

**Contextualizing the Common Core State Standards in the Espanola Valley:  
*Using Place-Based Education as a Best Practice for Improving Teacher Quality and  
Closing the Achievement Gap in K-8 Charter Schools***

**1. ABSTRACT**

Northern New Mexico College's (NNMC) College of Education is applying for \$125,944 to fund a professional development program that will raise the reading, math and science content knowledge of pre-service and in-service teachers from Cariños Charter School and La Tierra Montessori School by implementing the *Environment as the Integrating Context* (EIC™) learning model, which utilizes natural and socio-cultural environments as the context for learning. Data from over a dozen states and spanning two decades shows significant increases in students' academic achievement and standardized test scores in reading, math and science when standards-based frameworks for environmental education were employed.

This grant will fund the initiation and curriculum planning work of a cohort of faculty from the College of Arts and Sciences and College of Education, NNMC pre-service, Charter School in-service teachers, and local environmental scientists. During the 14-month grant period, cohorts will work together on planned activities that support the co-development and classroom implementation of three interdisciplinary inquiry-based curricula. The grant activities will increase the capacity of pre-service and in-service teachers by partnering them with STEM faculty and environmental scientists; increase the engaged teaching proficiency among STEM faculty through their work with Education faculty and teachers; and develop the Learning Community initiated by this grant into a broader network of northern New Mexico formal and informal educators who will work together to identify community-based investigations that could serve as best practices in environmental education, thereby working to close the achievement gap in reading, math and science in northern New Mexico schools.

## **2. NARRATIVE**

### **ENVIRONMENTAL EDUCATION MAKES FOR BEST PRACTICE IN CLOSING ACHIEVEMENT GAP**

Two decades of research using scientific, peer-reviewed methodologies have clearly demonstrated that learning experiences employing environmentally based curricula have multiple benefits for K-12 students (Wells 2003; Duffin et al. 2003; Lieberman & Hoody 1998). Regionalized/eco-contextualized curricula have been shown to significantly improve students' engagement in and enthusiasm for school, reduce discipline and classroom management problems and enhance students' understanding of and appreciation of their natural world. Most importantly however, an environmentally based project grounded in state standards creates deeper and more meaningful learning, and as a result improves students' academic achievement in math, science and language arts (Avery 2013; Lieberman 2013).

Two charter schools located in Española, Cariños de los Niños (CDLN) and La Tierra Montessori School of Arts and Science (LTMAS), are poised to make a deeper commitment to using the local environment as a learning context and framework for improving their students' achievement in reading, math and science. CDLN and LTMAS both focus on providing their students with a curriculum steeped in local knowledge and language, arts and culture, but are struggling to meet their AYP standards-based proficiency goals. In the 2012-2013 school year, only 30% of CDLN and 20% of LTMAS 5th graders scored proficient in the reading section; and 15% and 10%, respectively, scored proficient in the math sections of NMSBA. These scores are well below those of Española Public Schools and NM State proficiency averages. Teachers from both schools would clearly benefit from a place-based curriculum model that improves their teaching of the NM state standards in reading, math and science; and enhances student's learning

experience by focusing on hands-on, experiential learning frameworks that highlight and utilize their environment and ecosystems as classrooms for heightened learning.

To achieve this, College of Education faculty will use a research-based established pedagogical framework called the *Environment as an Integrating Context for Learning*, or EIC.™ The EIC™ model uses the natural, local environment and the surrounding community as a context for connecting students' learning across the curriculum. The pedagogical focus is the relevance of the standards in solving real-world problems and the use of guided inquiry and hands-on, authentic learning experiences where students answer local environmental questions that engage learners and teachers alike. Studies have shown that additional benefits of the EIC™ model include the improvement of students' critical thinking and problem solving skills, and dramatic improvement in the behavior and attitude of students (Ernst and Monroe, 2004).

The EIC™ framework is supported by 19 years of research conducted by 13 U.S. State Departments of Education that formed the States Education and Environment Roundtable (SEER) in 1995. SEER has conducted experimental studies in urban and rural schools and found that students using EIC™ standards-based models either matched or significantly outperformed their peers who attended schools with more traditional curricula in state standardized reading, math and science test scores (Lieberman, 2013; Duffin et al. 2005; Lieberman and Hoody 1998).

The professional development activities this project proposes will address the NMHED Title II Teacher Quality Grant Program's priorities accordingly:

- 1) The program will use pre- and post-content knowledge tests, based on state content standards, to measure improvements in the participating pre-service and in-service teachers' math and science content knowledge. The program will achieve this through the inclusion of Northern New Mexico College's mathematics, chemistry and engineering faculty. These STEM

faculty will work alongside the College of Education faculty to design pedagogically sound, professional development activities that will enhance pre-service and in-service teachers' understanding of the Common Core State Standards (CCSS) content. Local environmental scientists will augment the trainings throughout the program and further demonstrate how to link local research and information on climate change to CCSS content.

2) This program will improve the participating pre-service and in-service teachers' understanding of the pedagogical requirements of CCSS. The professional development activities will require the K-8 teachers to map how CCSS standards, especially the eight mathematics "performance standards," are addressed and implemented in the context of an inquiry-based project to create a highly rigorous community-based investigation. One of the outcomes of the project activities will be a curriculum alignment and standards unit matrix (generated by the teachers) that delineates how CCSS Mathematics, CCSS ELA and in the case of science, the Next Generation Science Standards (NGSS) have been applied in their curriculum's learning objectives and lesson plans.

#### **PROJECT PLAN: MEASURABLE GOALS, ACTIVITIES AND TIMELINE**

The thrust of this grant is to increase the number of highly qualified Charter School teachers in K-8 schools in Rio Arriba County. This will be achieved through two channels: first, the teachers will interact with a network of STEM experts (NNMC STEM faculty and local scientists) who will present activities and information aimed to improve the groups' standards-based content knowledge and knowledge of local environmental change. Second, the professional development activities will be organized into a new 3-unit, 400-level independent study course in the College of Education entitled, "Place-Based Education: Studying Climate Change in Northern New Mexico with Common Core in Mind," that will provide an opportunity

for both teacher groups who work in K-8 schools to earn more college credit in math and science, and thus become more highly qualified in these two disciplines.

#### **CREATION OF PLACE BASED EDUCATION HIGHER EDUCATION-K-8 LEARNING COMMUNITIES**

At the center of the professional development is the creation of Higher Education-K-8 Learning Communities, who will provide support for K-8 in-service charter school teachers to create a high quality, standards-based student project to be implemented at their school sites during the 2015-2016 school year. The 2014-2015 school year will consist of a series of professional development sessions that benefit all parties through sharing of STEM content, pedagogical strategies, and environmental resources. For example, by allowing these pre-service and in-service educators the time with these content experts, they can more deeply learn the content behind the Common Core Math and ELA Standards as well as the NGSS Science Standards. In addition, the STEM faculty will work with College of Education faculty to understand the benefits of inquiry-based teaching methods and place-based education in the college classroom. Finally, the inclusion of the environmental scientists allows teachers to develop professional relationships with the informal educator community that can assist teachers in acquiring local data and knowledge of climate change.

We anticipate having enough faculty, teachers and community scientists to form three Learning Communities (LC) each with a different STEM focus. Each LC will develop the student project around their STEM faculty focus area: engineering, chemistry or math. All three LC will work with Christina Esquibel, Ed.D., a College of Education faculty member who specializes in reading across content areas, to develop text and writing activities that meet Common Core ELA Standards.

The Learning Communities will meet during eight professional development workshops (48 hours total) facilitated by College of Education faculty and STEM faculty from the College of Arts and Sciences. The meetings will be held at sites convenient to all partners, and will also include guest speakers/content specialists from various informal environmental science organizations who have specific climate change information or perspectives. Since the professional development program will also be listed as an independent study 400-level course in the College of Education, the pre-service students and interested paraprofessionals will be able to earn 400-level college credit at NNMC by attending the professional development, and thus become proficient in using this course as a stepping stone to higher qualifications in math and science. This would increase their ability to pass the New Mexico Elementary Education Content Knowledge Assessment.

The professional development will also feature workshop training in the EIC™ model by two representatives from Project SEER, who have trained similar groups of educators throughout the U.S. over the past 20 years. The training by Project SEER will anchor the rest of the professional development activities by helping the LC to answer the following three questions: 1) How can these two K-8 charter schools use resources in their community to create an inquiry-based, hands-on project with their students in order to collect and analyze local environmental data that helps them understand how climate change is impacting the ecology of northern New Mexico? 2) How can teachers integrate CCSS standards of math and reading content areas into a climate change project? 3) What effects will this contextualization of the core content areas into a place-based interdisciplinary project have on students' writing and their NMSBA standardized test scores in Reading and Math?

