**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

Grant Proposals—

*Template with Samples*

**Purpose**

While no two grant proposals look exactly the same, they do follow a general **structure** or **template**. We created these pages to assist those new to grant-writing, but also as a resource forthose familiar with grants but seeking new ideas.

Remember, no perfect formula or (set of formulae) exists for every grant situation. It is important to understand the type of project the agency wants to fund. For my students, we call this “Learning to Love Your RFP” (Request for Proposal). Then use the examples we have provided that best fit your grant and your funding agency.

We hope our templates with samples help you in your endeavor.

Listed Below (with samples)

Project Abstracts/Summaries:

Sample Research Abstract

Sample Abstract/Summary for Service Grant

1. Introduction
2. Needs Assessment
3. Rationale/Theoretical Framework
4. Research Design
5. Work Plan/Action Plan/Scope of Work
6. Evaluation Plan
7. Management Plan
8. Other documents for grants

a. Letters of Support samples

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Abstract for a Research Grant**

**Sample #1**

***Using Media to Help Students Learn Mathematics***

******

**Project Summary**

This Research and Development project addresses a Research-K12 Program Challenge 2: *How can all students learn* *significant STEM content?* The project focuses on developing educational media to aid students in understanding coremathematics concepts that researchers have found are misunderstood as students reach middle school. The project will also provide instructional tools to assist teachers in using these media, and thus secondarily addresses K12 Research Program Challenge 3: *How can teachers teach STEM content?*

In spite of general gains in mathematics learning in the United States (NAEP, 2007) and successful mathematics progress for students in many of the math reform efforts, (MSP Impact Report, 2008), researchers have noticed critical gaps in conceptual understanding of core mathematics concepts and processes in students. These misunderstandings cause problems for students as they move through school. By high school, achievement scores drop dramatically, and the gap in test scores between mainstream and culturally and linguistically diverse students can be as much as 30 points (NAEP, 2007). Our research question is: **In what ways can innovative media be used to help students learn** **significant mathematics content**? Designed by mathematics educators, mathematicians, learning specialists and gamedevelopers, the media in this proposed project are organized around math concepts that are often misunderstood. The *Math Project* modules are meant to be easy to access and use, focused on one concept at a time. They provide richnourishment for the middle-grades curriculum. The project focuses on math concepts, that for some reason, students have found hard to master using a traditional text-based mathematics curriculum. Funny scenarios, comical characters, and memorable vocabulary are used to help students see mathematics as entertaining as well as understandable.

Intellectual Merit: Researchers, while conducting evaluations of student performance within successful mathematics projects in New Mexico (NM), found that there were consistent weaknesses in understanding in specific areas of mathematics across schools by grade levels. Further research demonstrated that these same areas of weaknesses could be found across states. If these small media modules can help schools and teachers provide quick and useful interactive lessons from which students can learn previously misunderstood math concepts, the product will be of significant value nationwide. Extensive research is planned in this project, beginning with an iterative design process including teachers and middle-school students and continuing with randomized controlled trials in school classrooms.

Broadened Participation; Research will specify how well these materials work for all students, as well as for which groups they seem to work best. Developing and researching the materials in New Mexico, a lab for the future of our increasingly diverse classrooms, will ensure the products will be useful as we move math education into the future. Throughout the project, team members will evaluate materials for potential use by English language learners, adult learners, and other learners not in the specific audience targeted in development.

**Sample #2**

Make-IT! is an inquiry-based, information technology (IT) program that involves under-represented girls in grades 7-12, their teachers and their parents in using e-portfolios and digital media to develop their abilities in STEM fields. The project models SCANS competencies for workplace know-how in the 21st Century and leverages the resources, programming, and community-based projects of a successful mathematics, science and IT collaborative in the southwest border region. Make-IT! will enhance life-long application of information technology to STEM learning in a year-round

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

systemic enrichment program that includes an after-school component, monthly Saturday all-day symposiums, and a month-long summer field-based experience.

The ***intellectual merit*** of this research effort resides in using and practicing information technologies as a means for under-represented students to learn about STEM careers and gain IT abilities. Following weekend and after-school explorations, a university field-based summer lab experience supports students in an intensive experience culminating in the development of a personal STEM e-portfolio. The project also brings together university experts in science and information technology with public school and community leaders to deliver a systemic, focused, year-round enrichment model.

The ***broader impact*** of the project is the development of a model that uses information technology to support linguistically and culturally diverse girls in applying 21st century workforce know-how to their own development as future STEM leaders. The development of an extended-day community-based learning model that results in more under-represented students entering STEM fields is essential for the economic well-being of the border region.

**Abstract for a Service Grant**

**Sample #1**

**NEW MEXICO TEACH MATH AND SCIENCE PROGRAM!**

**Submitted by New Mexico State University**

As a minority-majority state with a high rate of poverty and low educational achievement, New Mexico is experiencing a critical need for highly qualified math and science teachers. This proposal brings together research universities, educational consortia, and 24 school districts with high needs to address this need through an innovative teacher preparation program and nested professional development experiences.

Program goals include utilizing and strengthening existing STEM partnerships to recruit, train, and retain 40 new math and science secondary (grades 6-12) teachers each year for a period of 5 years. At the end of the program, the components will be institutionalized and a total of 200 new teachers will have been placed in the 20 partner school districts. Program outcomes will include 200 new teachers who are prepared to serve the diverse and high needs population of New Mexico; understand best practices in math and science instructional methodology; are committed to the field of education; and bring a diversity of backgrounds and experience to their work. Moreover, this statewide program will attract continuing support beyond the grant period.

Program participants will hold a bachelor’s degree in science, math, or engineering and will earn alternative licensure to teach math and science. They will participate in coursework over two summers, one fall semester, and one spring semester during their first year of teaching. Mentors will be work with individual participants throughout the program, and, for the second and third years, the participants will join the Scientifically and/or Mathematically Connected Communities (state STEM programs) to participate in monthly professional development opportunities as well as

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

ongoing summer workshops. In subsequent years, science/math field specialists will continue the mentoring through team teaching, demonstration lessons, lesson design, and other activities requested by the participants or identified through program assessment.

