (over 350%) of Hispanic and non-English speaking families in the United States and continues this hyper-growth demographic trend to date. The majority of the students and their families (91%) are of Spanish-speaking descent and arrive from many different countries, with diverse cultural backgrounds and various levels of education and English proficiency. For

example, some students are literate in their native language and may have some proficiency in English, whereas others are pre-literate in their native language and English.

Also, many students and their families gravitate to North Texas not only for the pronounced economic opportunities but also its rural familiarity as well. As compared to the nearby Dallas (the eighth largest city in the United States) and Fort Worth urban hubs with burgeoning populations, this rapidly growing North Texas corridor is neither urban nor suburban and maintains many traditional and rural features that attracts families from similar, cultural environments. However, for numerous reasons, these divergent factors challenge teachers on a daily basis as they do not feel adequately prepared to address the academic and linguistic challenges of ELLs. In fact, a survey conducted by the National Assessment for Educational Progress (NAEP) 2009, reported that only 27% of all teachers contacted felt “adequately prepared” to teach ELLs. This is especially prevalent among in-service secondary education mathematics and science teachers who focus primarily on academic content delivery in their core subject area and often overlook the linguistic challenges of ELLs.

Considering the urgent need for a direct and explicit focus on ELL instruction and assessment in teacher education pre-service and in-service programs, compounded by the increased diverse demographic growth of ELLs in the North Texas region, and, most importantly, the stated need to provide academic content teachers in mainstream classrooms with effective scientifically proven instructional strategies to teach ELLs, this project will offer educators a new approach to classroom, school and district professional development, certification and instruction that is evidence-based and aligned to standards. As mentioned earlier, this project, addresses Competitive Preference Priority 3, “To Promote Science, Technology, Engineering, and Mathematics (STEM) Education.” A unique feature of the project

is its design. The intent is to transform postsecondary teacher certification programs and quality professional development institutes for secondary middle school and high school mathematics and science in-service teachers to augment their professional knowledge and skills to effectively address the linguistic and academic challenges of ELLs in grades 6 to 12 and increase their academic results. This will be accomplished by infusing evidence-based instructional strategies and resources aligned to the academic content, student achievement, and English language proficiency standards in a systemic approach provided by the projects' collaborating partners. This design concept establishes a middle school- to high school- to post secondary "teacher-training to ELL achievement model" (a targeted continuum) that is methodically informed by new research, data analysis, and empirical evaluative results.

The teacher education faculty will participate in ongoing advanced professional development that targets preparation of teacher candidates to teach standards-based, grade-level language development, acquisition and academic content knowledge simultaneously to ELLs to ensure access to academic content. Teacher candidates will participate in similar ongoing quality professional development and innovative coursework and teacher preparation programs that ensure ELLs access to grade-level content. As mentioned before, this project targets Invitational Priority 3, "Improving the Preparation of Teachers to Better Serve English Learners." In total, the goal of the project is to increase the professional educators' knowledge and skills to deliver effective classroom instruction to ELLs and provide the students a linguistic bridge to the academic content in science and mathematics by collaborating with the areas surrounding local school districts. This partnership establishes a new relationship or "nexus" between the UNT's Department of Teacher Education and Administration and the school districts that have been heavily impacted by an influx of new, diverse and complex student populations.

Also, the project addresses Competitive Preference Priority 2, “Enabling More Data-Based Decision Making.” The data collected during this five year project will be meticulously analyzed and leveraged to drive annual program modifications, and to support the improvement of teacher candidates’, teacher education faculty’s, and in-service teachers’ instructional practices and improve the achievement of ELLs in grades 6-12.

The Texas Education Agency’s **Region 10 Education Service Center** will partner with UNT to deliver professional development to project participants. This center provides technical assistance to thirteen school districts in the North Texas area and ensures that state education policies and laws are implemented. Also, two local school districts, Denton and Lewisville, will partner with the university to support ongoing professional development for their in-service secondary mathematics and science teachers in grades 6-12 and will target teachers from 9 schools. During each year of the project, both school districts will have a liaison to (1) recruit teachers and secure professional development space, (2) coordinate the professional development schedule with instructional coaches and mathematics and science curriculum coordinators, (3) disseminate announcements about the professional development activities, (4) provide data to the external evaluation team, and (5) provide access to classrooms for SIOP observations, coaching, and mentoring. Letters of support from both school districts are provided in Appendix A.

Denton Independent School District (Denton ISD) encompasses the City of Denton where UNT’s main campus is located. The district serves 3,512 ELLs on 34 campuses. The schools targeted for this project have the lowest performance in mathematics and science and have at least a 10% ELL enrollment of the total student population. The 186 teachers targeted for this project teach at Denton and Ryan high schools and Calhoun, McMath, and Strickland

middle schools. It is anticipated that the academic achievement of the total of 718 ELLs enrolled in these schools will be positively impacted by this project.

Lewisville Independent School District (Lewisville ISD) is located 15 miles south of UNT and serves 6,369 ELLs (12.6%) on 63 campuses schools. The schools involved in the UNT- LEA partnership have at least 10% ELL enrollment of the total student population. One hundred and eighty seven (187) math and science teachers teach at Lewisville and Killough high schools and Huffness and Killian middle schools. It is anticipated that the academic achievement of the total of 1000 ELLs enrolled in these schools will be positively impacted by this project.