After the EIC™ training, the cohort will use their planning time to conduct activities related to the design of their place-based curriculum project such as: read through and discuss the CCSS standards, meet local environmental scientists and hear about their research and resources available to schools, test out activity ideas, and come up with a budget for purchasing materials to implement the project in their classrooms. As they complete their curriculum, the two school sites will be allocated a \$2,000 budget to purchase any equipment needs they have in order to implement their new EIC™ based curriculum in Fall 2015.

### **MEASURABLE GOALS**

Goal 1: Raise knowledge of CCSS standards in K-8 in-service/pre-service teachers by 50% over peers not attending professional development program/college course, through the administration of a pre- and post-test in CCSS reading, math and NGSS science standards.

Goal 2: Use EIC™ as a model for generating a standards-based, place-based curriculum for implementation in Fall 2015 in multiple classrooms at two K-8 charter schools as measured by the completion of curriculum and inclusion of a CCSS curricular matrix by Summer 2015.

Goal 3: Increase the number of highly qualified new teachers through the inclusion of pre-service teachers, and paraprofessionals from the two LEA charter schools, in the professional development activities, as measured by a 100% successful completion of credit by the pre-service teachers through a 400-level independent study course in Spring 2014, and their 100% pass rate in the New Mexico Teacher Content Knowledge Exam.

Goal 4: Improve the understanding and attitudes of NNMC STEM faculty through their participation in LC, as measured by a 50% improvement in attitude toward learner-centered, inquiry-based teaching, and a 50% increase in their understanding of the CCSS standards for K-12 educators relevant to their college content area.

**TIMELINE OF GRANT ACTIVITIES TIED TO MEASURABLE GOALS**

| DATE                     | GRANT ACTIVITY TO MEET MEASURABLE GOAL   | METRIC/OUTCOME  |
|--------------------------|--|---|
| Fall 2014                | <ul style="list-style-type: none"> <li>● Hold meeting and planning sessions between partners.</li> <li>● Schedule 400-level NNMC independent study course.</li> <li>● Administer teacher content pre-tests.</li> <li>● Administer faculty pre-tests on pedagogical knowledge, attitudes towards place-based education and inquiry-based teaching methods.</li> <li>● Collect student NMSBA data for 2013-2014</li> </ul> | LC Cohorts created.<br><br>Pre-test data collected.   |
| Spring 2015              | <ul style="list-style-type: none"> <li>● Begin professional development workshops</li> <li>● NNMC course for pre-service and those in-service teachers wishing to gain extra credentials</li> <li>● Hold EIC™ training for cohort at end of spring.</li> </ul>   | Collection of activities for project-based learning.<br><br>Matrix of CCSS linking climate change and student, math, reading, activities. |
| Summer 2015              | <ul style="list-style-type: none"> <li>● Hold week-long professional development session to finalize curriculum and place-based projects at each school</li> <li>● Purchase materials for climate change projects</li> <li>● Pre-service students take NM Content Knowledge Assessment</li> </ul>  | Post-test teacher and NNMC faculty data.<br><br>Completed place-based curriculum materials, teacher guides, student assessments.          |
| Beg Fall - Sept 30, 2015 | <ul style="list-style-type: none"> <li>● LTMAS and CDLN charter school teacher participants implement climate change projects in their classrooms</li> <li>● LCs meet to examine performance data; start mentorships</li> </ul>  | Student post-data.<br>Continued mentoring past grant period.  |

**MEASUREMENTS OF SUCCESS: PRE- AND POST-TESTING OUTCOMES**

1. **In-service and pre-service teachers:** *Improvement in knowledge of content in ELA and Math.* NNMC faculty will design and use pre-and post-tests based on the CCSS to measure teachers’ content knowledge improvement.
2. **Pre-service teachers:** *Increase pass rates in math and science sections of the NM Elementary Teacher Content Knowledge Assessment (CKA).* Additionally NNMC will compare the test scores of the pre-service teachers who take the New Mexico CKA test post-treatment with scores from teachers not participating in grant activities.
3. **Students:** *Gains in CCSS.* Schools will compare student gains in math and language arts using NMSBA test scores. Teachers create own learning and assessment measures.



## REFERENCES CITED

Avery, L.M. (2013). Rural science education: Valuing local knowledge. *Theory Into Practice*, 52: 28–35.

Duffin, M., Chawla, L. Sobel, D. & PEER Associates. (2005). Place-based Education and Academic Achievement. Retrieved from <http://www.seer.org/pages/research/PEEC%202005.pdf>

Ernst, J.A. & Monroe, M. (2004). *The effect of environment-based education on student' critical thinking skills and disposition toward critical thinking*. *Environmental Education Research*, 10(4): 507-522.

Lieberman, G. (2013). *Education and the Environment: Creating Standards-Based Programs in Schools and Districts*. Harvard Education Press: Cambridge, MA.

Lieberman, G. and Hoody, L. (1998). *Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning*. Retrieved from <http://www.magicoflandscapes.com/Research/Closing%20the%20Achievement%20Gap.pdf>

Wells, N. M., & Evans, G. W. (2003). Nearby Nature: A Buffer of Life Stress Among Rural Children. *Environment and Behavior*, 35(3): 311–330.

**3. BUDGET NARRATIVE**

| <b>APPLICANT INSTITUTION: Northern New Mexico College</b>   | <b>QUANTITY</b> | <b>UNIT COST</b> | <b>TOTAL COST</b> | <b>PARTNER</b>       | <b>% FUNDS</b> | <b>%/PARTNER</b>                 |
|---|-----------------|------------------|-------------------|----------------------|----------------|----------------------------------|
| <b>1. PERSONNEL and 2. FRINGE BENEFITS</b>  |                 |                  |                   |                      |                |                                  |
| <u>Project Director Salary</u>  |                 |                  |                   |                      |                |                                  |
| Dr. Melissa Salazar: Responsible for the overall supervision and management of the project's implementation, including leading coordinated effort to design and implement teacher PD programs; oversee/assess Learning Community development; serves as liaison among faculty and between faculty, students and LEA teachers. Salary based on 30% time commitment, including 21% benefits).   | 1               | \$22,000         | \$22,000          | COLLEGE OF EDUCATION | 18.55%         | 42%<br>NNMC College of Education |
| <u>Project Director Fringe Benefits - at 21%</u>  | 1               | 0.21             | \$4,620           | COLLEGE OF EDUCATION | 3.89%          |                                  |
| <u>Other College of Education Learning Community Faculty - Stipends</u>   |                 |                  |                   |                      |                |                                  |
| These stipends compensate Dr. Rose Cavalcante, Acting Dean of College of Education and pedagogical expert, Christina Esquibel, Acting Dean of College of Education and Common Core ELA expert, Reading and Writing Across the Curriculum instructor, for the crucial role they will play in presenting the Common Core State Standards in English Language Arts, and ensuring the curriculum designed by the in-service and pre-service teachers is inquiry-based and pedagogically sound. Faculty will put in about 100 hours, including preparation, implementation, and follow up mentorship work.   | 2               | \$4,000          | \$8,000           | COLLEGE OF EDUCATION | 6.74%          |                                  |
| <u>NNMC Pre-Service Teacher (and Paraprofessional) - Stipends</u>   |                 |                  |                   |                      |                |                                  |
| Six pre-service teachers enrolled in the College of Education program desiring highly qualified course credit, or paraprofessionals from each LEA needing course credit to earn Bachelor's degrees will participate in the Learning Communities and enroll in a 3 credit course in Spring 2015. The stipend is to attract students to the extra course credit outside of their normal course of study, and compensate them for continuing their work with in-service teachers over Summer 2015 as in-service teachers present their final design of curriculum and get ready to implement the project. Stipends are \$2000 each for the 14 month program. | 6               | \$2,000          | \$12,000          | COLLEGE OF EDUCATION | 10.12%         |                                  |