**INTRODUCTION**

The introduction should hook the reader. It should motivate the reader to spend his/her time in reading forward. Why should this grant proposal interest the reader? What problems are addressed and why are they important? What are your goals and objectives? What is your capacity to implement change?

In sum, the Introduction:



Is designed to hook the reader Includes an overview of:

o The purpose of the grant in addressing a specific need

o The grants broader goals (and often outlined objectives) of the grant o Your own program’s capacity to study or implement a solution

**Sample #1**

**Why a Student BUILDING program is needed in Target, New Mexico**

In 2006, there was a major flood in the small town of Target, New Mexico. The population of the town at the time was around 1200 and is now closer to 900. This flood, Federal Emergency Management Agency (FEMA) Disaster #1234 5 (Target, NM) was in many ways, New Mexico’s

*Katrina*. The flooddamaged or destroyed 55 of the town’s 80 businesses, and adversely impacted

402 of 480 residential dwellings. Now over two years later, approximately thirty families are still displaced from their homes and live in FEMA trailers 10 miles away in Neighboring Town, NM.

The flood left behind a severely damaged infrastructure. According to the Target Area Recovery Team, 95% of residents did not have flood insurance (REFERENCE NAME, 2009).



There is also a shortage of trained adobe and earthen structure workers in the area,

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

particularly those experienced in basal (wall base) stabilization and in the application of traditional (mud and lime) plasters. Contrary to unofficial assessment by regional general contractors and some building inspectors, almost every building assessed by the Desert State University (DSU) and Cornerstone staffs, whether they are adobe, masonry, or of frame construction, can and should be repaired. In other words, rehabilitating existing structures is not only more cost-efficient, but preserves the historical equity of buildings and homes of the area.

The community of Target, other community organizations in Our County, as well as Desert State

University’s Colleges of Education and Engineering and Our County Community College (OCCC) have come together to prepare this grant proposal. They see in YOUTH RECONSTRUCTION program an innovative means to offering hope and resources to solve two problems: the unemployed, underemployed and under-educated youth in Target and the surrounding rural community, as well as the need to help families who remain without housing and have been waiting for help .for two years. This proposal is aimed at providing education and high wage jobs for youth while also alleviating a severe housing shortage and rebuilding a town.

The goal of this proposal is to address the needs of Target and the surrounding rural communities. These needs will be meet by the rebuilding of these damaged homes to pass code inspection, leading to increases in the historical and property values of these homes while also providing educational opportunities for youth leading to high-school degrees, certification in the building trades, and for those who desire it an AA degree in construction through Our County Community College (DACC). At least 75% of the participants who graduate from YOUTH RECONSTRUCTION program will be either successfully transitioned to postsecondary education or will possess a job that averages at least $10 an hour. By creating a partnership of community development agencies, work force offices and university and community college outreach efforts within the YOUTH RECONSTRUCTION framework, Target’s hope in its future and the future of its youth can be restored. The YOUTH RECONSTRUCTION program also offers to youth, leadership development, academic remediation, career and post-secondary advisement, community involvement, and will lead to real educational and career opportunities.



*Our Vision: Teachers who complete the Teacher Leader Alliance program will become intellectual leaders able to facilitate the creation of rich mathematics learning environments for teachers and students in schools and districts.*

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Sample Introduction #2**

COMMUNITY LITERACY PROGRAM (CLP) -

TEACHER LEADER ALLIANCE (TLA)

VISION, GOALS, AND OUTCOMES

The Community Literacy Program (CLP) Teacher Leader Alliance proposal responds to the need of partner districts across New Mexico that have embarked on full scale implementation of innovative literacy programs, yet lack the leadership on school campuses or in their districts to support

effective enactment of a quality curriculum.

The proposed CLP Teacher Leader Alliance (TLA) project designed in partnership among English and Language professors, education faculty, and school district leaders will develop a cadre of 60 literacy teacher leaders that have a deep conceptual knowledge of K-12 literacy, as well as the knowledge, skills and dispositions to facilitate growth in literacy teaching and learning environments in schools or districts. The Alliance will provide a two year cycle of professional development (PD) through intensive summer study as well as a follow-up academic year program that includes application of their learning in their school or district

setting. The first cycle will begin in summer 2010 and include a cohort of 30 Teaches Leader candidates. A second Alliance will begin in summer 2012 with thirty new Teachers Leader candidates.

We begin with the end in mind, by envisioning the characteristics of our teacher leader candidates at the completion of the proposed CLP- Teacher Leader Alliance.

I. Deep Understanding of Literacy Concepts via Vertical Progression and Connections:

Teacher leaders will gain a new lens for learning literacy by studying how concepts connect within and across grade levels (vertical articulation). Teachers will gain a deeper understanding of literacy concepts by understanding these connections. They will understand how the content progresses throughout the K-12 continuum and how the concepts in various grade levels relate to one another. By gaining a range of models and strategies to represent literacy ideas, Teacher Leaders will be able to help reading and literacy teachers throughout K-12 levels to differentiate their instruction and meet the needs of diverse learners.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

II. Pedagogical Practices that Represent the Art and Science of Masterful Teaching

Teacher leaders will know how to listen to language, build literacy learning experiences and conversations around children’s ideas and understand how to support their learning. Specifically, they will know how to use effective teaching strategies grounded in our state’s process standards of problem solving, communicating, reasoning, representing, and connecting literacy and reading ideas. They will be able to assess student literacy thinking to understand each student’s knowledge framework and choose instructional moves that build upon student’s existing knowledge.

III. Intellectual Leadership

Teachers will have a depth of knowledge of literacy and pedagogy and how to apply them in school settings that will allow them to become intellectual leaders in their district and schools. They will have gained dispositions, knowledge of strategies, and tools for working with adult learners and they will have the intellectual capital to be seen as leaders in their schools or districts. Teacher Leaders will know how to facilitate cultures of learning among colleagues and administrators within a school system. They will understand and implement practices from adult learning theory to support teacher’s professional learning and engage in productive professional discourse. This intellectual leadership will lead to successful district or school-wide collaborative efforts based on flexibility in thinking and the ability to understand multiple perspectives on learning and the challenges of teaching. Teacher Leaders will have confidence by the end of the two-year Alliance experience to know that they can positively impact a school system at various levels.

