

# U.S. Department of Education

Washington, D.C. 20202-5335



## APPLICATION FOR GRANTS UNDER THE

**NATIONAL PROFESSIONAL DEVELOPMENT PROGRAM**

**CFDA # 84.365Z**

**PR/Award # T365Z110020**

**Grants.gov Tracking#: GRANT10862555**

Closing Date: MAY 09, 2011

## Abstract

New Mexico Highlands University (NMHU), a Hispanic serving institution, is submitting a Secondary Science, Technology, Engineering and Math (STEM) Master of Arts and TESOL endorsement application (Secondary STEM Project) to the U.S. Department of Education's Office of English Language Acquisition (OELA). Six Local Education Agencies (LEAs), in the rural communities of Española, Taos, Mesa Vista, Peñasco, Pojoaque, and Santa Fe, New Mexico, have been targeted for program services and have agreed to a partnership with NMHU in developing and implementing the proposed Master of Arts and TESOL endorsement project.

The project meets **Competitive Priority 3**, the preparation of Science, Technology, Engineering and Math (STEM) secondary teachers who teach large numbers of English Language Learners (ELLs). Over five years, the project will provide professional development opportunities to two cohorts of 30 STEM teachers from the six districts (total of 30 Cohort 1 teachers in years 1-3 and 30 Cohort 2 teachers, years 3-5). As a result of their participation in the program, selected STEM teachers will earn a Master of Arts degree in Curriculum and Instruction (C & I) and a state-recognized endorsement in Teaching English to Speakers of Other Languages. The project is unique in that New Mexico's academic English Language Development (ELD) standards will be infused into all courses within the endorsement program. Furthermore, the proposed project is unique in that project staff will revise courses within the existing C & I Master's program to include TESOL teaching methods for secondary STEM teachers.

The project will adhere to **GPRA Measures 1.5 and 1.6**. Data on the number of completers will be reported to the Office of English Language Acquisition (GPRA 1.5). Project staff will also report to the Department of Education, the number of teachers who provide instructional services to English language learners (GPRA 1.6). A total of 60 STEM teachers from six partner districts will earn a Master of Arts degree in C & I and a TESOL endorsement as a result of their participation in this program. More importantly, they will gain skills in providing effective instruction to each district's growing ELL population. An in-kind Principal Investigator (.10 FTE), a Project Director (1.0 FTE), a Site Coordinator (.5 FTE), and a Staff Assistant (1.0 FTE) will be hired to accomplish the objectives in this application.

As described in the proposal narrative, the Director, with assistance from the Site Coordinator, will be responsible for embedding secondary ELD standards into all TESOL endorsement courses within the Master's program. They will work with faculty and with the Dean of the School of Education to ensure classes adhere to NCATE standards, as well as New Mexico state standards in English Language Development.

The need for the proposed Secondary STEM Master's program is highlighted by the fact that the English Learner (ELL) population in the partner LEAs has increased two-fold over the past ten years, while the number of endorsed TESOL teachers is nearly non-existent in the districts targeted for professional development. Furthermore, 68% of secondary ELL students in the partner school districts are unable to meet state proficiency standards in the areas of reading and math. The growing numbers of ELL students, the lack of TESOL endorsed teachers in the partner

districts and the declining proficiency of students in reading and math, demonstrates that a need exists to develop a program to strengthen the skills of secondary teachers to better meet the needs of their students.

Practicum will be embedded into all TESOL endorsement courses within the program. Through supervised practicum, the Project Director and Site Coordinator will observe, first hand, the degree to which STEM teachers are prepared to effectively teach English and academic math/science content to students of limited English language proficiency and, in turn, provide them the necessary support they will need to effectively teach their growing numbers of ELLs.

The main campus of New Mexico Highlands University is located in Las Vegas, New Mexico, approximately 70 – 80 miles from the communities that are targeted for program services. The distances from the communities to NMHU make it difficult, if not impossible, for teachers to work full time while attending classes on the NMHU campus. As a result of the isolation of highly rural communities in northern New Mexico to the campus of NMHU, a satellite campus will be developed in the community of Española, New Mexico. This community was selected for several reasons. First, the community of Española is located 5 – 15 miles from other communities in northern New Mexico. Second, the satellite campus in Española will provide, through a very cost effective lease agreement office space for project staff as well as the use of classrooms and office equipment.

A unique feature of the proposed project is the mentoring component that will be provided to project participants. This component will be the responsibility of the Site Coordinator, with assistance of the Project Director. The Site Coordinator will visit trainees' classrooms; modeling research-based ELD and content area instructional strategies that work well in developing ELLs' English language skills while they learn content. In this way, there will be a direct link between course content and students' acquisition of English. The Site Coordinator selected for this position is unique in that she is an expert in the field bilingual/TESOL education, has taught secondary classes and therefore, has the experience to provide demonstration teaching and coaching in the participants' classrooms.

One of the more salient features of this project is its cost effectiveness. As graduate school tuition continues to escalate in many universities across the country, NMHU continues to maintain a very reasonable tuition rate. Consequently, the U. S. Department of Education can be instrumental in responding to a national need for highly qualified STEM teachers by supporting a grant application able to catalyze this in a most cost-effective manner. In rural areas, developing a pool of 60 potential highly qualified STEM teachers to address the needs of ELLs is exemplary.

The project goal and the objectives written into this application are geared at developing a Secondary Master of Arts and TESOL endorsement program for STEM teachers so that, long after funding is no longer available, future STEM and other secondary teachers may be provided access to a Master's and TESOL endorsement designed specifically for them.

### **a. Quality of the Project Design (40 pts.)**

#### **Introduction**

The proposed project will provide a total of 60, secondary, Science, Technology, Engineering and Math (STEM) teachers with a Master of Arts degree and endorsement in English as a Second Language (**Competitive Priority 3**). The targeted districts are among the most rural in New Mexico. The program will be offered through New Mexico Highlands University and will serve two cohorts of 30 secondary STEM teachers from six partner districts in northern New Mexico (Española, Taos, Mesa Vista, Peñasco, Pojoaque, Santa Fe) offering them an opportunity to earn a Master of Arts degree in two years.

In preparation for the writing of this application, state and district data was reviewed to determine the extent to which a need for professional development existed. State figures show that New Mexico public schools serve approximately 325,630 students in 89 public school districts; 54% Hispanic, 32% Anglo, 11% Native American, 2% African American and 1% Asian American. % are classified as English Language Learners. The New Mexico Standards Based Assessment test data for New Mexico shows that collectively, English Language Learners are scoring far below non-ELLs students in the state, overall and especially in the subject areas of math and science. Even more alarming is the fact that, the higher the grade level, the lower the test scores and the bigger the gap.

The districts were selected for the proposed project for several reasons. First, districts targeted have a high minority student population with a high ELL student count. Collectively, 2009-2010 ethnicity data show the Hispanic population in the partner districts is 75% and the combined average English Language Learner count in the districts is 26%. Second, high school English Language Learners (ELLs) students in the districts are demonstrating lower proficiency in both

reading and math than their FEP counterparts. The percentage of students proficient in reading for the six named districts averaged 47% for 2009-2010. The average proficiency level of students in math was 32%. The scores are even more dismal for graduating seniors. The high dropout rate among ELL students in the districts is directly related to students' poor academic performance. On average, there is a 68.5% graduation rate in the targeted districts.