| <b>ARTS &amp; SCIENCE FACULTY</b>  |         |          |  |        |       |  |  |  |  |  |  |
|--|---------|----------|--|--------|-------|--|--|--|--|--|--|
| <b><u>NNMC Learning Community Faculty Stipends</u></b>   |         |          |  |        |       |  |  |  |  |  |  |
| Dr. David Torres - Math; Dr. Alfredo Perez - Engineering; Dr. Brenda Linnell - Chemistry   |         |          |  |        |       |  |  |  |  |  |  |
| Stipends to cover these faculty's participation in the Learning Community in order assist in-service teachers in creating one of three inquiry based environmental education projects that will meet the Common Core standards. NNMC faculty will also receive EIC training and reflect on implementation of place-based learning in college classrooms. Faculty will serve 100 hours, including preparation, implementation, and follow up mentorship work. |         |          |  |        |       |  |  |  |  |  |  |
| 3  | \$4,000 | \$12,000 | COLLEGE OF ARTS & SCIENCE  | 10.12% | 12.5% | NNMC College of A&S  |  |  |  |  |  |
| <b><u>LEA 1: Carinos In-Service Teacher Stipends</u></b>   |         |          |  |        |       |  |  |  |  |  |  |
| 5  | \$1,680 | \$8,400  | LEA 1: Carinos   | 7.08%  | 17%   | LEA 1  |  |  |  |  |  |
| <b><u>LEA 2: La Tierra In-Service Teacher Stipends</u></b>   |         |          |  |        |       |  |  |  |  |  |  |
| 4  | \$1,680 | \$6,720  | LEA 2: La Tierra   | 5.66%  | 15.5% | LEA 2  |  |  |  |  |  |
| 6  | \$1,000 | \$6,000  | Other (5th Partner Group)  | 5.06%  | 5%    | OTHER  |  |  |  |  |  |
| <b>3. TRAVEL</b>   |         |          |  |        |       |  |  |  |  |  |  |
| 168  | \$26    | \$4,284  | Teachers, faculty and students all travel to 2 LEA sites 8 times   |        |       |  |  |  |  |  |  |
| 8  | \$250   | \$2,000  | Travel to Local Environmental Science Sites: Wildlife Center, Valles Calderas, SF National Forest Espanola Station |        |       |  |  |  |  |  |  |
| 2  | \$1,050 | \$2,100  | EIC Trainers (Project SEER) Travel from CA for 2 trainers (airfare @ \$350; hotel 3 n                              |        |       |  |  |  |  |  |  |
| <b>4. EQUIPMENT FOR IN-SERVICE TEACHERS</b>  |         |          |  |        |       |  |  |  |  |  |  |
| 9  | \$2,000 | \$18,000 | Both LEA's   | 15.17% | 7.59% | Each of the nine teachers will receive a \$3000 equipment budget to purchase necessary equipment to fully implement their place-based program. |  |  |  |  |  |

|   |   |         |                  |                |       |    |              |  |  |
|---|---|---------|------------------|----------------|-------|----|--------------|--|--|
| <b>5. SUPPLIES</b>  |   |         |                  |                |       |    |              |  |  |
| All partners will benefit equally from the various paper, ink, markers and other necessary office and workshop supplies that will be used throughout the program. | 1 | \$5,000 | \$5,000          | All 4 Partners | 4.21% |    |              |  |  |
| <b>6. CONTRACTUAL - SEER Project</b>  |   |         |                  |                |       |    |              |  |  |
| The SEER Project will provide 2 consultants for a 2-day program on implementing environmental education programs. Fee for partial week is \$7,500.                | 1 | \$7,500 | \$7,500          | SEER           | 6.32% | 8% | SEER Project |  |  |
| <b>TOTAL PROGRAM COSTS</b>  |   |         | <b>\$118,624</b> |                |       |    |              |  |  |
| Total Indirect Costs: Total program costs - student/teacher training stipends   |   |         | \$91,504         |                |       |    |              |  |  |
| Total Indirect Costs x 0.08   |   |         | <b>\$7,320</b>   |                |       |    |              |  |  |
| <b>TOTAL PROGRAM AND INDIRECT COSTS</b>   |   |         | <b>\$125,944</b> |                |       |    |              |  |  |

#### **4. LISTING OF KEY PERSONNEL**

Key Personnel for this project include the following individuals. CV's for each follow.

1) Project Director: Dr. Melissa Salzar, Ph.D., Adjunct Faculty, College of Education

2) NNMC STEM Faculty from the College of Arts and Sciences

Dr. Brenda Linnell, Assistant Professor of Chemistry

Dr. Alfredo Perez, Assistant Professor of Engineering

Dr. David Torres, Chair, Department of Mathematics and Physical Sciences

3) NNMC Faculty from the College of Education

Dr. Rose Cavalcante, Co-Interim-Dean, College of Education

Dr. Christina Esquibel, Co-Interim-Dean, College of Education



**U.S. DEPARTMENT OF EDUCATION  
BUDGET INFORMATION  
NON-CONSTRUCTION PROGRAMS**

Name of Institution/Organization

**5. Full Program Budget for Northern New Mexico College**

Applicants requesting funding for only one year should complete the column under "Project Year 1."  
Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

**SECTION A - BUDGET SUMMARY  
U.S. DEPARTMENT OF EDUCATION FUNDS**

| Budget Categories                    | Project Year 1<br>(a) | Project Year 2<br>(b) | Project Year 3<br>(c) | Project Year 4<br>(d) | Project Year 5<br>(e) | Total<br>(f)        |
|--------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
| 1. Personnel                         | 48,000.00             |                       |                       |                       |                       | 48,000.00           |
| 2. Fringe Benefits                   | 4,620.00              |                       |                       |                       |                       | 4,620.00            |
| 3. Travel                            | 8,384.00              |                       |                       |                       |                       | <del>8,384.00</del> |
| 4. Equipment                         | 18,000.00             |                       |                       |                       |                       | 18,000.00           |
| 5. Supplies                          | 5,000.00              |                       |                       |                       |                       | 5,000.00            |
| 6. Contractual                       | 7,500.00              |                       |                       |                       |                       | 7,500.00            |
| 7. Construction                      |                       |                       |                       |                       |                       | 0.00                |
| 8. Other                             |                       |                       |                       |                       |                       | 0.00                |
| 9. Total Direct Costs<br>(lines 1-8) | <b>91,504.00</b>      | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>91,504.00</b>    |
| 10. Indirect Costs                   | 7,320.00              |                       |                       |                       |                       | 7,320.00            |
| 11. Training Stipends                | 27,120.00             |                       |                       |                       |                       | 27,120.00           |
| 12. Total Costs<br>(lines 9-11)      | <b>125,944.00</b>     | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>125,944.00</b>   |

## **6. APPENDICES**

- Appendix A - Assurances Form
- Appendix B - Contact Information and Certification Form
- Appendix C - Curriculum Vitae for Key Personnel
- Appendix D - LEA Letters of Support

Appendix A

STATE AND FEDERAL ASSURANCES FORM

I, ANTHONY SENA, Ph.D., the Chief ACADEMIC Executive Officer of NORTHERN NEW MEXICO COLLEGE (institution name) hereby provide assurances to the New Mexico Higher Education Department that if this institution receives a grant under the terms of the No Child Left Behind Act, it will:

1. Provide equal access and treatment to all eligible program participants, including those who are members of groups historically under-represented in higher education
2. Comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) prohibiting employment discrimination where discriminatory employment practices will result in unequal treatment of persons who are or should be benefiting from the grant-aided activity
3. Enter into collaborative agreement(s) with local education agency (ies) such as schools or school districts as one requirement of the planning and conduct of this grant-aided activity
4. Comply with any state or federal request to audit the grant-funded program in accordance with OMB Circular A-128 or A-110 or subsequent applicable requirements as appropriate and will submit the findings of the auditor's report (management letter) to the New Mexico Higher Education Department or to the U.S. Department of Education within 60 days of a request, following completion of any such audit.
5. Give the New Mexico Higher Education Department or the U.S. Department of Education, or the New Mexico State Auditor through an authorized representative access to and the right to examine all records, books, papers, documents or other materials related to this grant-aided activity.
6. Comply with all requirements imposed by the New Mexico Higher Education Department and the U.S. Department of Education concerning the content and performance of this activity, as specified in the corresponding request for applications.
7. Comply with all provisions of the NCLB program as provided in Title II of Public Law 107-110

  
\_\_\_\_\_  
Signature (Chief Academic Officer)

A. SENA

06/05/2014  
\_\_\_\_\_  
Date



Appendix B

Contact Information and Certification

|                                     |  |
|-------------------------------------|--|
| Institution Name                    | NORTHERN NEW MEXICO COLLEGE                              |
| Project Director                    | MELISSA SALAZAR  |
| Telephone and E-mail                | (505) 500-6079; MELISSA.SALAZAR@NNMC.EDU                 |
| Mailing Address                     | 921 PASEO DE ONATE, ESPAÑOLA, NM 87532                   |
| Project Title                       | CONTEXTUALIZING COMMON CORE STANDARDS IN ESPAÑOLA VALLEY |
| LEA(s) to be served                 | CARINOS CHARTER SCHOOL<br>LA TIERRA CHARTER SCHOOL       |
| Schools to be served                |  |
| Budget request for 07/01/14-9/30/15 | \$125,944  |

Certification:

To the best of my knowledge, information in this application is true and correct. If assistance is provided under this program, those responsible for conducting the activity are requisitely responsible and capable, the document has been duly authorized by the governing body of the applicant institution and the applicant will comply with the required assurances.

Signatures:

*M. Salazar* Adjunct Faculty 6/4/14  
 Project Director Name and Title Date

*A. SENA* 06/05/2014  
 IHE Chief Academic Officer Date

*Y. Jaramillo* June 3, 2014  
 LEA Representative Name and Title Date

## Appendix C

CURRICULUM VITAE for the following Key Personnel:

1. Melissa Salazar, Ph.D.
2. Brenda Linnell, Ph.D.
3. Alfredo Perez, Ph.D.
4. David Torres, Ph.D.
5. Christina Esquibel, Ph.D.
6. Rose Cavalcante, Ph.D.