Tables 1 illustrates a summary of 2010 data of selected schools in the two partner school districts, the number of ELLs, and the performance of ELLs in mathematics and science compared to the total student population on the annual standardized assessment for all students, the Texas Assessment of Knowledge and Skills (TAKS). The science test is administered in 8th, 10th, and 11th grades. Since the successful completion of the tests is a graduation requirement, it is considered a high stakes test for all students including ELLs.

The performance figures illustrate the achievement gap that currently exists between the total student population and ELLs. Gaps are as high as 51percentage points between the total student population and ELLs. The gap is more significant in science. The deficiencies ELLs show on the science TAKS test results by skill area are *Genetics* and *Organization of Living Systems* in Biology, *The Periodic Table Structure* and *Properties of Matter* in Chemistry, and *Forces, Motion* and *Energy* in Physics. In mathematics, ELLs deficiencies are in *Functions* *Measurement* and *Similarities, Percent, Proportion, Probability* and *Statistics* in Algebra, and *Relational* and *Spatial Reasoning, Mathematical Processes* and *Tools* in Geometry.

Table 1: 2010 Student Performance Results on TAKS Tests of Selected Schools

Schools	Denton Independent School District				Lewisville Independent School District				
	Denton H.S.	Ryan H.S.	Calhoun M.S.	McMath M.S.	Strick- land M.S.	Killough H.S.	Lewisville H.S.	Huffines M.S.	Killian M.S.
Total Students by School	622	1585	1885	819	853	907	2,634	936	671
# ELLs	123 (20%)	161 (10%)	181 (10%)	138 (17%)	115 (13%)	139 (15.3%)	296 (11%)	121 (13%)	91 (12%)
% of Total Students not meeting Mathematics Standards	19%	23%	18%	11%	13%	3%	13%	5%	7%
% ELLs not meeting Mathematics Standards	44%	59%	45%	26%	25%	11%	36%	18%	28%
% of Total Students not meeting Science Standards	26%	17%	16%	23%	19%	*N/A TAKS	18%	14%	42%
% ELLs not meeting Science Standards	58%	60%	67%	71%	60%	*N/A TAKS	61%	7%	42%

*TAKS not taken in 9th grade because Killough is a 9th grade only high school

Moreover the identified content areas also underscore key STEM education areas in upper grades and college. Overall, ELLs in both school districts are challenged by the academic vocabulary necessary to master the abstract concepts in both content areas as well as lack of background knowledge.

Beginning in 2012, the Texas Education Agency (TEA) will administer new state assessments, the Texas State Assessments for Academic Readiness (STAAR), which are designed to assess critical thinking and college/career readiness skills (CCR) in grades 3 to 8. In grades 9-12, twelve *End of Course* (EOC) tests will be administered in each of the following core courses: Algebra I and II, Geometry Biology, Chemistry, and Physics. Given that the new assessments were designed to measure 21st century skills and are considered more rigorous than the current assessments, a significant increase in the achievement gaps between non-ELLs and ELLs is anticipated.

Hence, there is an urgent need for immediate intervention through high-quality ongoing professional development for mathematics and science secondary in-service teachers on methods, strategies and delivery of effective instruction to ELLs in order to eliminate existing academic gaps, promote high school graduation, and provide opportunities for ELLs to pursue careers in higher education.

At the University of North Texas, the 9-12 math and science certification programs include a professional development sequence that emphasizes field experiences, teaching strategies, and concepts related specifically to core academic content competencies in each subject area; however, there is no specific coursework offered that addresses the complex linguistic needs of ELLs. Also, beginning in 2012, in addition to successfully completing the Pedagogy and Professional Responsibilities (PPR) TExES test for grades EC-12, the Texas State

Board of Educator Certification (SBEC) now requires new teachers to have a deep understanding of the English Language Proficiency Standards (ELPS) and how to incorporate them into daily classroom instruction. Consequently, there exists an urgency to design, develop, and implement a more focused and intentional professional development intervention and coursework for all mathematics and science grades 9-12 teacher candidates to prepare them to effectively teach ELLs. Such an intervention will produce a teacher workforce that is better prepared to increase the academic achievement of ELLs in mathematics and science. The candidates should also be able to pass the TExES ESL supplemental test and be awarded the additional certificate by SBEC.

Additionally, teacher education faculty who prepare grades 9-12 pre-service mathematics and science teachers will need professional development that includes (a) knowledge of language development and the first and second language acquisition processes found in evidenced-based research, (b) characteristics ascribed to ELLs of different English language proficiency levels, (c) approaches to planning and adapting curricula that facilitate content and language development, (d) promoting and supporting cultural responsiveness, and (e) incorporating the state ELPS and effective instructional strategies and assessment into coursework to effectively teach ELLs. After the teacher education faculty participates in advanced professional development, they should reflect on the new knowledge in their curriculum, course syllabi objectives, assignments, and will be able to model effective instruction for new teacher candidates.