Poor academic performance among secondary English Language Learners is directly attributed to shortages of qualified teachers (New Mexico Public Education Department, 2010). Data from Directors of Human Resources in each of the partner school districts shows that very few STEM teachers possess an endorsement in English as a Second Language. District data is clearly supported by state data. According to the New Mexico Public Education Department, New Mexico is facing a shortage of 1,600 ESL endorsed secondary teachers. The proposed M.A. degree program in Curriculum and Instruction, with an emphasis in TESOL, will help to alleviate critical shortages of qualified STEM teachers in the partner districts. In order to provide secondary STEM teachers research-based professional development opportunities, proposed project staff will revise the existing Master of Arts degree program to ensure that K-12 ESL standards are embedded into courses in the program. Furthermore, practicum will be embedded in all courses.

**(a)(1) Extent to Which Goals, Objectives and Outcomes are Specified and Measurable**

Secondary students fail in school for a variety of reasons. In some cases, their academic difficulties can be directly attributed to deficiencies in the teaching and learning environment. For example, students with limited English may fail because they do not have access to effective English as a Second Language (ESL) instruction by knowledgeable teachers (Escamilla, 2010; Jarret, 2010; Darling-Hammond, 2009). Furthermore, students from lower socioeconomic backgrounds have difficulty if direct instruction, based on standards, is not provided (Escamilla, 2010; McLaughlin,

2007; Andrew & Schwab, 2006). Other students may have learning difficulties stemming from linguistic or cultural differences. These difficulties may become more serious over time if instruction is not modified to address the students' specific linguistic and academic needs (Baca & Hoover, 2010; Evertson, Hawley, & Zlotnik 2009; Darling-Hammond, 2003 Wise, & Klein, 1995). Unless these secondary students receive appropriate intervention by trained secondary teachers, they will continue to struggle, and the gap between their achievement and that of their peers will continue to widen.

While the No Child Left Behind Act of 2001 called for **all** students to meet the same high academic standards by 2014, this will not occur if secondary teachers are not provided opportunities to learn research-based strategies for teaching English and content to our nation's growing ELL student population. According to Gonzalez & Darling-Hammond (1997), secondary teachers graduate from colleges and universities with little or no training on how to provide instruction for our nation's growing ELL student population. Instead, secondary teachers are provided "one-shot or short-term workshops" or are sent to conferences to learn strategies for working with limited English proficiency students (Darling-Hammond, 2009). This type of training has had little to no effect on change in teachers' ability to teach secondary LEP students (NCTAF, 2010). The American Association for Employment in Education (AAEE), in their wide-scale survey of U.S. colleges and universities that prepare secondary educators, reported a "considerable shortage" of bilingual/ESL teachers at the secondary level, especially in areas of math and science. This shortage was found to be most prevalent in the Southwestern U.S., especially in the rural isolated communities in New Mexico; communities that are targeted for this project. In their survey, the Urban Teacher Collaborative found that 72.5% of districts in the U.S. found a critical need for teachers who were able to work with second language learners. While the survey found that there is a shortage of

bilingual/ESL teachers across grade levels, the greatest demand for both bilingual and ESL teachers is at the secondary level. This trend as part of a larger, nationwide teacher shortage; estimates indicate that some 2 to 3.5 million new teachers will be needed over this decade (NCES, 2007). The primary reasons cited for the shortage of teachers include increased enrollments, early retirement of teachers, new teacher turnover, changing student demographics, high demand for minority teachers, and the lack of incentives to join the profession (Darling-Hammond, 1999). Furthermore, the New Mexico Public Education Department (2010) identified secondary ESL teaching positions as being the number one job need in New Mexico for two reasons. First, over the past five years, the number of non-English speaking children entering New Mexico's public schools has doubled. Second, while there is a large influx in the ELL student population, there continues to be a decline in the number of secondary teachers, especially math, science and technology teachers, who are skilled in working with the growing numbers of ELLs. CESDP at New Mexico Highlands University is ready to take the lead in developing a graduate level program, geared at preparing secondary STEM teachers to provide quality instruction for English Language Learners.

### **Program Goal and Objectives**

Following is the goal and six project objectives for the proposed Secondary M.A. degree program in Curriculum and Instruction (C & I) for STEM teachers, with emphasis on teaching the linguistically diverse student. As a result of the project secondary Science, Technology, Engineering and Math (STEM) teachers in six partner districts will learn research-based strategies for effectively meeting the educational needs of English Language Learners.

**GOAL 1: *To provide two cohorts of 30 secondary Science, Technology, Engineering and Math (STEM) teachers from the six partner school districts an opportunity to earn a Master of Arts and ESL endorsement.***

- Objective 1** During the first semester of the first project year, embed a secondary focus into the existing Master of Arts and ESL endorsement program, assuring that K-12 English language standards are embedded into all endorsement courses.
- Objective 2** From October, 2011 through December, 2011, recruit the first cohort of 30 secondary STEM teachers from the six partner districts. January, 2014 through May, 2014, recruit a second cohort of 30 STEM teachers.
- Objective 3** To offer courses each semester that accommodate program participants' work schedules.
- Objective 4** Embed supervised practicum experiences into each of the courses within the M.A. degree program.
- Objective 5** Design a study to collect post-training data on the effectiveness of program graduates and completers.
- Objective 6** To build program capacity and disseminate program successes to other Institutes of Higher Education.

**Objective 1** speaks to embedding a secondary STEM focus into existing M.A. and ESL endorsement program and to ensure that K-12 standards and assessments, including English language proficiency and content standards are present in all courses in the existing Master of Arts in Curriculum and Instruction (C & I) at New Mexico Highlands University. (**Competitive Priority 3**). Presently, New Mexico Highlands University offers a state-approved M.A. and TESOL endorsement program for **elementary** teachers but not for secondary teachers. Therefore, in the fall of the first project year, the proposed Project Director, Dr. Rodolfo Chávez, will work with School of Education faculty to revise existing courses to embed secondary methods for teaching ELLs. From August through December of the first project year, the Director will gather all existing ESL course syllabi for revisions. He will conduct extensive research on secondary methods and will then embed these methods within the ESL courses in the present Master's program. The Director will then meet with

School of Education faculty to review and approve syllabi. The final step in the process will be to submit all course syllabi to the Dean and faculty in the School of Education for final approval. The program will then be offered to 30 secondary teachers (5 from each of the six partner school districts).

**Objective 2** speaks to the recruitment and selection of the first cohort of 30 secondary STEM teachers (five from each of the six partner districts) to participate in the program (**Competitive Priority 3 and Invitational Priority 2**). Cohort 1 will begin their program of study spring semester of 2012 (year 1) and will complete their program in the spring of 2014 (year 3). A second cohort of 30 teachers will be recruited in the spring of 2014 (year 3; the semester when Cohort 1 teachers will graduate) and will begin their program in the summer of 2014, completing their program by the end of the summer semester of 2016 (see program of study, detailed below). In order to select the most qualified and interested teachers, the proposed Project Director, Dr. Rodolfo Chávez, will hold a meeting in the partner district to fully explain the program. At these meetings, the Director will detail program requirements and teachers will be advised that, if selected, they must agree to teach (or continue to teach) in classrooms with high numbers of ESL students. In this initial application process, secondary STEM teachers will also be asked to write an essay that: 1) provides general information about themselves; and, 2) describes their reason(s) for wanting to participate in the program and their commitment to working in a classroom with ELLs. Candidates will also be asked to submit two letters of recommendation from school staff who possess knowledge of their work with students, especially second language learners. A selection committee, consisting of proposed project staff, New Mexico Highlands University faculty, the State Director for Bilingual and Multicultural Education and school district personnel will meet to select program participants.