# MELISSA L. SALAZAR, PH.D.

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PO Box 1097 Ohkay Owingeh New Mexico 87566 USA  
Phone: 505-500-6079 Email: melissa.salazar@gmail.com

- Scientist turned educator with 18+ years of experience in all levels of P-20 STEM education;
- Expert in culturally-relevant pedagogical methods that engage and retain English language learners, first-generation college students and other under-resourced college students.

## EDUCATION

### UNIVERSITY OF CALIFORNIA— DAVIS

Ph.D. Education (Emphasis in Science) 2008

M.S. Food Science 2003

### UNIVERSITY OF CALIFORNIA—BERKELEY

B.S. Chemistry, Minor in Chemical Engineering 1995

## PROFESSIONAL LICENSURE/TRAININGS

State of New Mexico Teaching License, Elementary Education 2012

Framework for Understanding Poverty Trainer Certification 2011

Certified Trainer, Making Sense of Science (WestEd) 2012

Certificate on College Teaching, University of California- Davis 2006

Certified DXA Bone Scan Operator (California) 2003

## SELECTED TALKS AND PUBLICATIONS

Salazar, Melissa (2014). "Best Practices in College Faculty Development." Paper presented at AHSIE Title V/Hispanic Serving Institutions Best Practices Conference, University of La Verne, California (March 2014).

Salazar, Melissa and Andres C. Salazar (2014). "Helping Students Succeed in STEM." Paper presented at AHSIE Title V/Hispanic Serving Institutions Best Practices Conference, University of La Verne, California (March 2014).

Salazar, Melissa and Andres C. Salazar (2013). "Coaching "Grit": Why STEM students need to persevere." Invited lecture. Adams State College (Oct 2013).

Salazar, Melissa (2012). "STEM teaching challenges: Best Practices in Rural Math and Science Teacher Training." Paper presented at AHSIE Title V/Hispanic Serving Institutions Best Practices Conference, San Antonio TX (March 2012).

Salazar, Melissa (2011). "Visualizing the Foodscape: New Media and Food Studies." Chapter 29 in *Taking Food Public: Redefining Foodways in a Changing World*, Carole Counihan and Psyche Forsyth-Williams. Routledge.

## UNIVERSITY TEACHING

- ADJUNCT FACULTY 2009-PRESENT  
SCHOOL OF EDUCATION, NORTHERN NEW MEXICO COLLEGE, ESPAÑOLA, NM  
Design and instruct Science and Math coursework for educators preparing to be New Mexico certified teachers.
- ADJUNCT FACULTY 2013  
NEW MEXICO HIGHLANDS UNIVERSITY/CENTER FOR THE EDUCATION AND STUDY OF DIVERSE POPULATIONS (CESDP), LAS VEGAS, NM  
Designed and instructed course for Masters degree candidates in Curriculum and Instruction.
- ADJUNCT FACULTY 2008-9  
DEPARTMENT OF TEACHER EDUCATION, CALIFORNIA STATE UNIVERSITY- HAYWARD, CA  
Taught both single and multiple subject teaching credential candidates preparing to be California certified teachers. Courses taught: *Equity and Diversity in Education*; *Instructing English Language Learners*; *Special Populations*; *School-Based Health*; and *Science Education Methods for Multiple Subject credential students*.
- UNIVERSITY LECTURER 2008  
SCHOOL OF EDUCATION, UNIVERSITY OF CALIFORNIA, DAVIS, CA  
Taught upper division undergraduate classes on youth culture.
- CO-INSTRUCTOR, SEMINAR ON COLLEGE TEACHING 2007  
TEACHING RESOURCES CENTER, UNIVERSITY OF CALIFORNIA, DAVIS  
Co-instructed 10-week course designed to certify UC Davis graduate students, Postdoctoral scholars, and Associate Instructors in best practices in undergraduate teaching. Class focused on classroom diversity, cognition & learning theories, and research on student-centered and project-based teaching.
- CO-INSTRUCTOR, PROFESSIONAL DEVELOPMENT SEMINAR 2005  
SCHOOL OF EDUCATION, UNIVERSITY OF CALIFORNIA, DAVIS  
Developed and facilitated a 1-unit course for graduate students entering Education Ph.D. Class focused on mentoring new Ph.D. students to improve retention rates and academic success.
- GRADUATE TEACHING ASSISTANT 2005-7  
SCHOOL OF EDUCATION, UNIVERSITY OF CALIFORNIA, DAVIS  
Facilitated classroom meetings for two-quarter length advanced ethnographic methods course for UC Davis graduate students. Guided and advised students in their ethnographic projects and in writing up their research for publication.
- UNIVERSITY LECTURER 2003  
DEPARTMENT OF FOOD SCIENCE, UNIVERSITY OF CALIFORNIA, DAVIS  
Taught undergraduate course in introductory food science principles with two other Food Science graduate students. Was solely responsible for developing and instructing nine hours of lecture material on consumer food studies. Wrote and administered exam for course.

## STEM PROFESSIONAL DEVELOPMENT

OWNER, ESCALA EDUCATIONAL SERVICES LLC 2013- PRESENT  
ESPANOLA, NEW MEXICO

Founder and main curriculum developer for a professional development consulting company that focuses on P-20 Hispanic Serving Institutions (HSIs). Currently employs 3 consultants.

MASTER TEACHER COACH, LANL MATH AND SCIENCE ACADEMY 2009-2013  
LOS ALAMOS NATIONAL LABORATORY, LOS ALAMOS, NM

Part of team that developed and implemented innovative and comprehensive summer and school year professional development programs for Northern New Mexico K-12 teachers in the content areas of math and science. Coordinated district level workshops, supported school district coaches, and coached teachers in classrooms to implement reform math and science curricula effectively.

SCIENCE TEACHING CONSULTANT 2008-09

COMMUNITY RESOURCES FOR SCIENCE/PIEDMONT MIDDLE SCHOOL, BERKELEY, CA

Train and supervise professional scientists from UC Berkeley and Lawrence Berkeley Laboratory in a volunteer project where they designed and taught content and age-appropriate lessons to public middle school students in San Francisco Bay area.

## RESEARCH

IMPROVING FACULTY INSTRUCTION TO INCREASE COMMUNITY COLLEGE STUDENT RETENTION

UNIVERSITY OF NEW MEXICO-TAOS

2013-PRESENT

Designed and implemented campus-wide instructional improvement program to improve student outcomes at northern New Mexico rural community college.

USING iPADS TO IMPROVE TEACHING IN THE K-12 CLASSROOM 2012-2013

LOS ALAMOS NATIONAL LABORATORY MATH AND SCIENCE ACADEMY

Conducted action research project with K-12 teachers on how iPads can be used to develop self-reflective practices in math and science teaching.

IMMIGRANT CHILDREN IN SCHOOL CAFETERIAS 2004-2006

UNIVERSITY OF CALIFORNIA, DAVIS, SCHOOL OF EDUCATION

Planned and conducted independent ethnographic research project in Sacramento area elementary school serving large numbers of immigrant children. Collected qualitative data on how immigrant children and their families are affected by school cafeteria food and nutrition education in American schools. Developed and instructed culturally appropriate nutrition science lessons.

PHOTO STUDY ASSESSMENT OF FARM-TO-CAFETERIA PROJECTS 2003-2004

SUSTAINABLE AGRICULTURE RESEARCH & EDUCATION PROGRAM (SAREP), UC DAVIS, CA

PRINCIPAL INVESTIGATOR: DR. GAIL FEENSTRA

Photographed and cataloged digital pictures of over 800 student assembled school lunches in nine area schools as part of evaluation of School-to-Cafeteria self-serve salad bar lunch program in Yolo County, CA. Analyzed images for nutritional content, interviewed 15 staff and students

to provide supporting qualitative data to explain student choices and activities regarding their use of salad bar program. Compiled qualitative data into summative report for grant evaluation.

SOY-BASED DIET TO PREVENT OSTEOPOROSIS IN POSTMENOPAUSAL WOMEN 2003-2004

WESTERN HEALTH NUTRITION RESEARCH CENTER, USDA

PRINCIPAL INVESTIGATOR: DR. MARTA VAN LOAN

Served as radiologic operator on multi-state study to assess bone health of postmenopausal women using Dual X-Ray Absorptiometry (DXA) methods.

BONE HEALTH & CALCIUM INTAKE OF PREADOLESCENT GIRLS 2001-2003

PURDUE UNIVERSITY & UNIVERSITY OF CALIFORNIA, DAVIS

PRINCIPAL INVESTIGATORS: DRS. CHRISTINE BRUHN, MARTA VAN LOAN

As part of USDA multi-million dollar grant research team, recruited 123 Asian and Hispanic origin preadolescent girls and families for two-year dietary and bone health assessment study. Measured bone composition, size, dietary attitudes, calcium intake, and acculturation status of subjects. As part of grant activities, taught a computer-based, culturally relevant calcium education pilot program in four Sacramento area schools.