IV. Supportive School Environment

Principals will understand the research that supports improved student learning of literacy and how to foster a culture of professional learning on their campuses. Principals and Teacher Leaders will collaboratively develop a vision for the Teacher Leader’s role on the school campus or in the district. They will create formal agreements that define the scope of work of the teacher leader and the principal’s support towards this partnership. They will clearly communicate expectations for professional learning among school staff and routinely engage in reflection and evaluation of the progress the school is making towards teacher and student learning goals.

**Sample Introduction #3**

**Capacity Statement:**

Desert State University (DSU) brings a wealth of expertise to support this effort. It is a Carnegie I Research institution, and a land grant, sea grant and space grant institution located in BigTown, Desert State. It is the flagship of the Desert State University System, which consists of nine universities, eight state agencies, and a health science center that serves 90,000 students and reaches more than 4 million people each year. DSU has an enrollment of approximately 44,000 students, and ranks among the top 10 universities nationally in value of research, including support for many cutting-edge science and technology initiatives.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

DSU is a national leader in developing telecommunications and is a member of the “High-Tech”

Consortium. The High-Tech Consortium is led by 170 universities in partnership with industry and government to develop and deploy advanced network applications and technologies. High-Tech is creating a network capability for the national research community to ensure the rapid transfer of new services and applications to the broader Internet community.

The DSU College of Education (3,820 students) is a leading developer of teachers in Desert State. The college has 112 tenure/tenure track faculty members plus 60 additional teaching faculty members. The College of Education is accredited by the National Council for Accreditation of Teacher Education, the Southern Association of Colleges and Schools, the American Psychological Association, and the Desert State Education Agency. The College of Education has several centers and outreach programs, including [Project Outreach] which can support the proposed activities. Project Outreach assists organizations with strategic planning for technology, maintaining, troubleshooting and upgrading technology, and using distance learning technologies effectively. There are state of the art technology training facilities in the College of Education and in Project Outreach, as well as technology support personnel.

Other resources that can support the proposed activities include [ANOTHER Project]. A primary task of Our Project is to link the Desert State Essential Knowledge and Skills (TEKS) objectives that are the basis for instruction for all schools in Desert State with national objectives prepared by the National Council of Teachers of Mathematics (NCTM) *Principles and Standards for School Mathematics* (2000) and the AAAS Project 2061 *Benchmarks for Science Literacy* (1993). Together, these standards for mathematical thinking in the nation’s public schools have shaped most states’ mathematics objectives, including Desert State. Our

Project then extends the national-state linkage to Desert State adopted textbooks in mathematics for grades 6-8 and evaluates their contributions to effective instruction for the state objectives on TEKS.

The Gulf Coast [ANOTHER Project] is a federally funded project designed to provide five years of comprehensive support services for a cohort of middle school students in three rural and low-income districts in order help prepare them for college. One of the Another Project priorities is to encourage more students to take and succeed in algebra, especially in the eighth grade. Through the Gulf Coast Another Project, DSU participates in a statewide and national network of [associated] projects, and is in a position to disseminate information about the Explorations in Algebra Workshops of the Some Program through these networks.

**NEEDS ASSESSMENT**

Analyze the situation using the best data you have available and cite where possible. Show both the strengths and weaknesses of the current situation.

The Needs Assessment provides:



A situational analysis of problem and how you intend to address it



Strengths and weaknesses of the current situation

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Sample #1**

**Needs Assessment**

This flood happened in one of the neediest of New Mexico communities. The population is comprised of the following ethnic groups: Hispanic (79.2%); White Non-Hispanic (18.8%); two or more ethnicities (2.4%), and American Indian (1.6%). The estimated median household income in 2005 was $21,100. Unemployment ranges are just under 16% and rising in the current economy.

Levels of poverty in these areas are some of the state’s worst. An estimated 23% live below the poverty line earning a median annual income of $13.999. In spite of these challenges, the people of Target have come together and formed a group aimed at restoring their town, the Target Area Recovery Team (TART).

A needs assessment conducted by the Target Area Recovery Team (TART) tasked with long-term recovery identified a minimum $204,000 worth of unmet basic materials needs. This figure does not include supervisory or labor costs associated with rebuilding damaged homes. Education challenges are many. Out of the nine-hundred and thirty total people living in Target only, ninety-one residents hold a bachelor’s degree or higher (US Census, 2000). For students in grades 9-12 the dropout rate is 9.7%, nearly twice that of the state’s average of 4.9% (New Mexico Department of Education, 2007). The school district’s student achievement scores are also some of the lowest in the state. On last year’s state report card only 16% of the 8th grade students in Target showed proficiency in mathematics (New Mexico Department of Education Web Site, 2009). The nearly 500 commercial and residential buildings were adversely impacted by an *arroyo* (natural drainage) breach that sent waist-high water roiling throughout the downtown where many of the *adobe* homes sit. Much of the water collected in an historic residential area west of Franklin Street. This neighborhood features charming and unique 1930s and 1940s-era homes constructed using sun-dried clay, sand and straw (*adobe*) bricks.

**Sample #2**

The Math Achievement Plan (MAP) evaluative research will study the replication and adaptation of the model based on the original Your Town Math Initiative (YTMI) model but modified over the next three years using a process of design-based research. The original mixed effects linear model would also continue to be used to study the empirical answers to specific research questions based on the model. The proposed work will be done in a larger district with more diverse demographics through a partnership with district leaders and teachers and STEM (Science, Technology, Engineering, and Mathematics) educators and researchers.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

This district, Your Town Public Schools, represents the changing national trends in student population. While states like New York and Texas struggle to meet the needs of diverse learners the changing demographics bears out the growing challenges for schools in all states including Wisconsin and Ohio (NCES, 2006).There is a need for effective capacity building models for mathematics achievement that can inform others in the broader mathematics community and contribute to expanding the quality, quantity and diversity of students who will have the mathematics background to enter the STEM (Science, Technology, Engineering, and Mathematics) fields. The theoretical framework for this systems model is included in the rationale section below.