Selected STEM teachers will then meet with the Project Director to apply to the Graduate School and to enroll in courses. Teachers not selected for the program will be placed on a waiting list.

**Objective 3** speaks to the development and implementation of a program that accommodates the teachers' work schedule. In preparation for the writing of this proposal, teachers in the partner districts were polled to seek their input for offering courses through this program, if funded. The survey revealed some interesting results. Of the 121 surveys returned, 87% of secondary teachers requested that courses be offered Monday evenings so that coursework would not interfere with their teaching assignments and school meetings. The survey also revealed that 78% of respondents requested that the program offer courses in the district so that they would not have to travel 70 - 80 miles to attend classes on the New Mexico Highlands University main campus. The information gathered as a result of the survey will be used when selecting days and times for the offering of courses.

Practicum experiences will be embedded into each of the ESL courses in the proposed M.A. degree program (**Objective 4**). These courses are designated with an asterisk (\*) in the table on page 9. In order to accomplish this objective, the proposed Principal Investigator., Dr. Paul Martinez, the Director, Dr. Rodolfo Chávez, and the proposed Site Coordinator, Patricia Cloud, will meet to embed practicum experiences into courses. In order to monitor practicum experiences, the Site Coordinator is first given a lesson plan that she reviews and discusses with the teacher at a pre-observation session. The Site Coordinator then observes direct and explicit instruction for a period of about 1 hour followed by a post-observation discussion. This structure is not evaluative, but serves to provide a structured opportunity for teachers to apply what they are learning in classes to their own classrooms. If needed, demonstration lessons will also be provided.

**Objective 5** speaks to designing a study to collect post-training data on the effectiveness of program graduates in the fall of years three and five (**Competitive Priority 2**). In June of 2013 (second project year), the P.I., Director and Site Coordinator, in collaboration with faculty from the School of Education's Division of Research Evaluation and Measurement, as well as faculty from the Division of Curriculum and Instruction, will develop a research design that gathers both qualitative and quantitative data to determine the extent to which teachers have been prepared to meet the academic and linguistic needs of secondary ELLs who enroll in STEM classes. The research design will be shared with partner LEAs for approval and will be cleared through the New Mexico Highlands University's Human Subjects Committee. The Director and Site Coordinator will visit classrooms to collect data in the fall of 2014. As an in-kind contribution, New Mexico Highlands University is committed to hiring graduate students to assist with collecting post-training data. Data collected from Cohort 1 teachers will be used to strengthen the program for Cohort 2 teachers and will be used by the evaluator to determine the degree to which the program is producing secondary STEM teachers who are skilled in meeting the linguistic and academic content area needs of secondary ELLs. The instruments used to gather research data will be modified in the summer of 2015 and will be used to gather data from Cohort 2 teachers. While the project will end in the summer of 2016, New Mexico Highlands University is committed to continuing the study, without federal support beyond that date. As a result of Objective 5, research-based articles will be written and submitted for publication and shared with the Office of English Language Acquisition, for distribution to other IHEs seeking to develop a similar M.A. and ESL endorsement program, specifically targeting secondary STEM teachers.

**Objective 6** speaks to building capacity of the program and to disseminating program results to other Institutes of Higher Education who wish to develop an M.A. degree and ESL endorsement

for STEM teachers. Dissemination will occur in several ways. First, the Director and the Coordinator will present program findings at the state and regional conferences and at the yearly Office of English Language Acquisition Summit.

**Course of Study** – The proposed Master of Arts degree and ESL endorsement program for secondary STEM teachers will consist of 36 hours of graduate course work. Teacher candidates will earn the Master’s degree in Curriculum and Instruction and a State of New Mexico Endorsement in ESL education. The following timeline will be used for Cohort 1 teachers. Fall 2011 will be used for program development and for the recruitment of Cohort 1 STEM teachers. Courses with an asterisk (\*) are courses where secondary ESL methods will be discussed.

**Timeline and Course of Study – Cohort 1 Secondary STEM Teachers**

Semester	Year	Prefix	Course Title	Hrs.
Spring	2012	GNEC 663	Principles of Curriculum Construction	3
Summer	2012	GNEC 605	Statistics for Educators	3
		GNEC 512	*Theories & Principles of Bilingual Education	3
Fall	2012	GNEC 615	*Instructional Strategies & Mentoring	3
		GNEC 645	*Social-Cultural Factors Affecting Education	3
Spring	2013	ENGL 543	Sociolinguistics	3
		GNEC 520	*Sheltered English	3
Summer	2013	GNEC 610	Educational Research Interpretation	3
		ANTH 651	*Communication & Culture	3
Fall	2013	GNEC 514	Computer Application	3
		GNEC 641	SPECIAL TOPICS: STEM Education Seminar	3

<b>Spring</b>	2014	GNED 611	*Action Research in Education	3
			Comprehensive Examination	0
<b>Total Hours</b>				<b>36</b>

Cohort 2 students will be recruited in the spring of 2014 and will begin their program of study in the summer of 2014. They will complete their program of study in the summer of 2016. The following timeline will be used for offering courses to teachers in Cohort 2.

**Timeline and Course of Study – Cohort 2 Secondary STEM Teachers**

<b>Semester</b>	<b>Year</b>	<b>Prefix</b>	<b>Course Title</b>	<b>Hrs.</b>
<b>Summer</b>	2012	GNED 663	Principles of Curriculum Construction	3
		GNED 512	*Theories & Principles of Bilingual Education	3
<b>Fall</b>	2012	GNED 615	*Instructional Strategy & Mentoring	3
		GNED 645	Social-Cultural Factors Affecting Education	3
<b>Spring</b>	2013	ENGL 543	*Sociolinguistics	3
		GNED 520	*Sheltered English	3
<b>Summer</b>	2013	GNED 610	Educational Research Interpretation	3
		ANTH 651	*Communication & Culture	3
<b>Fall</b>	2013	GNED 514	Computer Application	3
		GNED 641	SPECIAL TOPICS: STEM Education Seminar	3
<b>Spring</b>	2014	GNED 611	*Action Research in Education	3
<b>Summer</b>	2016	GNED 605	Statistics for Educators	3
			Comprehensive Examination	0

<b>Total Hours</b>	<b>36</b>
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Over the five years of this project, a total of 60 secondary STEM teachers from the six partner districts will earn a M.A. degree in C & I and a state-recognized endorsement in ESL.

### **Identity and Role of Each Member of the Consortium**

New Mexico Highlands University has entered into a partnership with school districts in Española, Taos, Mesa Vista, Peñasco, Pojoaque, and Santa Fe, New Mexico. Letters of Support from each partner district may be found in the Appendix of this application. These school districts were selected as the partner LEAs for several reasons. First, these districts are experiencing an increase in the numbers of ELLs and are unable to recruit qualified bilingual/ESL teachers who are skilled in meeting the educational needs of their growing English Language Learner (ELL) population. Second, reading and math proficiency levels for the districts' limited English proficiency student population are low and have remained low for several years.

**Role of the Partner LEAs** – When funded, the partner LEAs have agreed to: 1) Assist with the recruitment of quality program participants; 2) become members of the team that will select the most interested participants; 3) assist in designing a study to collect post-training data on the effectiveness of program graduates; and, 4) allow the Site Coordinator to visit teachers' classrooms to provide mentoring and demonstration teaching.