**Brenda M Linnell, Ph.D.**  
(*nee*: Brenda M Porta Briseno)

Assistant Professor, Chemistry  
Northern New Mexico College  
921 Paseo de Oñate  
Española, NM 87532

Office Phone: (505) 747-2248  
Email: [bmlinnell@nnmc.edu](mailto:bmlinnell@nnmc.edu)

**EDUCATION AND TRAINING**

**Ph.D. in Chemistry**, Chemistry Department, University of Texas at El Paso, El Paso, TX. Metal-Mediated Self-Assembly of Gold Nanoparticles. Research Advisor, Dr. Juan Noveron, 2011.

**Master in Science**, Chemistry Department, National Autonomous University of Mexico (UNAM), Mexico City, Mex. Functionalization of lactam-imides with non-linear optical properties. Research Advisor, Dr. Lioudmila Fomina, 2003.

**Bachelor in Chemistry**, Chemistry Department, National Autonomous University of Mexico (UNAM), Mexico City, Mex. Synthesis and Characterization of Dendrimeric Polymers Functionalized with Lactam-Imides. Research Advisor, Dr. Lioudmila Fomina, 2000.

**PROFESSIONAL EXPERIENCE**

***Teaching Experience:***

Assistant Professor of Chemistry at Northern New Mexico College, From August 2011 to date. Supervisor Dr. Ulises Ricoy, Department Chair.

“Friday Academy” Instructor, Chemistry workshops for middle school students 2012 to date.

Teaching Assistant of General Chemistry and Organic Chemistry, UTEP from Jan 2007 - Dec 2010, Coordinator. Dr. Bonnie Gunn, Dr. Hemant Sharma and Dr. Dirk Clark.

General Chemistry and Organic Chemistry Instructor at the College of Science, UNAM, from August 2005-June 2006.

Teaching Assistant, College of Chemistry, UNAM Aug. 2004-Jun.2005.

***Employment History:***

Research Assistant, Nanostructural Chemistry Lab, UTEP 2006-2010

Research Assistant, Polymat lab, College of Chemistry, UNAM 2003-2004

### Professional Activities:

Develop curricula, Lecture/ Lab General Chemistry 121, 122; Organic Chemistry 301, 302  
Advisor and consultant for Undergraduate Research Projects Fall 2011 to date.

Mentoring Students, Environmental Science/ Engineering/Biology Fall 2011-to date.

Committee Work, Faculty and Institutional; Student Learning Assessment, Faculty  
Handbook, General Education.

SACNAS (Student Chapter Faculty Advisor), Phi Theta Kappa Faculty Advisor

### COLLABORATORS AND AFFILIATIONS

American Chemical Society (ACS) from December 2006 to date.

Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)  
from July 2006 to date.

Phi Theta Kappa Honor Student Society, Faculty Advisor from August 2011 to date.

### PUBLICATIONS

López-Castillo, Néstor N., Rojas-Rodríguez, Alma D, Porta, Brenda M., Cruz-Gómez, M.  
Javier., **Process for the Obtention of Coumaric Acid from Coumarin: Analysis of the  
Reaction Conditions**, Advances in Chemical Engineering and Science, 2013, 3, 195-201.

Escalera, Gabriela; Porta, Brenda; Metta, Alejandro; Rodriguez, Ivan; Valles, Delia J.;  
Noveron, Juan C. **Metal-organic biopolymers: self-assembly and thermoplastic  
properties**. Polymer Preprints (American Chemical Society, Division of Polymer  
Chemistry) (2009), 50(1), No pp. given. ISSN:0032-3934. CAN 151:411249 AN  
2009:340319

Barreda, Leonel; Porta, Brenda M.; Noveron, Juan C. **DNA-templated polymerization of  
styrene derivatives in water: new nanomaterial composites**. Polymer Preprints  
(American Chemical Society, Division of Polymer Chemistry) (2009), 50(1), No pp. given.  
ISSN:0032-3934. CAN 151:108205 AN 2009:339329.

Porta, Brenda; Khamisi, Jamal; Noveron, Juan C. **Metallomesogens. Supramolecular  
design via alkane-rich metal complexes**. Current Organic Chemistry (2008), 12(15),  
1298-1321. ISSN:1385-2728. CAN 150:272301 AN 2008:1285422.

Fomina, Lioudmila; Porta, Brenda; Acosta, Alejandrina; Fomine, Serguei. **Novel  
substituted 1-amino-4,5,8-naphthalenetetracarboxylic acid-1,8-lactam-4,5-imides:  
experimental and theoretical study**. Journal of Physical Organic Chemistry (2000),  
13(11), 705-712. ISSN:0894-3230. CAN 134:115622 AN 2000:813464.



## ALFREDO J. PEREZ, Ph.D.

### PROFESSIONAL PREPARATION

|  |       |         |
|--|-------|---------|
| Universidad del Norte, Colombia – Systems Engineering          | B.Sc. | 03/2006 |
| University of South Florida – Computer Science                 | M.Sc. | 05/2009 |
| University of South Florida – Computer Science and Engineering | Ph.D. | 05/2011 |

### APPOINTMENTS

|                     |                     |  |
|---------------------|---------------------|--|
| Research Assistant  | May 2012 - Present  | <b>The University of New Mexico,</b><br>Albuquerque, NM (courtesy appointment) |
| Professor           |                     |  |
| Assistant Professor | Aug 2011 - Present  | <b>Northern New Mexico College,</b> Española, NM                               |
| Research Assistant  | Jan 2008 - May 2011 | <b>University of South Florida,</b> Tampa, FL                                  |
| Teaching Assistant  | Jan 2010 - May 2011 | <b>University of South Florida,</b> Tampa, FL                                  |
| Instructor          | May 2010 - Aug 2010 | <b>University of South Florida,</b> Tampa, FL                                  |
| Research Assistant  | May 2006 - Dec 2007 | <b>CUTR,</b> Tampa, FL   |

### PUBLICATIONS

#### Five Selected Publications

1. Oscar D. Lara, Alfredo J. Perez, Miguel A. Labrador, and Jose D. Posada, “Centinela: A Human Activity Recognition System Based on Acceleration and Vital Sign Data,” *Pervasive and Mobile Computing*, Elsevier, Vol. 8, No.5, 2012.
2. Sean J. Barbeau, Miguel A. Labrador, Alfredo J. Perez, Nevine L. Georggi, Philip L. Winters and Rafael A. Perez, “LAISYC – A Location-Aware Framework to Support Intelligent Real-time Applications for GPS-Enabled Mobile Phones”, *IEEE Pervasive Computing*, Vol. 10, No. 3, pp. 58-67, July-Sept. 2011.
3. Diego Mendez-Chavez, Alfredo J. Perez, Miguel A. Labrador, and Juan Marron, “P-Sense: A Participatory Sensing System for Air Pollution Monitoring and Control”, *IEEE PerCom 2011 WIP*, April 2011.
4. Miguel A. Labrador, Alfredo J. Perez, and Pedro Wightman, “Location-Based Information Systems – Developing Real-Time Tracking Applications”, Taylor and Francis, Chapman & Hall/CRC Computer and Information Science Series, 2010.
5. Alfredo J. Perez, Miguel A. Labrador, and Sean Barbeau, “G-Sense: A Scalable Architecture for Global Sensing and Monitoring”, *IEEE Network Magazine*, Vol. 24, No. 4, pp. 57-64, July 2010.

#### Five Other Publications

1. Jorge Crichigno, Ivan Lopez, Alfredo J. Perez, Greg Heileman, Ramiro Jordan. Cross-institutional Collaboration on Hybrid Engineering Courses among Institutions in New Mexico. Accepted, ASEE Conference 2013.
2. Alfredo J. Perez, Miguel A. Labrador, and Pedro Wightman, “A Multiobjective Approach to the Relay Placement Problem in WSNs”, *IEEE WCNC 2011*, March 2011

3. Sean J. Barbeau, Miguel A. Labrador, Alfredo J. Perez, Philip Winters, Nevine Georggi, David Aguilar, and Rafael Perez, "Dynamic Management of Real-Time Location Data on GPS-enabled Mobile Phones," *UBICOMM 2008*. September, 2008.
4. David P. Aguilar, Sean J. Barbeau, Miguel A. Labrador, Alfredo J. Perez, Rafael A. Perez, and Philip L. Winters, "Quantifying the Position Accuracy of Real-time Multi-Modal Transportation Behavior Data Collected using GPS Enabled Mobile Phones", *Transportation Research Record: Journal of the Transportation Research Board*. No. 1992, pp. 54-60, October 2007
5. Yezid Donoso, Carolina Alvarado, Alfredo J. Perez, and Ivan Herazo, "A Multi-objective Solution Applying MOEA in Optical Networks", *Proceedings of the IEEE Symposium on Computational Intelligence in Multi-Criteria Decision-Making (MCDM 2007)*, Hawaii, USA, April 2007

### **SYNERGISTIC ACTIVITIES**

1. PI Google Computer Science for High School (Google CS4HS) Site at Northern New Mexico College (2012 and 2013)
2. Co-PI for the NSF Noyce Grant at Northern New Mexico College
3. Member of the Institutional Review Board, Curriculum Committee and Advisory Technology Council at Northern.
4. Mentored students at the NSF Research Experiences for Undergraduates (REU) program from 2006 to 2011 at the Department of Computer Science and Engineering at USF.
5. Reviewer for IEEE ICC (2009, 2008), ELSEVIER Computer Communications and ELSEVIER Journal of Network and Computer Applications (since 2012).