Project NEXUS will also prepare mathematics and science curriculum coordinators and school principals to use formative and summative achievement data to inform instruction that will impact assessment and increase the achievement results of ELLs. As Table 1 illustrates, the

achievement gaps between ELLs and the total student population in mathematics and science are as high as 51 percentage points. An example of the importance of using data to understand the academic challenges of ELLs is exemplified by the information gleaned from ELL students who attend Lewisville High School, where 11% of students are ELL (296 students) and 61% did not meet the science standards on the 2010 TAKs state test. Since the middle schools are feeders of the high schools, they provide indicators of an achievement gap that will continue to increase if teachers are not prepared to meet the needs of ELLs in the high schools. Analysis and evaluation of student data in a variety of areas provide the basis for an empirically focused professional development program for teachers at both the middle and high schools so that success may be traced over time. Data-driven decision-making also provides professionals a collegial backdrop to understand where profound changes need to be made and often how to address them. To assist in understanding the deep programmatic changes that may occur, data generated from the *Sheltered Instruction Observation Protocol* (SIOP) instrument will be used to inform decisions to improve professional development effectiveness, programmatic design and curriculum and instructional adjustments among the participating schools.

Initially, current data on methodology, pedagogy, course content, and course participation for UNT's mathematics and science education program, will inform the professional development design for teacher education faculty and teacher candidates. The analysis will address the current curricular gap and provide insights and details on how to meet the linguistic and academic needs of ELLs. Data generated from curricular changes, implementation, and results will facilitate decision-making related to any specific, generic or ongoing modifications needed during the course of the project.

(1) Goals, objectives, and outcomes of the Project

During the five years of the project, the university and its partners will achieve the following goals and objectives:

Goal 1: Enhance the knowledge base of middle and high school in-service teachers in mathematics and science from the two surrounding local educational agencies (LEAs), Denton and Lewisville, through customized professional development for teachers to acquire the instructional skills and strategies to teach academic content and language development and acquisition to increase the academic achievement, graduation rates and entry into postsecondary education institutions for middle and high school ELLs.

Objective 1: By the end of the project, 200 6-12 grade in-service mathematics and science teachers will have completed innovative professional development workshops that support effective teaching of language and content to ELLs infused with evidence-based research and aligned to standards.

Activity 1: Every Spring from 2012 to 2016 each districts' ESL coordinators and the project coordinator will recruit 6-12 grade mathematics and science teachers from Denton ISD and Lewisville ISD. The target annual cohort for training in-service teachers is 40 in this category.

Activity 2: Each Spring from 2012 to 2016, the specific dates of the training to take place at the professional development center of each school district will be defined, the following books will be purchased, *SIOP Model for Teaching Science to English Learners (2011)* and *The SIOP Model for Teaching Mathematics to English Learners(2011)* by Short, Vogt and Echavarría, and two SIOP certified instructional coaches will be hired from Texas Education Agency's Region 10 Service Center to deliver professional development for teachers in Denton ISD and in Lewisville ISD respectively.

Activity 3: Each Fall from 2012 to 2016, annual cohort of **40** 6-12 grade mathematics and science teachers will participate in two-days of professional development on how to simultaneously instruct ELLs in language acquisition and content knowledge based on standards.

Activity 4: Each Fall from 2012 to 2016, annual cohort of **40** 6-12 in-service teachers will participate and receive two-days of **additional** professional development on lesson demonstrations and coaching delivered by Region 10 Service Center instructional coaches.

Activity 5: Each Fall from 2012 to 2016, **10** teachers of each annual cohort with large numbers of ELLs not meeting state achievement standards will be recruited by ESL coordinators to participate in classroom observations conducted by Region 10 instructional coaches using the SIOP Observational Protocol. Additionally, these teachers will receive coaching and feedback from school coaches on how to implement specific instructional strategies.

Activity 6: In the Fall 2013, the project staff will work with the College of Education webmaster to design a web portal dedicated to offering mathematics and science teachers additional resources for teaching secondary ELLs. The web portal will establish supportive follow-up and capacity services to everyone who participate in the five-year project. NEXUS web-based resources will include links to NCELA, Colorin Colorado, Center for Applied Linguistics, TESOL, NABE as well as information on model lesson plans, strategies, publications, announcements, and on the A+Rise program on how to infuse ELPS. Also, it will include the link to the online module, *Overview of Providing Linguistic Accommodations to English Language Learners During Instruction*, created by The Texas Comprehensive Center in collaboration with Texas Education Agency, the National Content Center for Teacher Quality, and Learning Sciences International offered free of charge for Texas teachers. The web portal will be updated every semester.

Activity 7: Beginning with the first cohort of in-service teachers who complete the professional development program, the ESL coordinators and principals at each participating school will annually identify teachers interested in adding the state ESL certification and encourage and incentivize these teachers to take the ESL Supplemental TEXES exam. The registration fee for the certification test will be funded by the project for **50** teachers. The Denton ISD will provide test preparation for two full days every year for interested teachers.

Activity 8: From Spring of 2013 to Fall of 2016, a total of **40** teachers will enroll in two web-based graduate level courses each teacher to gain in depth knowledge about teaching and assessing ELLs. These courses are 14 weeks long and are offered in fall and spring. Teachers will volunteer to participate, their tuition and fees will be paid with project funds, and they will be encouraged to use those credit hours (6 total) to apply them towards a Master’s degree in Curriculum and Instruction with concentration in ESL. The courses are EDBE 5590 – Pedagogy for Teaching ESL in grades EC-12 and EDBE 5570 – Assessing Content and Language in ESL and Bilingual Education.