The following proposal describes how a systems model for building capacity that was shown to be successful during the YTMI initiative could be adapted for use nationally in other districts. A significant component of this proposal is to continue to expand the evaluative research begun during the student outcomes study and to use a continuous improvement process involving *design-based* *research* to further strengthen a *capacity building model*. This will be made possible by a strong,existing collaboration between educational researchers, mathematicians, mathematics educators and school district leaders with extensive experience over the last 10 years in building the capacity of districts for success in mathematics teaching and learning.

While the YTMI was successful in closing the achievement gap for Hispanic students in a 94% Hispanic district, we want to know if the same research-based systems model for building capacity can work in a district of mixed ethnicity where Hispanic students are currently scoring as much as 20% below Anglo students in the district by eighth grade.

*This research effort will provide the opportunity to produce and disseminate new knowledge in the form of research findings, research tools, and a tested building capacity model that could positively impact student’s mathematics learning across the country. In addition, we would like to find out if a focused professional development plan based on the building capacity model can be applied and tested in supporting full implementation of the K-8 NSF math curriculum in the Fall of 2007 and if this can be done through an intensive three year effort.* Full implementation will include developingand coordinating all parts of the system, including curriculum alignment with teaching and assessment, the development of additional formative assessments, intense PD in mathematics content and teaching mathematics, support for administrators in the implementation process, and the integration of significant school-based support for teacher collaborative efforts (see REFERENCE). This proposal would provide the funding for researching these efforts while the district and other grants are providing funds for the implementation of the same standards-based curriculum used in the YTMI.

*A sustainable model that results in closing the persistent achievement gap for under-represented minority and low-income students in mathematics has potentially significant national value to Science, Technology, Engineering, and Mathematics (STEM) education. As the national demographics of our student population becomes increasingly diverse, it is imperative that educators address the achievement gap and make it possible to increase the quantity, quality and diversity of students capable of studying in STEM fields and eventually entering the national STEM workforce.* A number of publications and reports (“*Waiting for Sputnik”-* Center for Strategic and

International Studies, “*Rising Above The Gathering Storm: Energizing and Employing America for*

****Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

*a Brighter Economic Future” -* National Governors’ Association, as well as the developing *American Competitiveness Initiative* call for urgent action to improve the preparation of our nation’syouth to work in STEM fields.

Ethnically and linguistically diverse students are the largest growing proportion of new public school students with Hispanics being the largest growing “minority” population in the United States

(US Census Bureau, 2000). Students from these populations are not achieving at the same rate of success in math as other populations (NCES, 2002). National Assessment of Educational Progress (NAEP, 2004) data indicates that at the national level the achievement gap for ELLs, various ethnic groups, and low-income students is not closing (Haycock, 2001). Hispanic students fall behind their Anglo counterparts in math at all grade levels (NCES, 2002), have lower participation rates in advanced math courses in high school and college, and are underrepresented in STEM related fields which require a strong background in math.

While mathematics is only one component of STEM education, knowledge of mathematics impacts deeply the study of science, technology, and engineering. In fact, in an interview with engineers for an NSF project (Bridges Project, 2002) when asked about what students needed to know to enter engineering in university, consistently, the engineers suggested that an understanding of mathematics and especially mathematical reasoning was an essential component to the study of every STEM discipline. It is a lack of mathematical knowledge that keeps children from studying further in the STEM fields (Moses & Cobb, 2002).

*An important value of the proposed study would provide information about how a systems model for building capacity for mathematics learning can work in a larger district with mixed ethnicities and what level of effort and time are necessary to make such a model sustainable. One of the major findings of the YTMI is that the problem does not lie with the children, their ethnicity or their income level, but with their lack of access to a system that provides all students with the opportunities to learn a rich and challenging mathematics curriculum.* The YTMI demonstratedwhat was first discovered in the *effective schools research* (McInerney, Dowson, & Van Etten, 2006), that schools can have a significantly positive effect on student learning, despite the fact that students are economically disadvantaged, have learning needs in terms of language and need to become part of an academic culture.

**THEORETICAL FRAMEWORK AND/OR RATIONALE**

**The Theoretical Framework describes your approach to the problems based on both the literature reviewed and your own professional experiences.**

**The Rationale is similar to a theoretical framework but usually not as comprehensive. It also specifies how your approach best addresses the needs outlined in the Needs Assessment.**

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Grant proposals require *either* a Theoretical Framework or Rationale.**

Theoretical Framework and/or Rationale provide:



A framework for your approach based on key concepts



Why your approach best addresses the statements of your Needs Assessment and the project goal(s)

**Sample #1 (Theoretical Framework)**

**Theoretical Framework for the Capacity Building Model for Mathematics Achievement**

The roots of the XYZ Systems Approach to mathematics reform are grounded in both the literature in the STEM education field and in the extensive experiences of the mathematics educators and mathematicians who will be involved in implementing and researching the proposed systems research. Based on our own experiences and supported by Cohen and Hill’s *Learning Policy* (2001), we believe that many educational reforms fail because teachers and the systems in which they work are not placed at the center of the reform.