### **COLLABORATORS AND OTHER AFFILIATIONS**

Member of the Location-Aware Information Systems at University of South Florida. Research Assistant Professor. Department of Electrical and Computer Engineering, The University of New Mexico.

#### **Collaborators**

Ivan Lopez, Jorge Crichigno, Raul Peralta, David Torres (Northern); Greg Heileman, Tim Schroeder (UNM); Miguel Labrador (USF), Sean Barbeau (CUTR); Pedro Wightman (Universidad del Norte – Barranquilla, Colombia), Yezid Donoso (Universidad de los Andes – Bogota, Colombia).

#### **Graduate Advisors**

Miguel Labrador (Advisor), Adriana Iamnitshi, Ken Christensen, Rafael Perez, Wilfrido Moreno and Alfredo Weitzenfeld.

## DAVID TORRES, Ph.D.

### PROFESSIONAL PREPARATION

|   |                              |           |
|---|------------------------------|-----------|
| New Mexico Institute of Mining and Technology | BS Mathematics<br>BS Physics | 1990      |
| University of Arizona                         | MS Applied Mathematics       | 1992      |
| University of New Mexico                      | PhD Mathematics              | 1996      |
| New Mexico Institute of Mining and Technology | Postdoc                      | 1996-1997 |
| Los Alamos National Laboratory (LANL)         | Postdoc                      | 1998-2000 |

### APPOINTMENTS

|                                       |                             |                          |
|---------------------------------------|-----------------------------|--------------------------|
| Chair, Mathematics & Physical Science | Northern New Mexico College | October 2009 - Present   |
| Assistant Professor of Mathematics    | Northern New Mexico College | August 2008 - June 2013  |
| Associate Professor of Mathematics    | Northern New Mexico College | July 2013 - Present      |
| Technical Staff Member                | Los Alamos National Labs    | June 2000 - August 2008  |
| Guest scientist                       | Los Alamos National Labs    | August 2008 - March 2013 |

### PUBLICATIONS

#### Five Selected Publications

1. D.J. Torres, Y. Li and S.C. Kong, Partitioning strategies for parallel KIVA-4 engine simulations, *Computers and Fluids*, 39: 301-309, 2010.
2. D. J. Torres and M.F. Trujillo, KIVA-4: An Unstructured ALE Code for Compressible Gas Flow with Sprays, *Journal of Computational Physics*, 219: 943-975, 2006.
3. M.F. Trujillo, D. J. Torres and P.J. O'Rourke, High Pressure Multicomponent Liquid Sprays: Departure from Ideal Behavior, *International Journal of Engine Research*, 5:229-246, 2004.
4. D. J. Torres, P.J. O'Rourke and A. A. Amsden, Efficient Multicomponent Fuel Algorithm, *Combustion Theory and Modeling*, 7:67-86, March 2003.
5. D. J. Torres, P.J. O'Rourke and A. A. Amsden, A Discrete Multicomponent Fuel Model, *Atomization and Sprays*, 13:131-172, 2003.

#### Five Other Publications

1. H.J.H. Clercx, A.H. Nielsen, D.J. Torres and E.A. Coutsias, Two-dimensional turbulence in square and circular domains with no-slip walls, *European Journal of Mechanics B-Fluids*, 20:557-576, 2001.
2. Torres, D. and J.U. Brackbill, The Point-Set Method: Front-Tracking without Connectivity, *Journal of Computational Physics*, 165:620-644, 2000.
3. Torres, D. and E.A. Coutsias, Pseudospectral Solution of the 2D Navier-Stokes Equations in a Disk, *SIAM J. Sci. Comput.*, 21:378-403, 1999.

4. Raymond, D. and D. Torres, Fundamental Moist Modes of the Equatorial Troposphere, *Journal of the Atmospheric Sciences*, 55:1771-1790, 1998.
5. Coutsias, E., T. Hagstrom and D. Torres, An Efficient Spectral Method for Ordinary Differential Equations with Rational Function Coefficients, *Math. Comp.*, 65:611, 1996.

## **SYNERGISTIC ACTIVITIES**

1. David Torres in collaboration with Amy Flores implemented the competency and computer based developmental math curriculum which began in Fall 2012. Accelerated classes were also developed to help students advance quickly through the developmental program.
2. David Torres collaborated with the Engineering department at Northern New Mexico College in mentoring students who processed Public Service Company of New Mexico (PNM) data (power, irradiance and temperature) from the Solar Prosperity Site. Dr. Torres and students also worked in developing a model to optimize profit through scheduling in a coupled battery, photovoltaic and conventional power plant.
3. While at Northern, David Torres collaborated with the University of Wisconsin in presenting workshops involving the internal engine simulation software, KIVA-4. While at Los Alamos National Laboratory, David Torres maintained collaborations with Ford Motor Company and hosted a summer student from Iowa State.
4. Dr. David Torres has been the Institutional Coordinator for the NSF Alliance for Minority Participation (AMP) program at Northern New Mexico College for four years. This grant funds faculty-mentored research for STEM students. In 2009, 2010 and 2011, the grant funded 12-14 \$1000 scholarships for students. Students also participate in the AMP conference in Las Cruces, NM in October each year where posters and oral presentations are showcased. Dr. Torres has individually mentored three undergraduate students through this program.
5. Dr. David Torres was awarded an Army High Performance Computing Research Center Grant in 2010 and 2011. In this grant, Dr. Torres and colleague Dr. Claudia Aprea worked with four engineering students in a study of incompressible and compressible fluid dynamics. Students studied finite differences, hyperbolic, elliptic and parabolic differential equations, stability constraints, and implicit solution techniques. Codes were built from the ground up and used to simulate the Karman-vortex street, Couette flow, driven-cavity flow, and natural convection in 3D. Codes were also parallelized with the MPI (Message-Passing Interface) standard and run on Northern's parallel cluster.

## **COLLABORATORS AND OTHER AFFILIATIONS**

### **Collaborators**

Dr. Claudia Aprea, Dr. Alfredo Perez and Dr. Jorge Crichigno (Northern New Mexico College), Dr. David Carrington (Los Alamos National Labs) and Andrei Starobin, LightSail Energy.

### **Graduate and Postdoctoral Advisors**

Dr. Peter O'Rourke, Advisor at LANL  
Dr. Jerry Brackbill, Postdoctoral Advisor at LANL  
Dr. David Raymond, Postdoctoral Advisor at New Mexico Tech  
Dr. Evangelos Coutsias, Doctoral Advisor at University of New Mexico

# Curriculum Vitae for Christina M. Esquibel

826 Calle Torreador  
Santa Fe, NM 87506  
505-988-3990  
christinaesquibel@hotmail.com

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## **Education**

- Ed. Specialist** Curriculum and Instruction, University of New Mexico, Albuquerque, NM, 1998  
Integrating Technology Across the Curriculum
- M.A.** Curriculum and Instruction, Lesley College, Cambridge, MA, 1994
- B.A.** Elementary Education, New Mexico Highlands University, Las Vegas, NM 1987  
Early Childhood Education
- Endorsements** Reading, Early Childhood Education, and Teaching English as a Second Language (TESOL), New Mexico Public Education Department

## **Conferences & Professional Development**

- A Framework for Understanding Poverty (2008)  
Cognitive Coaching (2008)  
Tango Educational Tools: The DRA 2 (2008)  
LANL Foundation Focus on Early Childhood Education (2007)  
New Mexico Reading First Fall Conference (2007)  
Fourth Annual Reading First Conference, St. Louis, MO (2007)  
Third Annual Reading First Conference, Reno, NV (2006)  
Lindamood-Bell Phoneme Sequencing Program (2004)  
Using Data to Differentiate Instruction (2004)  
Guided Reading, Developing Phonemic Awareness in Young Children (2004)  
Dynamic Indicators for Basic Literacy Skills (DIBELS) (2004)  
Reading Recovery (2002)  
Herman Method for Teaching Reading to Learning Disabled Students (2002)  
Fast Track Phonics (2003)  
Fast Forward Language (2003)  
Success for All Early Learning, Roots and Wings Reading Programs (2001-03)

## **Professional Experience**

### **2003 - Present**

Instructor of Teacher Education, Northern New Mexico College, Española, NM

Instructor, Alternative Licensure Program

- Classes: Diagnosis of Reading, Reading and Writing Across the Curriculum,  
Teaching Reading for the Special Learner, Teaching Reading in  
Special Education, Introduction to Early Childhood Education.  
Practicum in Early Childhood Education  
Student Teaching in Early Childhood Education  
Parent and Community Involvement  
Foundations of Education

Participated in the New Mexico State Department of Education's Taskforce in determining the essential components of effective reading instruction.