#### **(a)(2) The Proposed Project Reflects Up-to-Date Knowledge from Research & Practice**

The research on effective programs for secondary STEM teachers shows that four basic principles must be considered in developing quality professional development programs for secondary teachers, including: 1) embedding ESL teaching strategies into all courses within the Master's and ESL Endorsement program; 2) providing math and science teachers opportunities to practice skills learned in their classroom through required practicum in each of the courses; 3) collaborating with partner LEAs to assess the value of course work on the educational attainment of secondary ELLs, especially in science and math; and, 4) making the program more accessible to teachers by providing training that adheres to the participants' work schedule (Darling-Hammond,

2008; Genzuk & Baca, 2007; Middleton, Mason, Stilwe, & Parker, 1998). In preparation for the writing of the application, a planning committee, consisting of proposed Principal Investigator and Project Director, the Director of Bilingual/Multicultural Education at the Public Education Department, New Mexico Highlands University faculty from the Division of Curriculum and Instruction, and a member from each of the partner districts met to: 1) develop the program's goal and objectives; 2) design the course path for this project; 3) agree upon how practicum would be conducted; 4) agree that the evaluator would be allowed access to classrooms for observations and to test scores; and, 5) discuss strategies for offering courses on-site. The development of the on-site program was a critical discussion item, as teachers would have to travel a distance of 70 - 80 miles to attend courses on the NMHU campus.

Other research considerations when writing this application revolved around issues of underachievement of secondary ELLs, especially in areas of Science, Technology, Engineering and Math. According to Zeichner, (1999) & Crawford, (1996), one contributing factor for LEP students' underachievement is the mismatch between the needs of secondary students and the preparation of content area teachers. As a result, principals are forced to hire teachers who are not prepared to teach students who come to school speaking a language other than English. According to Gonzalez & Darling-Hammond (1997), inservice education—usually conducted as mass-produced hit and run workshops—is not well suited to providing teachers strategies for meeting the linguistic and academic needs of second language learners (Gonzalez & Darling-Hammond, 1997). According to Escamilla (2010), change in teacher behavior will only occur if colleges and universities provide professional development opportunities to teachers that include opportunities for them to make connections between the theories learned in university classes and their own classrooms. As a result of research, the proposed program will develop and implement a M.A. degree and ESL endorsement

program that requires supervised practicum and that is specifically designed with secondary math and science teachers in mind. The program will be based on recent research in the area of professional development opportunities for secondary teachers and will include: 1) creating cohort groups, as teachers learn best by collaborating with other teachers (Darling-Hammond, 1998); 2) by providing trainees opportunities to practice teaching strategies and assessments via supervised practicum embedded in all courses (McLaughlin, 2006); 3) providing sustained, intensive development that includes coaching and problem-solving (Echevarria & Short, 2008); and, 4) providing teachers opportunities to conduct action research so that they may experience the connections between inquiry and classroom teaching (Darling-Hammond & McLaughlin, 2006).

Student achievement can best be improved by insuring that all public school students, including those who do not speak English, have access to a rigorous curriculum, taught by teachers who are prepared and qualified to teach them (Echevarria, 2009). This project proposes to contribute to the improvement of student achievement by insuring that secondary STEM teachers participate in a quality teacher preparation program, specifically designed with their professional development needs in mind. The existing M.A. degree and TESOL endorsement program at New Mexico Highlands University is approved by New Mexico's Higher Education Department and the National Council for Accreditation of Teacher Education (NCATE). This program presently focuses on professional development opportunities for elementary teachers. As a result of this project, a secondary focus will be developed in the M.A. and ESL endorsement program. During the fall semester of the first project year, staff from the New Mexico Public Education Department will be invited to work closely with the P.I., Project Director, and New Mexico Highlands University faculty to revise course syllabi to reflect the training needs of secondary teachers. It is projected that development of the program will take one semester, with continuous revisions to the program made

throughout the five years. As a result of this project, secondary STEM teachers will not only learn methods and strategies for working with second language learners, but through practicum, will learn how to apply theory to their teaching practice.

Finally, the following ten principles represent the most current research in the field of ESL and bilingual education. These ten principles and research associated with them will be used when refining courses in the proposed program of study: 1) *Students learn language and culture through meaningful use and interaction* (García & Hamayan, 2006; García, 2005; Kramersch, 2003); 2) *Students use language in functional and communicative ways that vary according to context* (Schleppegrell, 2004; Halliday & Hassan, 1989); 3) *Students develop language proficiency in listening, speaking, reading, and writing interdependently, but at different rates and in different ways* (Gottlieb & Hamayan, 2007); 4) *Students' development of social, instructional, and academic language is the foundation for their success in school* (Anstrom, et. al., 2010; Francis, Lesaux, Kieffer & Rivera, 2006; Bailey & Butler, 2002); 5) *Students' development of academic language and academic content knowledge are inter-related processes* (Gibbons, 2009; Collier & Thomas, 2009; Echevarria, Vogt, & Short 2008); 6) *Students' academic language development in the native language facilitates their academic language development in English. Conversely, students' academic language development in English informs their academic language development in their native language* (August & Shanahan, 2006; Escamilla & Hopewell, 2010; Genesee, Lindholm-Leary, Saunders, & Christian, 2006; Gottlieb, Katz & Ernst-Slavit, 2009; Tabors, 2008); 7) *Students' access to instructional tasks requiring complex thinking is enhanced when linguistic complexity and instructional support match their levels of language proficiency* (Gottlieb, Katz, & Ernst-Slavit, 2009; Gibbons, 2002); 8) *Students draw on their metacognitive, metalinguistic, and metacultural awareness to develop proficiency in multiple languages* (Bialystok, 2007; Cloud,

Genesee, & Hamayan, 2009); 9) *Students' home, school, and community experiences influence their language development* (Nieto, 2008; Payne, 2003); 10) *Students' languages and cultures are valuable resources to be tapped and incorporated into schooling* (Escamilla & Hopewell, 2010; Freeman, Freeman, & Mercuri, 2002; Goldenberg & Coleman, 2010; Moll, Amanti, 1992).

#### **b. Quality of Key Personnel (10 pts.)**

##### **(b)(1) Position Descriptions and Qualifications of the P.I. and Project Director**

New Mexico Highlands University and the partner school districts are committed to equal opportunity in employment and education for all individuals on the basis of race, color, religion, national origin or ancestry, sex, age, physical or mental disability, serious medical condition, spousal affiliation, sexual orientation, gender identity, veteran status or any other basis prohibited by applicable law. Statements of nondiscriminatory employment practices are on file in the School of Education at New Mexico Highlands University, Las Vegas. The project will consist of a **(In-kind)** Principal Investigator (.10 FTE), a Project Director (1.0 FTE), a Site Coordinator (.5 FTE) and a Staff Assistant (1.0 FTE). The individuals that will be hired for the positions possess experience working with underrepresented groups and must have experience working in teacher education programs. If vacancies should become available, preference will be given to individuals who are members of underrepresented groups and/or who have extensive experience working with teacher education programs in the field of bilingual and ESL education.

##### **Position Descriptions – P.I. and Project Director**

Dr. Paul Martinez will serve as the in-kind Principal Investigator for this project. He will be responsible for overall management of the project and will be the link between the project and New Mexico Highlands University faculty and Dean of the School of Education, Michael Anderson. Should this vacancy occur, the following job description would be used in filling the position.