As described earlier we found that variables affecting the success of lesson study included whether or not teachers had access to a quality standards-based curriculum, the school and district in which they worked had aligned teaching with the curriculum and the state standardized assessment, and the school and/or district had a system for supporting teacher collaboration. All of these factors were considered in designing the systems model used in the XYZ Systems Approach. Critical elements included: (1) A commitment to using one standards-based curriculum for all schools and students that was district-wide and both top-down and bottom-up (2) The selection of an NSF-developed curriculum, namely *Investigations in Number, Data and Space and Connected* *Mathematics* (3) Alignment of the curriculum with teaching and assessment, including the use offormative assessments (4) Extensive professional development, including 130 hours for teachers in mathematics content and teaching (5) Professional development for all administrators in how to support the new curriculum (6) Extensive academic year follow-up support in schools for teachers

(7) Mathematics specialists at each school who give teachers immediate help and model lessons (8) Support and time for teacher collaboration.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Sample #2 (Rationale)**

**Rationale**

The model was developed and over the last ten years and was implemented and researched through the XYZ, a National Science Foundation grant (2000-2006) which was a partnership between the

“Your Town School District” (YTSD) and Desert State University (DSU). *This initiative was* *grounded in previous work by the researchers, mathematicians, math educators and school leaders who make up the authors of this systems capacity building research proposal*. In the 1990s ourwork, like many math reform programs during this period, focused on teachers and provided PD that was of high quality, but largely disconnected from district, school and classroom cultures and practices. During a Star Schools grant (U.S. Department of Education, 1999) we collaborated on a three-state project (California, Colorado and New Mexico) to assist teachers to use technology and expanded pedagogy to improve student achievement in mathematics. The NM staff led the professional development efforts. After highly rated summer institutes with teachers, the grant leaders were disappointed when in follow-up visits they found almost no change in classrooms.

In 2002, the decision was made to change our professional development (PD) approach and co-construct mathematics PD with teachers around the learning needs of their students. Around this time, Lesson Study was being introduced to the U.S. and with the help of Dr. “Red” and Dr. “Blue” we introduced a modified form of lesson study in NM (Green & Brown, 2007). We noticed that those teachers who working in districts with a common agreed-upon standards-based curriculum and had administrative support for collaboration had the most success in increasing student achievement. We also found through this collaborative work that teachers wanted to know more about the mathematics content and thus we invited mathematicians to collaborate with us in our work.

Based on this prior work, Pink, Green, and Yellow in collaboration with the YTSD developed a Local Systemic Change Initiative, the *Your Town Mathematics Initiative* (YTMI), (Award #xxxxx, 2001-2006). The YTMI was a partnership with the university to improve teachers’ knowledge and skills in teaching mathematics using standards based resources, specifically Investigations in Number, Data and Space and Connected Mathematics (CMP). This mathematics partnership between DSU and the YTMI was remarkably successful and further contributed to the development of a research-based model for a systems-based approach to capacity building for math achievement. This restructuring effort for students in grades K-8 in a low-income (100% free and reduced lunch) district with 60% English Language Learners (ELLs) resulted in closing the achievement gap, and in some cases surpassing state averages. Figure 1 shows where student achievement scores were when we started the project.

**Figure 1**

**2000- Achievement Scores for YTSD Students as Compared to the State**

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Figure 2 shows the proficiency |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 100% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| levels for students in the district |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 90% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| at the end of the five year | **Above** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 80% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| program. Of special interest is |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 70% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| the effect of the program on | **or** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Students Proficient** | 60% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| subgroups, especially ELLs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| who are now scoring far above |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40% |  |  | 43% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| all ELLs in the state. The |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30% |  |  |  |  | 35% |  |  |  |  |  | 32% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| students are above the state |  |  | 28% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20% |  |  |  |  |  |  |  | 24% |  |  | 24% |  |  | 24% |  |  |  | 24% |  |  |  |  |  |  |
| scores in grades 3 and 8. | 10% |  |  | 19% |  |  |  |  | 11% | 9% |  |  | 7% |  |  |  | 20% |  |  |
| Students in those grades had |  | 0% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3% |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| spent the most time learning |  |  |  | **Grade 3** |  | **Grade 4** |  |  |  |  | **Grade 5** |  | **Grade 6** |  | **Grade 7** | **Grade 8** |  |  | **Grade 9** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| math in the XYZ. There is a |  |  |  |  |  |  |  |  |  |  |  | 1999-2000 District |  | 1999-2000 State |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| drop in 11th grade. The initiative |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

was aimed at K-8 students and the effects seem to be maintained in grade 9 but drop off as students move further into high school. The XYZ is fully sustainable by the district which is using operational funds to improve student achievement by continuing to have a math specialist at each school to support the mathematics PD.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 100% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Student Proficient or Above** | 90% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 80% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 70% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **Figure 2 – 2006- Achievement Scores** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 60% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50% |  | 55% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **for YTSD Students as Compared to the** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30% |  | 39% |  |  | 38% | 34% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **State** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20% |  |  |  |  |  | 27% | 27% |  |  |  |  |  |  |  |  |  |  | 27% |  |  |  | 27% | 25% |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 20% | 17% |  |  | 19% | 16% |  |  | 19% |  |  |  | 12% | 19% |  |  |  |
|  | 10% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A summary of scores by sub-groups is |
|  | 0% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** | **Grade 7** | **Grade 8** | **Grade 9** | **Grade 11** | provided in Table I below. A Student |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | **2005-2006 District** |  | **2005-2006 State** |  |  |  |  |  |  |  |  |  |  | Outcomes Study was begun in 2003 to |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



look for the effect of the XYZ on student achievement. The final study showed that PD, level of implementation of the PD in the classroom, and teacher’s collaborative work using modified lesson study all had a significant positive effect on student achievement. A mixed effect statistical model was used to show that variance decreased in student test scores during the initiative which lead to higher achievement for all students. The study also found changes in classroom instructional behaviors which included increased use of teacher questioning, more problem-modeling, increased student engagement and increased classroom discourse (Green, Orange, Grey, White & Black, 2007).



Teacher Leaders help teachers improve classroom practice and build an infrastructure for continued professional learning.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Table I: Percent of Students Proficient or Above (2005-2006) New Mexico Standards Based**

**Assessments**

|  |  |  |
| --- | --- | --- |
|  | **Grade 3** | **Grade 8** |
|  | **YTSD** | **STATE** | **YTSD** | **STATE** |
| **All Students** | **56%** | **44%** | **28%** | **26%** |
| **Hispanic Students** | **55%** | **39%** | **27%** | **19%** |
| **English Language** | **57%** | **33%** | **21%** | **8%** |
| **Learners** |  |  |  |  |
| **Economically** | **56%** | **36%** | **28%** | **14%** |
| **Disadvantaged** |  |  |  |  |
| **Students With** | **27%** | **20%** | **4%** | **3%** |
| **Disabilities** |  |  |  |  |

Research on this initiative as well as related research in the field provides the basis for a systems-based capacity building model to support district-based mathematics achievement. The components in the capacity building model will provide the groundwork for the XYZ research study which will study the use of this model in a larger and more heterogeneous district.