Professional Development Plan

Two-Day Professional Development Workshop Agenda: Fall

Day one – 8:30 AM to 3:30 PM	Day two – 8:30 AM to 3:30 PM
<ul style="list-style-type: none"> • First and second language acquisition processes • The academic language of mathematics/science • Planning SIOP lessons with ELPS (biology, algebra, geometry, physics and chemistry) • Evaluations and adjourn 	<ul style="list-style-type: none"> • Incorporating ELPS, lesson planning and unit design (biology, algebra, geometry physics and chemistry) • Alternative assessment • Lesson modeling (biology, algebra, physics and chemistry) • Evaluations and adjourn

Additional Two-Day Professional Development Workshop Agenda: Fall

Day one – 8:30 AM to 3:30 PM	Day two – 8:30 AM to 3:30 PM
<ul style="list-style-type: none"> • Instructional coach meets with teachers in small groups by content area at each school site • Questions and answers to address specific teacher concerns • Lesson modeling targeting specific mathematics/science problem areas for ELLs • Demonstration of effective assessment for lesson objectives • Adjourn 	<ul style="list-style-type: none"> • Instructor coaches teachers in small groups to develop own content lesson plan based on problems areas for ELLs • Each group of teachers demonstrate their mini lesson to the group as a whole. • The group critiques lesson using SIOP Protocol instrument • Coach summarizes and offers expert feedback • Adjourn

Observation and Feedback for Representative Sample of 10 teachers from Annual Cohort

The 10 teachers selected by ESL coordinators and principals who have large numbers of ELLs not meeting state performance targets on STAARs will be observed with the SIOP instrument by Region 10 instructional coaches. School coaches will provide feedback to selected teachers on implementing specific instructional strategies for making mathematics and science content comprehensible to ELLs.

Objective 2: At the end of the project, improvements in instructional practices resulting from the professional development activities, teacher preparation and follow-up activities will narrow the achievement gap in mathematics and science performance between ELLs and non-ELLs as measured by achievement gains in 2012 STAARs results (year of baseline data) and subsequent annual results in 2013, 2014, 2015 and 2016.

Activity 1: As mentioned previously, STAAR tests will be administered for the first time in Fall 2012. Data will be collected and analyzed annually on the percentage of ELLs meeting performance standards in mathematics and science and the achievement gap between ELLs and non-ELLs. Changes in academic gaps based on performance in mathematics and science for ELLs taught in a SIOP model and by teachers that completed the professional developed will be compared to ELLs taught by teachers that did not participate in the project.

Activity 2: The results of the analysis will be available to UNT education faculty to prepare research articles for publication, and/or conference presentations to disseminate results about ELL instruction and assessment in mathematics and science. The purpose for these activities is dissemination of results and facilitating capacity building by sharing the knowledge base available to teachers and the instructional and programmatic changes that lead to improving ELL achievement.

Goal 2: Enhance the knowledge-base of the UNT education faculty in the mathematics and science 9-12 teacher certification programs through ongoing course content analysis and advanced professional development to integrate current evidence-based research and standards-based instruction into the certification degree-granting programs for effective instruction and assessment for ELLs.

Objective 1: By the end of the project, the mathematics and science secondary teacher education faculty will have integrated English Language Proficiency Standards and features of the Sheltered Instruction Observation Protocol Model into their course curricula, syllabi and instruction.

Activity 1: In Spring 2012, professional development location at UNT and dates will be defined, *The SIOP Model for Teaching Science to English Learners (2011)* and *The SIOP Model for*

Teaching Math to English Learners (2011) by Short, Vogt and Echeverria books will be purchased and two SIOP instructional coaches will be hired to deliver professional development to teacher education faculty.

Activity 2: Starting in Spring 2012, **20** mathematics and science secondary teacher education faculty will complete a two-day professional development workshop on the first and second language acquisition processes, the integration of language and content, and the SIOP model features.

Activity 3: In the Summer 2012, **20** mathematics and science secondary teacher education faculty will participate in a two-day follow up professional development on methods to incorporate ELPS and SIOP features in their course curricula, syllabi and instruction.

Activity 4: By the Fall 2012, **20** mathematics and science secondary teacher education faculty will implement first and second language acquisition processes, the integration of language and content, and the SIOP model features and ELPS with teacher candidates enrolled in their courses.

Activity 5: Spring of 2013 to Fall 2016, **20** mathematics and science 9-12 teacher education faculty, together with project staff, will have the opportunity to expand their knowledge by attending state (TexTESOL and TABE) or national (TESOL and NABE) conferences related to the education of ELLs. Faculty will also have opportunity to attend and present at conferences sponsored by curriculum and content area associations for mathematics and science instruction, if their proposals are accepted. Such presentations delivered by teacher education faculty, accompanied by teacher candidates, will focus on the impact of professional development on changes made to curricula, syllabi and instruction.

Objective 2: By the end of the project, the mathematics and science secondary education teacher candidates that were taught by faculty participating in the project and trained in SIOP

will demonstrate the incorporation of the English Language Proficiency Standards and the *Sheltered Instruction Observation Protocol Model* features in their mathematics and science lesson plans and units.