***Position Description – Principal Investigator*** – The **10% time Principal Investigator** must hold a Ph.D., must possess experience working with diverse student populations and must possess experience teaching graduate level courses in reading, multicultural education, curriculum development and bilingual and ESL education.

The P.I. will be responsible for: 1) overall program management; 2) overall supervision of the Director, Site Coordinator and Staff Assistant; 3) meeting with New Mexico Highlands University faculty to review course syllabi to ensure course content is specific to the training of secondary teachers; 4) overseeing the project budget; and 5) participating in meetings between the State Education Agency, New Mexico Highlands University faculty, project staff and LEA partners. The P.I. will also be responsible for working closely with the Director in establishing the on-site program.

A Project Director will be hired to work **full time**. Throughout the five project years, Dr. Chávez will be conducting extensive research in the area of secondary teaching methods for ELLs, will be embedding ESL standards in to all course syllabi within the program, will be developing practicum for courses, and will be working with LEA partners, School of Education faculty and the New Mexico Public Education Department to approve the program. Upon notification of funding, Dr. Chavez will develop a recruitment plan. The recruitment plan developed in year one will be used to recruit Cohort 2 STEM teachers.

***Position Description, Director*** – The Director must hold a Ph.D. and must be experienced in developing and implementing teaching education programs, specifically targeting secondary math and science teachers who wish to earn an endorsement in bilingual/ESL education. The Director must possess experience teaching graduate and/or undergraduate teacher education courses in multicultural curriculum, reading, and bilingual/ESL education. The Director must be bilingual (English and Spanish) and must possess experience working with diverse student populations. He/She will be responsible for the following: 1) the day-to-day management of program activities, including revising course syllabi to ensure K-12 and ESL standards and assessments are present in all courses; 2) meeting with IHE and LEA partners to place trainees in high need classrooms, 3) in

collaboration with the Site Coordinator, P.I. and other New Mexico Highlands University faculty and New Mexico Public Education Department staff, review course content to assure secondary state content standards are embedded into all courses; 4) work closely with students to schedule classes and to embed practicum into courses, ensuring a direct and immediate transfer of theory learned in courses to real classroom settings; 5) for meeting with the P.I. and New Mexico Highlands University faculty to apprise them of progress made in meeting project objectives; 6) working with the project evaluator on all aspects of the project evaluation; 7) meeting with LEA administrators and Boards of Education to keep them informed on the progress made by the project in preparing their teachers to teach ELLs; 8) meeting with the P.I. and the New Mexico Department of Education to gain final approval for the on-site program; 9) working closely with the P.I. and other New Mexico Highlands University faculty to develop a research design to conduct post-training data on effectiveness of the program; and, 10) to disseminate the program and work with the P.I. and other interested New Mexico Highlands University faculty to write research-based articles related to this project. Published articles will be distributed at state and national conferences.

#### **Qualifications of the P.I. and Project Director**

**Dr. Paul Martinez** will serve as the Principal Investigator for this project. Dr. Martinez holds a Bachelor of Arts degree in Education, a Master of Arts degree in Education with emphasis in Bilingual Education and an Ed.D. in Curriculum and Instruction with an emphasis in Bilingual Education from New Mexico State University. He holds the title of professor in the School of Education on the New Mexico Highlands University campus. Dr. Martinez is an experienced teacher and university professor. He has taught graduate and undergraduate teacher education methods courses and graduate level courses in bilingual and ESL education. As an Associate Professor at Metropolitan State College of Denver from 1981 to 1985, Dr. Martinez taught bilingual and ESL courses and served as the Chair of this department. Presently, Dr. Martinez serves in the capacity of Director of the Center for the Education and Study of Diverse Populations (CESDP) and former Director of the Region IX Southwest Comprehensive Center at NMHU. Dr. Martinez has published over 20 articles in the field of bilingual, ESL education.

**Dr. Rodolfo Chávez**, the proposed Project Director, holds a Bachelor of Arts degree in bilingual-bicultural education, a Master of Arts degree in Bilingual Bicultural Education, and a Ph.D. in Social, Bilingual, Multicultural Foundations, with emphasis in secondary bilingual and ESL methods from the University of Colorado at Boulder. Dr. Chávez also holds a valid teaching license and valid endorsements in bilingual and ESL. He began his teaching career as a bilingual teacher with the Fort Lupton Schools, Fort Lupton, Colorado where he taught both at the elementary and secondary levels. From 1977 to 1980, he served in the capacity of Director of Bilingual/ESL Education with the Fort Lupton schools. In 1981, Dr. Chávez was hired as the Director of the BUENO Bilingual Education Service Center (BESC) and in 1983, the Director of a Bilingual Education Multifunctional Support Center (BEMSC). In 1986 he took a leave of absence from the University of Colorado to serve as an Assistant Professor in the College of Education at Eastern New Mexico University, Portales and from 1988 to 1994, he was recruited to serve as the Director of the Mountain States Multifunctional Resource Center at Arizona State University. From 1994 to 2001, Dr. Chávez was asked to return to the University of Colorado to serve as the Associate Director of the BUENO Center. During this time, Dr. Chávez was also responsible for teaching graduate level courses in bilingual and ESL education. Presently, Dr. Chávez is an Adjunct Assistant Professor in the School of Education at NMHU and has published over 15 articles in areas of parent involvement and bilingual/ESL teaching methods. Dr. Chávez also served as president of the National Association for Bilingual Education for three terms.

**(b)(2) Qualifications and Experience of Other Key Project Personnel**

**Position Descriptions – Site Coordinator and Staff Assistant**

The **50% time Site Coordinator**, will work under the direct supervision of the Project Director. Ms. Patricia Cloud will be responsible for: 1) assisting with revising course syllabi to ensure K-12 standards and assessments are present in all courses; 2) participating in meetings with IHE and LEA partners to place trainees in high-need classrooms, 3) working with the Director to review course content to ensure secondary math and science state content standards are embedded

into all courses; 4) working closely with the Director to embed practicum into courses, ensuring a direct and immediate transfer of theory learned in courses to real classroom settings; 5) supervising and assisting with the supervision of practicum; 6) collaborating with school district personnel to schedule classes on site; 7) keeping principals informed on the progress made by the project in preparing teachers to teach math and science concepts to ELLs; and, 8) assisting the P.I., Director and other New Mexico Highlands University faculty to develop a research design to conduct post-training data on effectiveness of the program.

### **Qualifications of the Site Coordinator**

Ms. Patricia Cloud will serve as the Site Coordinator. Patricia Cloud holds a Bachelor of Fine Arts from Colorado State University, a Bachelor of Science in Education from Bemidji State University, a Master of Education with two concentrations: Curriculum and Instruction and Administrative Leadership from the University of Alaska, Fairbanks. She has completed all coursework for her doctorate in Cross-Cultural Studies, also from the University of Alaska, Fairbanks. Patricia has been a K-12 teacher, an education researcher, a university professor, a clinical supervisor at the university level, a senior education consultant, and the Executive Director for Re:Learning New Mexico. Having expertise in curriculum development, Patricia worked on a five-year project to develop culturally relevant science curricula funded by the National Science Foundation. The outcome of this project, *Native Ways of Knowing*, created an aligned, integrated math and science curriculum supportive of Native Athabascan students. Patricia Cloud has served on many district K-12 curriculum committees to help develop vertically aligned curricula in language arts, math, science, social studies and elective course work using state standards. Presently, Ms. Cloud is working as a senior associate for the Center for the Education and Study of Diverse Populations, providing New Mexico schools with

technical assistance that focuses on sheltering instruction for ELs, literacy skills for math and science teachers, and leadership training for principals and leadership teams.