**Sample #3 (Rationale)**

WHY TEACHER LEADER FOR SCIENCE?

Rising expectations of classroom teachers to increase student learning coupled with the lack of capacity that school districts have to support teacher growth have created fault lines in education in

which teachers and students are falling through the cracks. Principals are held accountable for increasing student achievement, yet they often lack the content knowledge and instructional expertise to support effective teaching practices. We see Teacher Leaders as the bridge to create a support system for teachers and serve as a partner to school administrators in order to improve instruction for all students learning at the classroom level. A nation which is searching for ways to improve students’ Science learning is looking to classroom teaching for the answers (Cohen & Ball, 2001; Hiebert, Gallimore, & Stigler, 2002;

Lampert, 1985; Stigler & Hiebert, 1999, 2004; National Council of Teachers of Science [NCTS], 1989, 1991, 2000; National Research Council [NRC], 2000). Teachers are asked to embrace ideas about teaching and learning that may be distinctly different from the ways in which they were taught (Cohen & Ball, 2001; Ma, 1999; NCTS, 1991). Standards and curricula materials reflect different views about the nature of science, the role of the teachers in the science classroom, the

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

way in which students learn mathematics, and the sources of scientific authority (Hiebert et al., 1997). Studies have shown that the teacher is the most important factor in realizing these changes (Darling-Hammond & Sykes; Sanders & Horn, 1998; Wenglinsky, 2000). Teachers’ content knowledge is often a limiting factor in teaching science. Ball’s work (1997, 2003, 2004) demonstrated that curriculum is mediated by the teacher’s knowledge of the subject.

Professional learning opportunities in science content and pedagogy are essential to the support of support teachers as they encounter these rising expectations (Darling-Hammond & Sykes, 1999; NCTL, 2000; Rand Corporation, 2003). In addition, there is a need for new leadership models including science coaches and Teacher Leaders to support teachers in gaining the required new skills for teaching mathematics deeply and effectively. The literature on science teacher leadership highlights the need for the Teacher Leaders’ knowledge of science, science pedagogy, and students’ scientific thinking (Langbort, 2001, Friel & Bright, 2001). In her list of *Who are Teacher Leaders?* Langbort (2001) lists eighteen attributes of a science Teacher Leader, including being a spokesperson for science education, an active member of the science education community, and a mentor to other science teachers. According to Friel and Bright (2001), Teacher Leaders play two vital roles in their schools: 1) they can model quality instruction in their own classrooms and 2) facilitate reflection with colleagues.

WHY NEW MEXICO?

A unique dichotomy exists in the Land of Enchantment known as New Mexico. While extensive collaborations around the state show that New Mexico has great potential to improve science learning, it is still a high-needs state in which almost all of its districts are designated as high-needs LEAs. On the one hand, two national labs and a significant presence of science- and technology-based industry mean that we have some of the world’s finest scientists. On the other hand, our remoteness and low population density limit us to a very small tax base, which has significant repercussions in the public schools. New Mexico personifies a cultural diversity that is also reflected in our schools, with a majority of our students (K-12) being Hispanic, second language learners. Therefore, as the first **minority-as-majority-state** (42%Caucasian, 47% Hispanic, 9% Native American, 1% African-American), New Mexico has the unprecedented potential and consequent responsibility to educate traditionally underrepresented groups in the STEM (Science, Technology, Engineering, and Mathematics) fields to be the next generation of scientists, mathematicians, and engineers.

New Mexico is also well positioned to increase the quality, quantity, and diversity of Teacher Leaders. Over 50% of the students in DSU’s teacher education program are Hispanic students, and we have a growing number of Native American students studying to be teachers or participating in graduate programs in education**.** DSU has a solid record of increasing the successful participation and graduation of Hispanic students and students with disabilities in the STEM fields as

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

demonstrated in NSF and Department of Education-supported programs throughout the university. We anticipate that at least half of our teachers for the institute will represent ethnically and linguistically diverse students.

Moreover, New Mexico is a reflection of the complex educational, cultural, and demographic changes occurring throughout the nation, but it is facing them sooner than the rest of the country. Consequently, we have a unique laboratory setting that is rich in ethnic, cultural, linguistic, socioeconomic, and geographic diversity. Since students in classrooms across our nation are becoming more culturally and linguistically diverse, the successful strategies that promote student success that are implemented and documented in New Mexico can be replicated in the future in districts across our nation.

**Students** living in New Mexico desperately need improved science education. Our students rankvery low on standardized tests in both science and math; 87% of 8th graders are below proficient levels in science, while 82% of 8th graders are below proficient levels in science. Being from the fourth poorest area of the United States, the majority of our students are on free or reduced lunches and come from homes where the median income for a family of four is $20,000. Twice as many children in New Mexico (24%) live in poverty as those throughout the U.S. (11.8%) (U.S. Census Bureau, 2005). New Mexico is one of the poorest states in the nation, and the repeating cycles of intergenerational poverty continue (Santos & Tiano, 2002; SW Hispanic Research Institutes, 2003).

In the 2003 Report Card on American Education, New Mexico ranked 48th in student achievement; in the 2003, 2005, and 2007 National Assessment in Educational Progress (NAEP) reports, New Mexico ranked 49th in terms of math and science achievement.