Activity 1: In Spring 2012, professional development location at UNT and dates will be chosen, *The SIOP Model for Teaching Science to English Learners (2011)* and *The SIOP Model for Teaching Mathematics to English Learners (2011)* by Short, Vogt and Echevarria books will be purchased and two SIOP certified instructional coaches will be hired to deliver professional development to secondary mathematics and science education teacher candidates.

Activity 2: In Spring, 2012, 2013, 2014, 2015 and 2016, the project co-principal investigator who is also a secondary teacher education faculty will recruit 20 science and mathematics secondary education teacher candidates to enroll in the summer professional development workshop on ELPS and SIOP.

Activity 3: In the summer 2012, 2013, 2014, 2015 to 2016, 20 science and mathematics secondary education teacher candidates enrolled in methods courses in the spring will complete a two-day professional development workshop about incorporating ELPS and SIOP features in their lesson plans and units. An annual cohort of 20 mathematics and science secondary teachers will complete the training.

Activity 4: In the Spring and Fall 2013, 2014, 2015, and 2016, 10 science and mathematics secondary education teacher candidates will enroll in courses EDBE 4490 – Pedagogy for Teaching English as a Second Language and EDBE 4470 – Assessment of Content and Language for ESL and Bilingual Students for more in depth knowledge about the education of ELLs.

Activity 5: By the end of the project all teacher candidates that completed the course work and professional development will be encouraged to take the ESL Supplemental TExES exam to have ESL added to their initial certificate. Data will be collected and analyzed on the number of teacher candidates that participated in the project, the number of completers, the number that took the TExES and the number of teacher candidates that passed the exam and added the ESL certification. Comparative data analysis will also be conducted for teacher candidates not participating in this project.

Activity 6: Teacher candidates will continue to build their knowledge even after graduation about the education of ELLs through the resources and information that will be available to them in the web portal that will be created from the UNT's website. Data on number of users, access time and usage of portal will be collected to determine effectiveness and usefulness of resource.

Goal 3: Analyze and evaluate project data to make project improvement decisions in order to impact the knowledge and skills of project participants, and make instructional improvement decisions in order to further ELL content mastery and narrow the achievement gap.

Objective 1: Throughout the project, data-driven decision making will be an integral component and used for improving project activities.

Activity 1: From Spring 2012 to Summer 2016, data will be collected and analyzed by the external evaluation team and project staff on the impact of the professional development for in-service teachers using the SIOP protocol instrument and the impact on ELLs achievement in mathematics and science based on state content assessment (*STAAR*) results. Data analysis will include evaluation of learning outcomes for ELLs of teachers that participated/implemented SIOP training, for ELLs from control groups and for ELLs taught by teachers who did not participate in the project.

Activity 2: From Spring 2012 to Summer 2016, data will be collected and analyzed by the external evaluation team and project staff to determine the impact of the professional development on teacher candidates during student teaching and their impact on ELLs achievement in mathematics and science based on state content assessment (*STAAR*) results during their first year of teaching. Additionally, the project coordinator will not only work with the collaborating NEXUS middle school and high school principals to determine how many of the teachers were hired and placed in mathematics and science classrooms with ELL enrollment but with the surrounding school districts as well.

Activity 3: From Fall 2012 to Fall 2013, data will be collected and analyzed by the external evaluation team and project staff to determine the impact of the professional development for teacher education faculty members and their impact on teacher candidates based on their achievement in the PPR state exam.

Activity 4: From Fall 2013 to Summer 2016, data will be collected and analyzed by the external evaluation team and project staff to determine the number of in-service teachers and teacher candidates that passed the ESL Supplemental TEXES exam to have ESL added to their initial certificate.

Objective 2: By the end of the project, 22 administrators (9 principals, 4 mathematics and science district curriculum coordinators, and 9 school coaches) from the two school districts will have completed a two-day professional development workshop on SIOP for teacher assessment and coaching and ELL data-based decision making.

Activity 1: In Spring 2013, professional development location at UNT and dates will be defined, the books, *Leading Academic Achievement for English Language Learners (2011)* Alford and

Nino and *The SIOP Model for Administrators (2011)* by Short, Vogt, and Echevarria will be purchased and one instruction coach from Region 10 will be hired to deliver the workshop.

Activity 2: In Spring of 2013, 22 administrators will complete a two-day professional development workshop; day 1 will be on SIOP for administrators to learn teacher coaching and informal assessment techniques. Day 2 will be to learn about ELL data-driven decision making.

Activity 3: From Fall 2013 onwards, principals and school coaches will observe and assess mathematics and science teachers' classroom instruction using the SIOP instrument. These teachers will also include hired UNT graduates. In addition, the instructional coaches from Region 10 will annually observe 10 teachers using the SIOP Protocol.

(2) *Up-to-date knowledge from research and effective practice*

The project seeks to address the lack of information and knowledge academic content teachers in mainstream classrooms have concerning evidence-based instructional strategies needed to effectively teach ELLs (Garcia, Arias, Murri & Serna, 2010; Perez & Holmes, 2010; Sunal, Sunal, & Wright, 2010) combined with the lack of available quality professional development or in-service training on language development and second language literacy instruction for educators at the secondary level (NEA, 2008).