A full time **Staff Assistant** will be hired to assist with all administrative functions of the project. The individual must hold an Associate of Arts degree or higher, must be bilingual (English/Spanish) and must possess computer experience and experience operating standard office equipment (copier, fax machine, etc.). The Staff Assistant will be responsible for: 1) all correspondence associated with the project, including answering the phone and providing project information to clients; 2) developing and maintaining student files; 3) ordering books and materials; 4) working with the Director, P.I. and the Office of Contracts and Grants on the New Mexico Highlands University campus to ensure that program expenditures are legitimate; 5) attending meetings and transcribing minutes of all meetings; and, 6) providing secretarial support to project staff and to faculty who will teach courses.

The proposed **Program Evaluator**, Dr. Lorenzo Aragon, serves as an Associate Director of the BUENO Center for Multicultural Education and is an Assistant Research Professor in the School of Education at the University of Colorado at Boulder. He holds a B.A. degree in bilingual and ESL Education from the University of Northern Colorado, a Master of Arts degree in Curriculum and Instruction with emphasis in bilingual/ESL from the University of Colorado at Boulder and a Ph.D. in Educational Leadership, emphasis on bilingual teacher training and bilingual program development from the University of Colorado at Denver. Dr. Aragon taught in an elementary and secondary public school classroom for eight years, served as a the Director of Bilingual Education in Weld County School District, Re 8, for three years, and was an elementary school assistant principal and a Dean of Student Services at Front Range Community College, Boulder campus. He taught undergraduate teacher education courses at the University of Northern Colorado in bilingual/ESL

education and presently teaches graduate level courses in Education, Equity and Cultural Diversity at the University of Colorado, Boulder Campus. Over the past 29 years, Dr. Aragon has served as an evaluator for federally funded programs, including numerous Title VII and Title 3 programs. Dr. Aragon was consulted when writing this application and, based on the program goal and objectives, designed this evaluation plan.

**c. Quality of the Management Plan (20 pts.)**

**(c)(1) The Adequacy of the Management Plan to Achieve the Objectives**

The Management by Objective Matrix below provides detailed information on: 1) the activities used in accomplishing each proposed project objective; 2) the timeline for accomplishing each activity; and, 3) person(s) responsible for accomplishing each objective. The anticipated milestones for this program are as follows: (a) Revise the existing program with focus on embedding STEM standards and English Language Development (ELD) standards into existing courses (12/11 and revise yearly); (b) recruit and admit secondary STEM teachers to the program (12/11 (Cohort 1) and 6/14 (Cohort 2)); (c) Finalize training plan with the partner LEA on 12/11 and continue modifying the program yearly, as needed each year; (d) Begin offering courses 1/12 and each semester thereafter; (e) Infuse practicum into education and ESL courses (yearly); (f) Assist in placement of graduates into high need classrooms (8/14 and 8/16); (g) Publish project outcomes the summer of years 3 – 5; and, (h) graduate 30 secondary math and science teachers (spring 2014 and summer of 2016).

In order to ensure achievement of the objectives, an internal **organizational management** of this project will be used. Dr. Paul Martinez, the proposed P.I., will be responsible for overall project management. Dr. Martinez will report to Dr. Michael Anderson, Dean of the School of Education on the New Mexico Highlands University campus. Dr. Martinez will be in direct contact with

faculty members from the Division of Curriculum and Public Education Department. The proposed Project Director, Dr. Rodolfo Chávez, will report to Dr. Paul Martinez. He will supervise the Site Coordinator and will be responsible for the day-to-day management of the program. The Site Coordinator, Ms. Patricia Cloud, will be the link between teachers and the training program. She will supervise all practicum experiences for teachers, assist professors in embedding practicum experiences in courses, and will model ways in which trainees may utilize research-based teaching strategies when teaching content to ELLs.

The Staff Assistant (to be named) will report directly to the Project Director. She/He will be responsible for assisting with secretarial support and will be the link between the project and the Office of Contracts and Grants. The External Evaluator will report to the P.I. and Director. He will be responsible for implementing a sound evaluation system, based on the evaluation design, proposed in this application. The Office of Contracts and Grants (OCG) will be responsible for all budgetary transactions. Financial transactions, approved by the P.I. and/or Director, will be countersigned by OCG, assuring that dollars are spent as described.

### **The Management by Objective Matrix**

The following pages provide information on the activities that will be implemented to accomplish each project objective, the persons responsible, the evaluation aspects and the timeline to be used in accomplishing each objective.

### MANAGEMENT BY OBJECTIVE MATRIX

**Objective 1:** Embed a secondary focus and K-12 English language standards into courses.

Activities to Accomplish Objective	Evaluation Strategies	Person Resp.	Timeline
1.1 Collect M.A. and ESL course syllabi	1.1 All syllabi on electronically on file	- P.I. & Dir., Asst.	-7/2011
1.2 Research standards/K-12 Standards	1.2 Documented research on file	- Dir., Site Coord.	-8/2011
1.3 Review syllabi - embed standards/practicum into courses	1.3 Syllabi as evidence standards and practicum embedded in courses	- P.I., Director State Dept. of Ed.	-9/2011
1.4 Share with NMHU Faculty/Dean – attain approval for program of study	1.4 Agenda & minutes of meeting(s) Email showing approval	-P.I. & Dir., Faculty, Dean, Staff Asst.	10/2011
1.5 Share approved courses with State PED staff. Seek suggestions for improvement	1.5 Agenda & minutes of meeting(s) and suggestions from Dept. of Ed.	-P.I. & Dir., Dept. of Ed. Staff, Asst.	10/2011 & on-going
1.6 Share approved courses with each of the LEA partner districts	1.6 Agenda & minutes of meeting(s) held in each of the districts.	-P.I., Dir., LEA staff	11/2011 & on-going
1.7 Meet with faculty to finalize the offering of courses for cohort students.	1.7 Agenda of meeting with professors who will teach courses	-P.I. & Director -NMHU faculty/Dean	12/2011 & on-going

**Objective 2:** Recruit two cohorts of 30 secondary STEM teachers (60 over five years) from the six partner districts

Activities to Accomplish Objective	Evaluation Strategies	Person Resp.	Timeline
2.1 Notify NMHU and partner districts of funding	2.1 Letter of Notification on file	-P.I., Dir. Asst.	-7/2011
2.2 Develop & approve recruitment application	2.2 Approved plan on file	-P.I., Dir., -P.I., Asst.	-8/2011 & 1/2014
2.3 Meet with partner district admin. and interested STEM teachers. Explain application process	2.3 Agendas of meetings on file	-P.I., Dir, STEM teachers, Asst.	-9/2011 & 2/2014
2.4 Convene selection committee. Select participants from each partner district.	2.4 Lists of selected trainees on file	-P.I & Dir, District Admin., Staff Asst.	-10/2011 & 3/2014
2.5 Develop list of accepted/non-accepted STEM teachers. Develop alternate list.	2.5 Lists approved by selection committee and on file	-Dir., Staff Asst., Selection Committee	-10/2011 & 4/2014
2.6 Notify participants of acceptance/non-acceptance via email.	2.6 Letters sent to applicants on file	-P.I., Director, Staff Asst.	-11/2011 & 5/2014
2.7 Trainees complete NMHU application.	2.7 Completed applications on file	- Director, Staff Asst.	-12/2011 & 5/2014
2.8 Register selected participants for classes	2.8 Registration forms on file	- Director, Staff Asst.	-On-going

**Objective 3** To offer courses each semester that accommodate program participants' work schedules.

Activities to Accomplish Objective	Evaluation Strategies	Person Resp.	Timeline
3.1 Meet with NMHU faculty - approve offerings	3.1 Letter of approval on file	- P.I., Dir., Faculty	-11/2011
3.2 Identify course instructors	3.2 List of instructors on file	- P.I., Dir., Faculty	-On-going
3.3 Meet with participants to agree on schedules	3.3 Agenda of meetings held on file	- Dir., & Trainees	-Each Sem.
3.4 Secure site to offer courses	3.4 Letter approving course site on file	- P.I. & Director	-On-going
3.5 Develop schedule of coursework for each sem.	3.5 Course path scheduled & on file	- Dir., & Faculty	-Each. Sem.