Other factors that have hindered the educational achievement of New Mexico students include: a high student drop-out rate; high



teacher turnover; and a low high school graduation rate. We liken the flow of our students through the education system to an “acequia” (traditional Hispanic community irrigation system) analogy. New Mexico is ranked 50th in terms of the national matriculation rates (Kids Count, 2008). We start with a large flow of 9th graders, which is drained by a high school drop-out rate of almost 44%, with the drop-out rate

increasing over the past five years. Of high school seniors, 62% are diverted from entering New Mexico colleges owing to many factors including the cost of higher education and the lack of prerequisite skills.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

Looking at the U.S. Census Bureau for the **poverty** percent for all ages, we find that **only** Louisiana is poorer than New Mexico. In the poverty percent for all population members under 18, **only three** **other** states have a higher poverty rate than New Mexico. Looking directly at some of our largerpartner school districts, we see that in Las Cruces Public Schools over 25% of children age 5-17 are living in poverty, while in “Some-Town School District” almost 50% of children age 5-17 are living in poverty.

**RESEARCH DESIGN**

Not all grant proposals contain a Research Design section. Rather, they are reserved for Research Grants.

The Research Design portion should specify the problem being address and then designate the methodologies used. For instance, are your methods qualitative, quantitative, or mixed-design? You should also address your specific research questions.

Research Design:



Specifies your methods of research



Is used primarily for research grants

**Sample #1**

RESEARCH DESIGN

The research design addresses the pressing problem of providing leadership in K-12 schools in mathematics education. Professional learning opportunities in mathematics content and pedagogy are essential to support teachers as they encounter increased expectations for mathematics gains in their student achievement across increasingly diverse student bodies. The designers of this project also include the need for teacher leaders to apply their learning at their school and district site and engage in a continuous process of praxis, using theory to inform practice and practice to inform their knowledge as intellectual leaders. In order to investigate the development and enactment of the institute, as well as the effects of teacher learning on their schools and students, a mixed-

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

methodology (Cresswell, 2003, Tashakkori & Teddlie, 2003) will be used for this study. This design supports the collection and analysis of quantitative and qualitative data related to teacher leader learning of mathematics, pedagogy, and leadership during their participation in the Institute. Data will also be collected in relationship to the effects of teacher leader participation on their students’ achievement and the development of standards-based learning environments in their classrooms. A mixed effects statistical model will be used to relate elements of teacher professional learning (math content and enhanced pedagogy) to student achievement, and to classroom learning environments.

The study addresses two overarching questions:

1. What are Teacher Leaders learning from participation in the Institute and how are they learning it?
2. What effects does this learning have on student achievement, classroom environments, and professional work with colleagues and administrators?

Qualitative approaches will be particularly valuable in exploring the developing role of teacher leaders in action, while quantitative methods can determine whether the Institute is a value-added approach for addressing the ultimate national priority of stronger mathematics students. The members of the research team add greatly to the proposed methodology since they have engaged from different perspectives in studying teachers’ and students’ learning of mathematics for many years and include mathematicians, qualitative researchers, a school researcher, and quantitative researchers who have developed a mixed effects linear hierarchical model for relating elements of professional development to student achievement. The following table lists the sub-questions to be answered under each overarching question for the research study. Fuller descriptions of when data will be collected, by whom, as well as information on instruments are included in the supplemental documents.

**Research Questions and Data Collection & Analysis Summary**

**What are teachers learning in the Institute and how are they learning it?**

|  |  |
| --- | --- |
| ***Sub-questions*** | ***Data Collection and Analysis*** |
| Does the presentation of mathematics | Pre and Post testing annually on Mathematics Knowledge for |
| using a vertical alignment model | Teaching (*MKT*, University of Michigan). |
| help participants gain conceptual | *M-TASK*-Mathematics Teacher Assessment of Skills and |
| knowledge of K-12 mathematics? | Knowledge- |
|  | Quantitative analysis of MKT gains. Quantitative and Qualitative |
|  | analysis over two years of Institute participation |
| How does learning K-12 | Classroom observations using validated instruments including the |
| mathematics via vertical alignment | *Levels of Use* (LOU)- level of classroom implementation of PD, , |
| help Teacher Leader candidates to | *Observation tool* for math learning of ELL students, and the |
| differentiate instruction in the | *Classroom Snapshot* which looks at types and structure of |
| classroom? | teaching and types of student learning (engagement, etc.) – |
|  | Quantitative analysis using mixed effects model. |
| What features of the professional | Reflective questions are answered twice a semester for each PD |
| development structures (institute, | structure; teachers also analyze their classroom in relation to the |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |
| --- | --- |
| school-based mentoring, PLC) help | SBLE rubric and reflect on connections between the type of PD |
| TL move towards Standards Based | structure and how they see their classroom changing. |
| Learning Environment (SBLE)? | Structures are classes, collaborative groups, individual work |
| How do TL apply what they have | TLs will keep weekly field logs related to their study and its |
| learned in the Institute in their work | application to field using carefully guided questions as well field |
| with teachers and principals in their | notes. They will also reflect on their learning at the beginning, |
| schools and districts? | middle, and end of each session and provide feedback on what |
|  | courses and parts of courses were most valuable. |
|  | Qualitative analysis using constant-comparative method/themes. |
| What do TLs say were the most | Teacher interviews and focus groups |
| valuable aspects of the academy in | Qualitative analysis using constant-comparative method for the |
| helping their work in the schools? | development of themes. |
|  |  |
| What aspects of the project activities | Use of video and audio case studies. |
| facilitate TL in applying adult | Rubric on Secondary Learning Communities |
| learning and facilitating meaningful | Participant checking; qualitative analysis for themes |
| math discourse with PLC? |  |