Current research emphasizes the critical need secondary teachers have on how best to educate ELLs and lessen the cognitive overload that impacts ELL learning especially in science and mathematics instruction (Gandara, Maxwell-Jolly, & Rumberger, 2008; Genesee et al., 2005; Pascopell, 2011; Perez & Holmes, 2010). Every aspect of the project is intentionally designed to use training materials that are research-based. For example, the SIOP model for teaching science and mathematics to ELLs and the SIOP model for administrators will be used, implemented and monitored.

The model developed by Short, Vogt & Echevarria (2011), is supported empirically (Ballantyne, Sanderman, & Levy, 2008; Perez & Holmes, 2010; Sunal, Sunal, & Wright, 2010) and advocates current strategies on how to integrate content and language instruction to effectively address the academic and linguistic needs of ELLs. The SIOP model focuses on clear goals, realistic student expectations, a variety of interactive and culturally appropriate strategies, integrated subject matter, and promotes the delivery of standards-based equitable instruction. The model includes *The Sheltered Instruction Observation Protocol* an assessment instrument that determines to what extent a teacher is implementing the features of the SIOP model to make content and language comprehensible for ELLs.

The book, *Leading Academic Achievement for English Language Learners* by Alford and Nino (2011) will be used to deliver professional development to principals, curriculum coordinators and academic coaches so they can enhance their knowledge of ELL data-based decisions, advocate for student success, strengthen their knowledge of second language acquisition, build capacity in the schools, and promote a culture of academic achievement.

(b) Quality of project personnel

The University of North Texas will ensure that the project coordinator and the student assistant will be selected without regard to race color, national origin, gender, age or disability. The institution is an equal opportunity employer and operates all educational programs based on non-discrimination assurances. It is in compliance with the Title VI of the Civil Rights Act of 1967, Title IX of the Educational Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. UNT will encourage applications from members of groups that have been traditionally underrepresented in position announcements related to this project.

(1) The qualifications of key personnel

Project Director

Rossana Ramirez Boyd, Ph.D., is the principal investigator of this project and will be the project director. She is originally from Honduras and a naturalized citizen of the U. S. and has over 25 years of expertise in the areas of ESL, bilingual education curriculum development, instruction, and assessment of ELLs. Currently, she is the director of the Bilingual/ESL Teacher Certification Programs at the University of North Texas and also a faculty member teaching courses related to the education of ELLs. She has extensive experience managing and directing Title III Professional Development Programs, such as Project TEACH, Project BETTI, and Project IMPACT.

Teacher Education Faculty Member

Karthigeayan Subramaniam, Ph.D., is a native of Singapore and a permanent resident of the U.S., and he is the co-principal investigator of this project. He is a faculty member in the Department of Teacher Education and Administration with a focus on Science Teacher Education. He has published data-based articles in both national and international peer-referred teacher education journals. He has worked as an ESL science content course developer for the Secondary Content Preparation in ESL, a project funded by the US Department of Education, Office of English Language Acquisition (OELA).

Project Coordinator

A position will be advertised for a coordinator with the following qualifications: at least a master's degree in education with an ESL focus, experience teaching ESL at the secondary level, experience in managing external funding. Website design and management are desirable.

Student Assistant

A student assistant will be hired. Qualifications include current status as student at UNT in pursuit of a degree in education.

External Evaluation Team

The Global Institute for Language and Literacy Development, LLC (GILD) will be hired to conduct the external evaluation. GILD is an educational consulting services company that provides the professional expertise to lead and facilitate fundamental change needed for English language learners to achieve academically in all learning environments. The team of external evaluators from GILD, led by Ms. Kathleen Leos, has more than 50 years of combined experience and expertise in evaluating and analyzing education in accordance with education standards, assessments, curricula, instructional strategies, and supportive materials that ensure ELLs achieve at the highest academic levels.

(c) Quality of the management plan.

(1) The management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks.

The management plan for Project Nexus delineates specific responsibilities to be accomplished in order to meet goals and objectives. These responsibilities are outlined below: (1) Dr. Rosanna Boyd, **the project director**, will be providing oversight of the budget, staffing, reporting performance, and participating in meetings to monitor the management, coordination, and successful implementation of project activities. (2) Dr. Karthigeyan Subramaniam, **co-principal investigator**, will be working with the project coordinator to recruit secondary education teacher candidates and teacher education faculty and oversee the SIOP professional

development activities for both teacher candidates and faculty. (3) The hired **project coordinator** will be managing all day-to-day project activities including working closely with the student worker, project director, Co-PI, faculty members, school district liaisons, Region 10 Service Center instructional coaches, external evaluation team, as well as teacher candidates, in-service teachers, and administrators. He/she will coordinate the design and dissemination of the project brochure and will help process travel forms and course enrollment for participants. (4) The **student assistant** will be providing clerical support to the project director, the project coordinator, faculty members, and partner school districts with day to day activities related to the project. (5) The **external evaluation team** will be coordinating the formative and summative project evaluations, data collection, analysis and data reporting on an ongoing annual basis for making decisions about project modifications as needed. The fee for the evaluation team will be funded by the project.