Adjunct Instructor, New Mexico Highlands University

Classes: Teaching and Diagnosis of Reading, Psycholinguistics, Reading in the Content Area.

Adjunct Instructor, Santa Fe Community College, Alternative Licensure Teacher Education Program

Classes: Reading in the Elementary Classroom, Foundations of Reading Instruction, Reading for Secondary Teachers

### **1998-2003**

Educational Trainer & Facilitator of Teachers for the Peñasco Independent School—Peñasco, NM

Developed, wrote and was awarded a Reading Excellence grant for the development literacy and enrichment center targeted to serve at-risk students.

Trained and supervised educational assistants who worked in the tutoring and assessment of students reading below grade level.

Taught Classroom Management and Reading courses to undergraduate and graduate students who were in the teacher preparations program or graduate programs at New Mexico Highlands University.

Trained and supported K-6 grade teachers in the literacy areas of the curriculum.

Supervised, trained, and participated in assessments of students at the beginning of the school year and every eight weeks thereafter.

Recorded testing data and regrouped students in instructional-leveled classrooms.

Facilitated weekly staff meetings to support goals set forth by the staff.

Mediated support meetings between parents, staff, and students.

### **1996-1998**

Reading Resource Specialist – Peñasco, New Mexico

Assessed students in grades 1-6 using standardized, norm referenced assessments and reading inventories.

Created individual student curriculums to ensure that individual educational needs were met through a team-teaching cooperative approach.

Developed an instructional model for teachers who teach students with multi-cultural backgrounds.

### **1988-1996**

Elementary Teacher and Reading Resource Teacher – School District #11 Colorado Springs, CO

Successfully carried out all teacher tasks that included writing curriculum and lesson plans, direct instruction, supervision of students, and record keeping.

## ***Professional Lectures or Presentations***

Esquibel, C. (2008). Sustaining Reading First. Reading First Sustainability Conference. Tamaya, New Mexico.

Esquibel, C. (2008). Using the Diagnostic Reading Inventory using the PalmPilot as a Data Gathering Tool. Professional Workshop. Santa Fe, New Mexico.

Esquibel, C. (2008). Aligning Reading Curricula to New Mexico Reading/Language Arts State Standards. Santa Fe, New Mexico.

Esquibel, C. (2007). Teaching Vocabulary and Comprehension in Reading First Classrooms, Professional Development Conference. Bernalillo, New Mexico.

Esquibel, C & Garcia, B  
(2007). Santo Domingo School: Systems Approach to Continuous Improvement, All Kids Can Conference. Albuquerque, New Mexico.

Esquibel C. (2006). Employing the "Data Room" Concept: Driving Class Room Instruction Using Measured and Collected Data, New Mexico School Districts Conference. Bernalillo, New Mexico.

Esquibel C. (2005). Using the Houghton Mifflin Core Reading Curriculum Informal Reading Inventory. Santo Domingo Elementary School. Santo Domingo, New Mexico.

## **Grants**

Federal Reading Excellence Act (REA) Grant for Peñasco Elementary School  
(\$149,000 to improve literacy proficiency levels of K through 3<sup>rd</sup> grade students)

## **Innovative Programs**

### **Distance Education Curriculum**

Design, Development, and Implementation of Early Childhood On-line Distance Education Curriculum for Alternative Licensure Program Classes:

- Foundations of Educations (ED 401)
- Teaching and Diagnosis of Reading (ED 470)
- Reading and Writing Across the Curriculum (ED 411)

Use school-wide data to support schools in meeting annual measurable objectives and annual progress on the New Mexico Standards Based Assessment.

## **Professional Recognition**

New Mexico Public Education Department, *Recognition for the Contributions in Support of Aligning New Mexico Reading Curricula to New Mexico Language Arts/Reading Standards and Benchmarks* (2008)

New Mexico Public Education Department, *Recognition of Participation as a member of the Data Review Committee* (2005)

University of New Mexico, *Hispanic Student Award*, (2003)

Bernalillo Public Schools, *Moving Forward with the Least Restrictive Environment for Students with Learning Disabilities* (2005)

New Mexico Reading First, *Professional Development Certificates* (2005-2007)

Five Year Service Pin, *Appreciation For Making a Difference for Years (5) of Service* (2007)

## ***Memberships***

National Association for Supervision and Curriculum Development (ASCD) (member since 2003)

National Reading Association (member since 2004)

New Mexico Reading First (member since 2004)

Children International (member since 2005)



## CURRICULUM VITAE

### ROSELI SCHULTZ CHIOVITTI CAVALCANTE

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**Address:** 382 Garver Lane, Los Alamos, NM 87544

**E-Mail Address:** rcavalcante@nnmc.edu

**Phone Number:** 505-629-5955

#### EDUCATION

**Ph.D. , Indiana University** - Educational/School Psychology. Minor: Special Education and Program Evaluation  
Counseling and Educational Psychology Department. 1998

**M.S., Indiana University** – Education.  
Counseling and Educational Psychology Department, 1998.

**B.A., Indiana University** – Psychology. Minor: Biology  
Psychology Department, 1992.

**Pos graduate specialization in Cognitive Therapy** – Instituto de Terapia Cognitiva Ana Serra – Sao Paulo, Brazil, 2003.

#### PROFESSIONAL AND TEACHING EXPERIENCE

**January 2014 to present** – Interim Assistant Dean of the College of Education at Northern New Mexico College.

**January 2011 to present** – Full-time Associate Professor. College of Education, Northern New Mexico College (NNMC), Espanola, NM, USA.  
Duties: Teach undergraduate and post-graduate (ALP) face to face and online classes in Foundations of Education, Foundations of Special Education, Pedagogy and Learning, Strategies for Successful Classrooms, Child Development, Educational Psychology; and IEP Development ; Attend and support all sanctioned activities of the College such as scheduled and special faculty and department meetings, assigned committee meetings, and academic functions; Participate in NCATE accreditation process; Supervise practicum students; Student advising; Develop courses; Write syllabi; Assessment and grading responsibilities.

**January 2007 to December 2010** – Full-time Assistant Professor. College of Education, Northern New Mexico College (NNMC), Espanola, NM, USA.  
Duties: Teach undergraduate and post-graduate (ALP) face to face and online classes in Foundations of Education, Foundations of Special Education, Pedagogy and Learning, Strategies for Successful Classrooms, Child Development, Educational Psychology; and IEP Development ; Attend and support all sanctioned activities of the College such as scheduled and special faculty and department meetings, assigned committee meetings, and academic functions; Participate in NCATE accreditation process; Supervise practicum students; Student advising; Develop courses; Write syllabi; Assessment and grading responsibilities.

**May, 2005** - The Brazilian Association of Cognitive Therapy and the Institute of Cognitive Therapy Ana Serra. Workshop: "Cognitive Therapy applied to Anxiety Disorders." Paul Salkovskis, Sao Paulo, Brazil.

**January, 2002 to January, 2004 - Specialization in Cognitive Therapy.** Institute of Cognitive Therapy Ana Serra, Sao Paulo, Brazil.

**September, 2001-** Nucleo de Atencao aos Transtornos de Ansiedade (NATA), UNICAMP (State University of Campinas). "Approaches to the Treatment of Anxiety." Campinas, Brazil.

**October, 2000** – VIII Regional Conference of the Brazilian Association of Social Psychology (ABRAPSO). "The XXI Century: The Dilemmas and Perspectives for Social Psychology". Methodist University of Piracicaba. Piracicaba, Brazil.

**November, 1999** – II Brazilian Multidisciplinary Conference in Special Education. Londrina, Brazil.

**November, 1999** – IV Seminar in Special Education Research. Federal University of Sao Carlos. Sao Carlos, Brazil.

**July, 1997-** Indiana Association of School Psychologists (IASP) Conference. "The role of Genetics in Children's Learning, and Emotional and Behavioral Problems", Indianapolis, IN, USA.

**March, 1995** – National Association of School Psychologists. XXVII Annual National Convention. Chicago, IL.

**October, 1994** – Indiana Association of School Psychologists (IASP) 8<sup>th</sup> Annual Conference. "Violence in Schools". Indianapolis, IN.

**July, 1994** – The International School Psychology Association and the Brazilian Association of Educational and School Psychology. XVII International School Psychology Colloquium and the XII International School Psychology Conference. "Learning Disabilities: A Challenge for School Psychologists and Educators". Campinas, Brazil.