**Objective 4:** Embed supervised practicum experiences into each of the courses within the M.A. degree program.

Activities to Accomplish Objective	Evaluation Strategies	Person Resp.	Timeline
4.1 Review lit. on embedding practicum in courses	4.1 Literature on file	-Dir. Coord., Asst.	8/1/2011 & on-going
4.2 Meet with faculty to discuss ideas for practicum	4.2 Agenda of meetings on file	- Dir, Coord. Faculty	-On-going
4.3 Supervise practicum for each course	4.3 Agendas of mentoring on file	- Coord., Faculty	-On-going
4.4 Evaluate effects of mentoring	4.4 Evaluator's notes of visits on file	-Eval., Coord., Dir.	-On-going
4.5 Monitor student test scores, reading & math	4.5 Scores each yr. on file	-Eval., Dir., Coord.	-On-going

**Objective 5:** Design a study to collect post-training data on the effectiveness of program graduates and completers.

<b>Activities to Accomplish Objective</b>	<b>Evaluation Strategies</b>	<b>Person Resp.</b>	<b>Timeline</b>
5.1 Design framework for the study	5.1 Minutes of meetings held	- P.I. & Director	-8/1/2011
5.2 Meet with NMHU faculty to discuss framework	5.2 Written results of meeting on file	- P.I., Dir., Faculty	-10/2011 & ongoing
5.3 Meet with LEAs to seek approval for study	5.3 Results of meetings held on file	- P.I., Dir., LEA	-11/2011 & ongoing
5.4 Seek approval from NMHU Human Subjects	5.4 Approval letter on file	- P.I. Director	-12/2011
5.5 Conduct study and report findings	5.5 Reports of findings on file	- P.I., Dir., Faculty	-Ongoing

**Objective 6:** To build program capacity and disseminate program successes to other IHEs.

<b>Activities to Accomplish Objective</b>	<b>Evaluation Strategies</b>	<b>Person Resp.</b>	<b>Timeline</b>
5.1 Gather info. on program successes	5.1 On file in project office	-Dir., Coord.	-Yearly
5.2 Develop presentations to disseminate program	5.2 Power points on file	-P.I., Dir., Coord.	-Yearly
5.3 Write articles on success of the program	5.3 Articles on file	-P.I., Dir., Coord.	-Yearly
5.4 Submit articles for publication	5.4 Proof of submission of articles	-Director	-Yearly
5.5 Present findings at State and National Conf.	5.5 Agendas of presentations	-P.I., Dir., Coord.	-Yearly

**(c)(2) Time Commitments of Project Staff are Appropriate and Adequate**

The following table provides time commitments of each of the proposed project staff.

<b>Staff</b>	<b>% of Time Commitment</b>
Principal Investigator – Dr. Paul Martinez	10% Time (In-kind)
Project Director – Dr. Rodolfo Chávez	100%
Site Coordinator – Ms. Patricia Cloud	50% Time
Staff Assistant – To Be Named	100% Time
External Evaluator – Dr. Lorenzo Aragon	20 days

The time commitments of each of the proposed project staff are based on the job descriptions described in the pages above. It must again be noted that Dr. Paul Martinez will provide overall leadership for this project, at no cost.

**d. Quality of the Project Evaluation**

**(d)(1) Methods of Evaluation are Thorough, Feasible, and Appropriate**

The Context, Input, Process and Product (CIPP) evaluation model will be used in evaluating the proposed Secondary M.A. and ESL endorsement program, specifically designed for secondary Science, Technology, Engineering and Math (STEM) teachers. Developed by Stufflebeam, Gullickson & Wingate (2003), the CIPP evaluation model is a comprehensive framework for guiding formative and summative evaluations of federally-funded programs, which is based on guiding principles of evaluation set forth by the U.S. General Accounting Office's *Government Auditing Standards* (2003) and on the U.S. Department of Education's document titled *Practitioner's Evaluation Guide*, developed at the University of Virginia. The model's core concepts of evaluation are denoted by its acronym, CIPP; evaluation of a program based on Context, Input, Processes, and Products. In this model, **C**ontext evaluation assesses the needs, problems and positive aspects of a program to help program staff determine whether

program goals and objectives are being met and to provide information to partner school districts and collaborating IHEs on the training provided to trainees so they may also judge the effectiveness of coursework in providing STEM teachers skills in teaching English and academic content to English L Learners. In order to determine the effectiveness of the program, the evaluator will track yearly test scores of students from each of the partner districts.

**Input** evaluation is used to assess whether alternative approaches should be used in the evaluation process and to determine the cost-effectiveness of the project. During each evaluation cycle, the evaluator will interview all those affected by program services (program staff, LEA administrators, and teachers) to determine their satisfaction with the program. In addition, the evaluator will review program budgets each year to determine whether program funds are being used appropriately and per federal guidelines. **Process** evaluation, or the formative stages of evaluation, is used to assess the implementation of project activities and to judge whether the activities are leading to successful completion of the intended outcomes. The Management by Objective matrices located on pages 22 – 27 list all activities that will be completed in order to accomplish each project objective. Each year, the evaluator will assess the degree to which each of the activities is leading to successful completion of the objective.

Finally, **Product** evaluation, or the summative stage of evaluation, is used to identify and assess overall outcomes, both intended and unintended, to help project staff and partner LEAs assess the project's ability to meet the training needs of teachers, thus positively affecting ELLs ability to speak, read and write in English and to do well on in subject areas of math and science. In order to judge the yearly and overall effectiveness of the project, the evaluator will gather formative data each year. Based on formative data, he will write a summative report of findings that will be submitted to the U.S. Department of Education each year. At this phase of

evaluation, the external evaluator will also report on the degree to which the project is meeting the following GPRA Measures – GPRA Measure 1.5 – The percentage of in-service teacher completers who complete State and/or local certification, licensure, or endorsement requirements in ELLs instruction as a result of the program; and Measure 1.6 – The percentage of in-service teacher completers who are providing instructional services to EL students. In addition to meeting GPRA requirements, the effectiveness of course content and practicum experiences in each of the courses will be evaluated via course evaluations and observations by the Coordinator and Evaluator. The Director will also meet with staff from the New Mexico Public Education Department, who will review courses to determine the extent to which K-12 NM English Language Development (ELD) standards are embedded into courses.