Major milestones that Project NEXUS will accomplish are assuring that 200 in-service teachers and 22 administrators from two school districts will have received and implemented professional development on the SIOP model and ELPS. Fifty (50) teachers will have received individual coaching, and 50 in-service teachers will have added ESL to their initial certificate. At the University of North Texas, 20 teacher education faculty and 100 teacher candidates will also have received and implemented professional development on the SIOP model and ELPS. Additionally, 50 teacher candidates will have passed the EDBE 4490 and the EDBE 4470 courses for more in-depth training on educating ELLs and 40 in-service teacher will have completed the EDBE 5570 and EDBE 5590 graduate level courses at UNT on a volunteer basis. All these milestones will improve the academic achievement of secondary ELLs.

(2) Time commitment of the project director and other key project personnel to meet the objectives of the proposed project.

Dr. Rosanna Boyd, **the project director**, will dedicate 25% of her time to the project funded by this grant. She will provide oversight of the budget, and staffing; will report performance, and participate in meetings to monitor the management, coordination, and successful implementation of project activities. Dr. Karthigeyan Subramaniam, **co-principal investigator**, will have a course buyout every spring funded by this project to dedicate 20% of his time to this initiative. The hired **project coordinator** will dedicate 100% to the project (12 months). This employment will be funded 100% by the project. The **student assistant** will work 20 hours per week and will be funded 100% from the project. The **external evaluation team** will dedicate the time necessary to collect, analyze, and report data results.

The project director will work closely with the project coordinator, Co-PI, and external evaluation team to make sure that all the project activities are implemented on time and within budget. In turn, the project coordinator and the student assistant will work closely with the school district liaisons, Maria Dudash, secondary ESL coordinator for Denton ISD and Dr. Marcia De Avila, ESL/Bilingual education director for Lewisville ISD. They will recruit and help set up the dates and specific location for professional development delivery at both school districts. The project coordinator will work closely with Texas Education Agency's Region 10 Service Center instructional coaches, Dawn Osborne and Keri Gain, to coordinate the delivery of professional development. Among other activities, the project coordinator will seek the creation of the web portal at UNT and will manage its contents throughout the project. Following are tables describing the timeline and the persons responsible for each activity.

Goal 1, Objective 1: Activities	Person(s) Responsible	2011			2012			2013			2014			2015			2016								
		F	Sp	S	F	S	Sp																		
7. Take ESL supplemental TExES exam	<i>In-service teachers</i>																								
8. <u>10</u> in-service teachers enroll in EDBE 5590 and EDBE 5570 web-based courses each academic year	<i>In-service teachers</i>																								
Goal 1, Objective 2: Activities																									
1. Data collection: STAAR tests	<i>External evaluation team</i>																								
2. Dissemination: Results of STARR test data																									
Goal 2, Objective 1: Activities																									
1. Define location, dates, purchase books and hire <u>2</u> instructional coaches	<i>Project coordinator</i>																								
2. <u>20</u> Teacher education faculty: Two-day professional development	<i>Region 10 Instructional Coaches</i>																								

Goal 2, Objective 1: Activities	Person(s) Responsible	2011			2012			2013			2014			2015			2016			
		F	Sp	S	F	S	Sp													
3. <u>20</u> Teacher education faculty: Two-day <u>follow-up</u> professional development	Region 10 Instructional Coaches			x																
4. Implement: SIOP and ELPS	Teacher education faculty			x	x															
5. Attend and present at state /national conferences					x															
Goal 2, Objective 2: Activities																				
1. Define location, dates, buy books and hire instructional coaches	Project coordinator		x																	
2. Recruit <u>20</u> teacher candidates	Teacher education faculty		x																	
3. <u>20</u> Teacher candidates: Two-day professional development	Region 10 Instructional Coaches			x																

Goal 2, Objective 2: Activities	Person(s) Responsible	2011			2012			2013			2014			2015			
		F	Sp	S													
4. <u>10</u> Teacher candidates enroll in EDBE 4490 and EDBE 4470 courses	<i>Teacher education faculty</i>				x	x		x	x		x	x		x	x		x
5. Take ESL supplemental TExES exam	<i>Teacher education candidates</i>				x	x		x	x		x	x		x	x		x
6. Teacher candidates access UNT ELL web portal	<i>Teacher education candidates</i>				x	x		x	x		x	x		x	x		x
Goal 3, Objective 1: Activities																	
1. Data collection and analysis: Impact on in-service teachers	<i>External evaluation team, Project staff</i>				x	x		x	x		x	x		x	x		x
2. Data collection and analysis: Impact on teacher candidates					x	x		x	x		x	x		x	x		x
3. Data collection and analysis: Impact on teacher education faculty	<i>External evaluation team, Project staff</i>				x	x		x	x		x	x		x	x		x

Goal 3, Objective 1: Activities	Person(s) Responsible	2011		2012			2013			2014			2015			2016		
		F		Sp	S	F												
4. Data collection and analysis: Passes in ESL Supplemental TEXES exam	<i>External evaluation team, Project staff</i>							x	x	x	x	x	x	x	x	x	x	x
Goal 3, Objective 2: Activities																		
1. Define location, dates, purchase books and hire instructional coaches	<i>Project coordinator</i>							x										
2. Two-day professional development: <u>2</u> principals, <u>4</u> mathematics and science district curriculum coordinators and <u>2</u> school-based academic coaches	<i>Region 10 Instructional coaches</i>							x										
3. Observe and assess ISD teachers' classroom instruction including hired UNT graduates	<i>Principals, District curriculum coordinators</i>																	x

(d) Quality of the project evaluation.