**July, 1993** – Indiana Association of School Psychologists. School Psychology Summer Institute. "Home-School Collaboration". Indianapolis, IN, USA.

## **ASSOCIATION MEMBERSHIPS**

NASP- National Association of School Psychologists.

NMASP – New Mexico Association of School Psychologists.

AERA – American Educational Research Association

## **HONORS , AWARDS, AND GRANTS**

### **2012**

Northern New Mexico College 2011-2012 Professor of the Year Award.

**2012**

NNMC Research Grant Award

**2007**

NNMC STEM Faculty Research Award (sponsored by the MSEIP grant)

**1998**

Frieda Alice Renfro Fellowship Award

**1994**

International School Psychology Association – student overseas travel award

## **LICENSES AND CERTIFICATES**

Nationally Certified School Psychologist (NASP)

NM Level 2 School Psychologist license

NM Level 2 Diagnostician License

## **THESIS**

Cavalcante, R.S.C. (1998). *Authentic and aesthetic caring in multi-age classrooms: A comparative case study of pre-adolescents' cross-age social interactions and perceptions*. Unpublished Doctoral Dissertation, Indiana University.

This dissertation attempted to address some issues present at the time in the research of multi-age education. While most studies in the area addressed the effects of multi-age social interactions at the pre-school and kindergarten levels, this dissertation looked into the effects of multi-age groupings on pre-adolescent students in natural settings. Using a relational feminine/caring approach as the theoretical framework for analysis and a qualitative comparative case-study research methodology, this study revealed that different classroom and school practices may reflect different levels of authentic and aesthetic caring, and consequently, have distinct effects on the quality of the social experiences and interactions that pre-adolescents in different age groups have in multi-age classrooms.

Advisor: Dr. Russel Skiba

## **PUBLISHED PAPERS**

**Cavalcante, R.S.C. (2013).** Cognitive Restructuring and Problem Solving as Mentoring Tools to Prevent Culturally and Racially Diverse College Students' Departure from Higher Education. 6<sup>th</sup> UNM Annual Mentoring Conference Proceedings (peer reviewed).

**Cavalcante, R.S.C. (2010).** Perceptions of three gifted Hispanic and Pueblo Adults of Northern New Mexico of their own giftedness: Social identity, and retention issues. Journal of Border Educational Research, v.9. (peer-reviewed)

**Cavalcante, R.S.C. (2004).** Uma pesquisa bibliografica sobre a importancia das interacoes sociais multietarias no desenvolvimento infantil: a contribuicao da igreja. Revista Theos, v.1, n.1, 51-64. (peer reviewed)

(The role of the religious communities in promoting healthy multi-age social interactions among children).

**Cavalcante, R.S.C. (2000).** A inclusao do aluno com necessidades educacionais especiais na sala de aula do ensino regular: o papel do professor. Revista Temas Sobre Desenvolvimento, v.9, n.52, 25-30. (peer-reviewed)

(The inclusion of students with special needs in the regular classroom: the role of the teacher).

**Cavalcante, R.S.C. (1998).** Colaboracao entre pais e escola: educacao abrangente. Revista da Associacao Brasileira de Psicologia Escolar e Educacional (ABRAPEE), v.2, n.2, 153-160. (peer-reviewed)

(Home-School Collaboration: Component of an inclusive education).

**Cavalcante, R.S.C. (1996).** Socializacao e depressao infantil. Revista de Crescimento e Desenvolvimento Humano, v.6, n.1/2, 57-62. (peer-reviewed)

(Childhood depression and socialization).

## **CONFERENCE PRESENTATIONS**

**November 2013** – Cyberbullying for School Mental Health Professionals. NMASP Annual Conference, Albuquerque, NM.

**October 2013-** Cognitive Restructuring and Problem Solving as Mentoring Tools to Prevent Culturally and Racially Diverse College Students' Departure from Higher Education. 6<sup>th</sup> UNM Annual Mentoring Conference: The Impact and Effectiveness of Developmental Relationships.

**October 2012** – Cognitive Therapy in the Schools: Foundations, Interventions, and Challenges. NMASP (New Mexico Association of School Psychologists) Annual Conference, Albuquerque, NM.

**September 2011** – Teacher's perceptions and Cognitive Distortions Related to Their Work With Students With Emotional Behavior Disorders in a Predominantly Hispanic and Native American High School. 9<sup>th</sup> Biennial International Conference on Children and Youth with Behavioral Disorders. New Orleans, LA.

**July 2009** – “Perceptions of Gifted Hispanic and Native American Adults of their own Giftedness: Social Identity, and Retention Issues.” New Mexico Association for the Gifted Summer Institute. Albuquerque, NM.

**February 2009** - “Reflecting on NNMC Assessment Day: Why we did it; What went well; How we will improve it.” New Mexico Higher Education Assessment and Retention Annual Conference. Albuquerque, NM.

**July 2008** - “Social and Emotional Problems Encountered by Gifted Students and Interventions” – New Mexico Association for the Gifted Annual Conference. Albuquerque, NM.

## Appendix D

LETTERS OF SUPPORT from the following LEA's:

1. Carinos Charter School
2. La Tierra Montessori School of Arts and Sciences

GOVERNANCE BOARD  
Dr. Juanita Cata-President  
Dr. Stan Sanders-Vice President  
Mr. Del Jimenez-Secretary

# Cariños Charter School



*Dual Language Program*  
*Accredited by AdvancED/North Central Association*

ADMINISTRATION  
Vernon Jaramillo, Chancellor  
German Martinez, Business Manager  
PHONE: (505) 753-1128/  
(505) 367-0027/(505) 367-0032  
FAX: (505) 753-1130  
116 Calle Espinoza/Hunter St.  
Española, New Mexico 87532

June 3, 2014

To: Ricky Serna, Vice President for Advancement, Northern New Mexico College  
Dr. Gerald Pitzl, P-20 Policy Analyst, New Mexico Higher Education Department

Fr: Vernon Jaramillo, CEO/Chancellor for Cariños Charter School  
Española, New Mexico

RE: NMHED Title II Grant Partnership

Cariños Charter School is delighted to partner with Northern New Mexico College and serve as the Lead Educational Agency in their Title II grant submission: Teaching Rural Ecologies: Creating a Network of Educators, Scientists, and Children To Link In and Out of School Learning in the Espanola Valley. Cariños is very interested in working with Northern's College of Education and Arts and Sciences faculty to develop a professional development training program for our teachers using the Environment as an Integrated Curriculum model. The education literature has shown that this type of environmental programming is closing the achievement gap for students in math and reading.

The Cariños Governance Board strongly believes that we can raise STEM knowledge of our teachers using climate change and its impacts to the regional environment as a model for classroom curriculum. By improving STEM knowledge and enhanced delivery by our teachers, their commitment to the development and advancements of our students can be realized.

We also look forward to working with Northern's Faculty to create Learning Communities that support the implementation of classroom curriculum and provide mentoring and other additional support our teachers will require to maximize their success. Finally, we look forward to being part of a broader network of educators that come together to share best practices in environmental and community-based learning.

Thank you for this opportunity on behalf of the students, teachers, staff and Governance Board of Cariños de los Niños Charter School.

Saber es Poder/ Knowledge is Power Y Aprender es Avanzar/To Learn is to Advance





# La Tierra Montessori School of the Arts and Sciences

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**June 3, 2014**

**To: Ricky Serna, Vice President for Advancement, Northern New Mexico College**

**Dr. Gerald Pitzl, P-20 Policy Analyst, New Mexico Higher Education Department**

**Fr: Marcia Brenden, Co-Chair, La Tierra Governing Council**

**RE: Northern New Mexico College Title II Grant Collaboration**

**Thank you for including La Tierra Montessori School in the planning and potential unfolding of your Title II grant submission to the NMHED. The professional development described in your proposal will be foundational in strengthening our math, reading, and science instruction as guided by the Common Core Standards.**

**As Co-Chair of the La Tierra Governing Council, I can speak to the value of Environment as an Integrated Curriculum model, and when honed through enhanced STEM knowledge of teachers and support in implementation, this model is effective at closing the achievement gap in math and reading. We believe that forging a partnership between our teachers, Northern New Mexico College's Education and Arts and Sciences faculty, and teachers and other paraprofessionals from other local LEA's, will provide for a robust opportunity to co-create interesting and useful programming for our teachers on how climate change and its impacts to the region can serve as a model for classroom curriculum.**

**We also look forward to being part of a broader community of educators that meets in person and online to share best practices in environmental and community-based learning and to being a part of new curricular developments that strengthen our own ecological-based programming.**

**On behalf of the students, teachers, staff and Governing Council Members at La Tierra, we thank you for this potential opportunity to work together to improve teacher quality and close achievement gaps for our students.**

**Sincerely,**

**Marcia Brenden  
Co-Chair  
La Tierra Montessori Governing Council**