Throughout the five years of the project, the External Evaluator will evaluate the degree to which courses within the program meet state standards for K-12 licensure and endorsements in ESL education for secondary teachers. This will ensure that courses are preparing secondary teachers with the skills needed to meet NCLB Highly Qualified Teacher requirements.

**(d)(2) Methods of Evaluation Include Objective Performance Measures**

The CIPP evaluation model requires the use of quantitative, qualitative and triangulation procedures in evaluating the worth of a program. During the formative stages of evaluation, the evaluator will provide project staff and partner agencies qualitative data, following guidelines recommended in the Context, Input, Process and Product (CIPP) model; including 1) describing the Context of the project and to identify potential problems that may exist and provide suggestions for meeting identified needs; 2) providing Input data that describes day-to-day operation of the program and provides suggestions or alternative strategies for strengthening the program's design; 3) providing information on the Process used in meeting program goals and

objectives and providing suggested activities that will meet the project's goal and objectives; and, 4) providing Product, or end of the year information, and make suggestions for modifying, adopting or discontinuing certain aspects of the program. During the summative stages of evaluation, the evaluator will utilize quantitative methods in analyzing the overall effectiveness of the program, again following guidelines recommended in the CIPP model. A review of formative data will be used to conduct a statistical analysis to measure the extent to which the goal and objectives have been achieved. The matrix on pages 22 - 27 provides information on evaluation criteria to be gathered in evaluating program activities.

Formative and summative evaluation will occur throughout each year. Questions to be addressed during the formative phase of evaluation include: 1) What needs to be done? How should it be done? Is it being done? Is it succeeding? The evaluator submits interim reports addressing these questions to keep stakeholders informed about findings, help guide decision-making, and strengthen staff work. In finalizing a summative report, the evaluator will address the following questions: 1) Were important needs addressed? Was the effort guided by a defensible plan and budget? Was the service design executed competently and modified as needed? Did the effort succeed? The formative **stage** of evaluation will be to study how the program operates on a day-to-day basis, how it is influenced by various situations in which it is applied, and what the people directly affected by this program regard as its advantages and disadvantages. Throughout this process, the evaluator will "illuminate" the most significant features of the program and determine how these features relate a complex array of questions, including "hidden" as well as visible variables. The methodological strategies to be used during the formative stage of evaluation are: observations; interviews with staff; questionnaires; and analysis of project documents including information on student progress. These methodological

strategies, in combination, will help to uncover any problems that may exist in the project. Furthermore, it will assist in determining: 1) secondary teachers' understanding of research-based ESL teaching strategies; 2) secondary teachers' success in coursework; 3) their satisfaction with program management; 4) their ability to utilize learned skills from university courses with ELLs in real classroom settings; and, 5) each partner's perception of the project in meeting the goal and objectives of the project. The external evaluator will meet with project staff and partners each semester to apprise them of the project's success at addressing the above questions. Program participants, LEA staff, university faculty, and project staff will be involved during this stage of evaluation. Individuals will freely express their perceptions of the project. This information, along with observational data, will determine the extent to which the program is meeting needs.

The summative stage of evaluation will include an analysis of overall program results, which are based on information gathered during the formative evaluation stage. The external evaluator will submit the summative evaluation report 30 days after the end of each project year. The report will include comprehensive data (qualitative and quantitative), including: 1) an analysis of the programs' ability to meet the professional development needs of secondary teachers, based on surveys and interviews gathered during the formative evaluation state, and provide recommendations for program improvement; 2) a comprehensive analysis of secondary teachers' progress in completing coursework, including grades earned in completed courses; 3) an analysis of project staff's management of the program, based on surveys and questionnaires; 4) a detailed analysis of how the program goals and objectives are being met; and, 5) a detailed analysis of the cost benefits of the program and an analysis of how project dollars were spent each year.

**(d)(3) Extent to Which Evaluation will Provide Performance Feedback**

The overall purpose of the evaluation is to provide feedback to assess the overall worthiness of the project. The formative stages of evaluation to be used in this project will be used to study how this professional development program for STEM teachers operates, how it is influenced by various factors in which it is applied, and what the people directly concerned with the program regard as its advantages and disadvantages. It is important to discern how the program's most significant features relate to how it will seek to address and to illuminate a complex array of questions, including "hidden" as well as visible variables. The methodological strategies that will be used by the evaluator during the formative stage of evaluation include: observations, interviews with participants; questionnaires, and an analysis of student records to assess the degree to which participants are succeeding in courses. In combination, these formative evaluation strategies will help to "illuminate" problems, issues, and significant program features that need attention during each semester of each project year. In addition, the formative stage of evaluation will also "illuminate" those features that are proving successful. Each year, a summative report will be submitted to the U.S. Department of Education, Office of English Language Acquisition. In this phase of evaluation, the external evaluator will measure the extent to which the program has met its objectives. In order to accomplish this, the evaluator will review records to assess the degree to which the activities associated with each objective were met. In essence, the summative report that will be submitted to the U.S. Department of Education each year will include: 1) a description of the program design as planned. This description includes the resources of the program, the related activities and operations and the anticipated products or results; 2) information on the degree to which STEM teachers are practicing learned skills in their classrooms with ELLs; 3) the degree to which

assistance from the Site Coordinator is leading to more effective practices among trainees; 4) information on test scores of students whose teachers are involved in the program; and 5) a determination on the cost benefit of the program.

The formative and summative evaluation report will be prepared by the program evaluator in collaboration with project staff and will then be submitted to the Department of Education, Office of English Language Acquisition (OELA). The evaluator will be contracted for 20 days each year. Twelve days (4 days each semester) will be devoted to formative evaluation processes, including observing in classrooms, conducting interviews with project trainees, partner agencies and program staff and for summarizing data collected during this stage. In addition, the evaluator will devote three days to develop an interim report (end of fall, spring and summer semester of each year) and will meet with project staff and partners to report formative evaluation findings and to make recommendations for program improvement. The evaluator will use the final five days of evaluation each year to develop a comprehensive summative evaluation report and to meet with project staff and partner agencies to summarize findings and to make recommendations for program improvement.

**General Educational Provisions Act (GEPA)** - In compliance with Section 427 of the U.S. Department of Education's General Education Provisions Act (GEPA), this project will address barriers that can impede equitable access or participation, such as gender, race, national origin, color, disability or age. The proposed Secondary STEM MA and Endorsement project will engage in a comprehensive needs assessment that includes developing a school-level team comprised of principals, teachers, counselors, and parents and conducting surveys with teachers, principals, families, students, counselors and other stakeholders about issues and barriers to success, the changes they want to see in the school and to elicit ideas around

how goals will be reached. Potential barriers for recruiting and supporting parent involvement in the needs assessment and surveying process include 1) family member's work-related commitments that would compete with meetings 2) language barriers for family members who have limited English proficiency and 3) differences in access to technology. In order to ensure equitable access and participation, communication with families will be provided and available in the appropriate language and in multiple ways (such as the internet, radio, marquis, brochures). Meetings will be held at times that accommodate working parents and translators will be available as needed. The application proposes to work within rural districts and schools with high percentages of culturally and linguistically diverse populations. In order to reduce these potential barriers, the project will ensure that program staff will be adequately trained in culturally competent instruction, have appropriate academic credentials, extensive experience, understanding and success working with 1) linguistically and culturally diverse populations, 2) students that are historically underrepresented in rigorous, college and career ready courses and assessments (including students with limited English proficiency, students from low-income families and communities, and students from families with no history of attending college). The application proposes to provide online information to various constituencies. All online information will be fully accessible.