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

The project is composed of three major areas that focus on (1) training of 6 – 12 grade mathematics and science teachers from two surrounding LEAs with the primary goal to teach academic content and language to increase ELLs’ academic achievement, graduation rates, and entry into postsecondary education institutions; (2) professional development of mathematics and science secondary teacher education faculty and teacher candidates on providing effective instruction and assessment to ELLs; and (3) analysis and evaluation of project data for decision-making to impact the knowledge and skills of the project participants, and make instructional improvement decisions in order to further ELL content mastery and narrow the achievement gap. The three areas will be evaluated separately. The total evaluation of the project will result from the sum of all of the components for each of the major areas. All of the methods and evaluation instruments to be used will go through a process of objectivity and reliability analysis. The following summary describes the evaluation methods and instruments that will be used in conducting the project evaluation:

Formative Assessments & Evaluations for Decision Making	Summative Assessments & Evaluations For Tracking Outcome-Based Results
Pre and post assessments based on professional development workshop objectives and teacher education course content.	Number and percent of program completers passing Texas Pedagogy and Professional Responsibilities (PPR); number and percent obtaining Texas certification.

Formative Assessments & Evaluations for Decision Making	Summative Assessments & Evaluations For Tracking Outcome-Based Results
Workshop evaluation and program participant surveys.	Number and percent of program completers passing the Texas Examinations of Educator Standards (TExES) exam and obtaining Texas ESL certification.
Classroom observations using SIOP Observation Protocol.	STAAR results in mathematics and science for ELLs and non-ELLs, and Texas End-of-Course results in selected mathematics and science courses for ELLs and non-ELLs.
Checklists on ELPS and SIOP Model features for use in analyzing curricula adaptations and syllabi modifications.	Data on enrollment and credits earned in Pedagogy for Teaching ESL and Assessment of Content and Language for ESL and Bilingual Students.
On-line survey for determining usefulness and effectiveness of web portal.	Results on UNT's Student Teacher Assessment for teacher candidate program completers.
Project Evaluation and Review Technique and Project Management feedback template for use in tracking and reporting on project activities.	Number and percent of program completers placed in LEAs, teaching ELLs after completion of the program and one year after project ends.

(2) 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.

Both quantitative and qualitative data will be collected throughout the project and after the project funding period has ended. As noted earlier, the evaluation methods will include the use of objective performance measures derived from both formative and summative assessments of intended outcomes. The focus of the evaluation will be outcome-based and at a minimum will include the following components:

(1) data collection and analysis on in-service teachers completing the program and the percent that pass the Texas Examinations of Educator Standards (TE \times ES) exam and obtain Texas ESL certification;

(2) data collection and analysis on pre-service teachers (teacher candidates) completing the program and the percent that pass the Texas Pedagogy and Professional Responsibilities (PPR) exam and obtain Texas teacher certification;

(3) data collection and analysis on pre-service teachers (teacher candidates) completing the program and the percent that pass the TE \times ES exam and obtain Texas ESL certification;

(4) data collection through classroom observation of in-service teachers completing the program and successfully integrating SIOP model and specific instructional strategies for making mathematics and science content comprehensible to ELLs;

(5) data collection through student teaching classroom observation of pre-service teachers completing the program and successfully integrating SIOP model and specific instructional strategies for making mathematics and science content comprehensible to ELLs;

(6) data collection through university course delivery and analysis of syllabi of secondary education faculty program completers integrating methodology on second language acquisition, effective instruction of content and language to ELLs and SIOP model features;

(7) classroom observations of a representative sample of secondary mathematics and science classrooms to systematically collect data on in-service teacher instructional practices and ELL student interaction; and

(8) student achievement data of ELLs in mathematics and science taught by program completers and enrolled in SIOP compared to non-ELLs taught by teachers not served by this project and ELLs not enrolled in SIOP program model.

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

Both product and process evaluation will be used to assess the results related to the progress and effectiveness of the project. Periodic evaluation results from both formative and summative assessments will be used to drive decision-making throughout the project period for the purpose of improving professional development content and delivery; impact on ELL student achievement; increase in the teaching workforce relative to candidates earning ESL certification; and capacity-building for long term systemic reform efforts at UNT and within the two partnering school districts.

Project NEXUS improvements and enhancements will be made after each semester with the goal of achieving a well-developed, implemented, and evaluated project. These processes will allow for periodic and systematic changes in the development and delivery of professional development to 6-12 grade mathematics and science teachers, secondary education mathematics and science teacher candidates, secondary teacher education faculty, and school administrators. Use of outcome-based data analysis for determining overall impact of project activities will ensure that the focus of activities remains continually on improving instruction and achievement of ELLs in mathematics and science. Project assessment of progress towards achieving the intended outcomes, such as increasing preparedness of in-services and pre-service teachers (teacher candidates) and impact of instructional improvements on narrowing the achievement gap between ELLs and non-ELLs, will be provided through feedback. This will be accomplished through (a) quarterly reporting of objectives and activities implemented, and outcomes obtained, (b) quarterly project progress reports based on completion of specific activities and intended impact on instruction of ELLs, and (c) annual performance and progress reports.