**What is the effect of Teacher Leader learning on student achievement, classroom practice and the development of a district plan for improving math teaching and learning:**

|  |  |
| --- | --- |
| Does participation in the Institute | Use of a mixed effects linear model that looks at the effect of 1) |
| positively affect student | mathematics learning (MKT and M-TASK), pedagogy (Institute |
| achievement? Which elements of | assessments of pedagogy abilities and SBLE-Standards-Based |
| institute learning (mathematics, | Classroom Rubric ) and 3) quality of time spent as part of the |
| pedagogy, and/or leadership) have | PLC Rubric (in development) on student achievement (state |
| the strongest effect on student | standardized test- NMSBA). Quantitative using linear |
| achievement? | hierarchical mixed-effects model. |
| Does participation in the Institute | Use of a mixed effects linear model that looks at the influence of |
| positively affect classroom practice? | 1) mathematics learning (MKT and M-TASK), pedagogy |
| Which elements of institute learning | (Institute assessments of pedagogy abilities and SBLE) and 3) |
| (mathematics, pedagogy, and/or | quality of time spent as part of the PLC Rubric on measurements |
| leadership) have the strongest effect | of standards-base mathematics environments (LOUs, Classroom |
| on student achievement? | Snapshots). Quantitative using linear hierarchical mixed-effects |
|  | model. Additional qualitative evaluation of how TLs worked. |
| How does participation in the | District administrators and principals will be asked to assist their |
| Institute impact the school or district | school’s readiness for change using the Quality Mathematics |
| plans for improvement of | Education Model (QMEM). The QMEM will be given annually. |
| mathematics instruction? | An Improvement plan developed by the teacher leader and |
|  | principal will be evaluated using a School Improvement Rubric. |

**Dissemination**: “OurProject” researchers willdisseminate their findings to the educationalcommunity through strategies that begin at the local level, and then broaden to the state, national and international level. At the national level the research findings will be submitted for publication in the *Journal for Research in Mathematics Education*, *American Education Research Journal*, or other professional journals. Practice-based articles with be submitted to journals like NCTM’s

*Teaching Children Mathematics* and *Mathematics Teaching in the Middle School.* The project andits findings will be proposed for presentation at the National Council of Teachers of Mathematics (NCTM) Research Pre-session, Joint Meetings of the American Mathematics Society (AMS) and

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

Mathematics Association of America (MAA), National Association of Bilingual Educators (NABE), American Educational Research Association (AERA), National Council of Supervisors of Mathematics (NCSM) and other national conferences. This team has presented at numerous conferences and additionally will publish a monograph to share this research project.

**Sample #2**

**Research Design**

The proposed evaluative research utilizes a mixed methodology (Tashakkori & Teddlie, 2003) that includes an empirical evaluation design utilizing a hierarchical mixed effects model within a design-based research approach. This research approach will guide the team in evaluating and modifying the implementation of the Capacity Building Model in a new district. The mixed methodologies involved are described below in terms of procedures and timelines.

The overarching research question for this systems research is:

1. *Can the implementation of a capacity-building systems model that closed the achievement gap in a rural New Mexico district also work in a larger district with mixed ethnicities?*

The next two questions will guide the research. The first question refers to the use of design-based research to modify and refine the model as it is being implemented in a new setting. The second question describes the procedures for answer the empirical questions related to the effect of the model on student achievement. The procedures to be used for the collection of data are included after each question.

1. *How does the model need to be modified by participating stakeholders in order to strengthen its potential replicability?*

The modification will be addressed through the use of design-based research (Design-based Research Collective, 2003) to support continuous improvement in the implementation of the model. Design-based research provides a useful methodology for researchers, practitioners and content area specialists to work together to produce meaningful change in context of practice Kelly (2003). This is systems-based research within a school setting the lens of design-based research is promising and needed. S*ustainable innovation requires understanding and how and why an innovation works* *within a setting over time (Kelly, 2003)*. The research design involves multiple cycles of design,enactment and study. This approach will be used to constantly improve the strength of the model as it is being introduced in this new district setting. Using design-based research (Sandoval & Bell (2005), involves including the perspectives of all stakeholders in a research project which then become a part of a continuous formative evaluative process that can be used to shape and refine the systems model as it is implemented throughout the district. Frequent formative assessments can be extremely powerful for keeping a project on track and ensuring that all components of a model are

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

working in tandem with one another. Design-based research views a successful intervention as a joint product of the designed intervention (the Capacity-Building Model) and the context in which it occurs. Models can be generalized through this work and model building is the goal of THIS

RESEARCH PROGRAM.

Design-based research can compose a coherent methodology for studying educational practice. Because design-based research is grounded in local needs, constraints, and interactions of local practice, a lens for understanding the implementation of a model and how it can transform educational practice. The goal is usable knowledge that can be used to modify educational change in practice (Design-Based Research Collective, 2003). Models of successful innovation can be generated from this approach. This project will be assisted in implementing this methodology through an internal and external evaluation team. The research team has a scheduled work plan to collaborate and based upon the data and measurement benchmarks will determine and document next steps.

*3. Which elements of the model have the most positive effect on student achievement in the new district?*

A mixed effects model will be used to analyze each year the data gathered in answer to the following questions as related to the effects of each component of the Capacity Building Model on student achievement. The three components of the Model are correlated to the appropriate research question below:

*Component 1: Quality Aligned Curriculum*

1a: What relationships exist between types of professional development and student achievement?

1b: Does the level of classroom implementation affect student achievement?

*Component 2: Teacher Quality and Collaboration*

2a: Do teachers gain pedagogical content knowledge as a result of the project and how does that interact with student achievement?

2b: How does the level of teacher collaboration affect student achievement?

*Component 3: Administrative and STEM Community Support*

3a: How does the level of administrative support affect student achievement?

The section below describes the procedures for gathering and analyzing data to answer the research questions. Table IV outlines the data collection and analysis and answers the following:

1. What evaluation instruments will be used?
2. Who is responsible for the collection of data?
3. Who is responsible for the analysis of the data?
4. What is the timeline for each evaluation?

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Table IV: Data Collection and Analysis for “This Research Program”**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | ***Responsible*** | ***Responsibl*** |  |
| ***Evaluation*** | ***Evaluation Instruments*** | ***for*** | ***e*** | ***Timeline*** |
|  |  | ***Collection*** | ***for*** |  |
|  |  |  | ***Analysis*** |  |
| **Measure what** | **a) Levels of Use** | District Math | Research | Random classrooms |
| **teachers implement** | **Observational Rubric** (used | Specialists | Team | will be observed |
| **in their classrooms** | to observe at least 10% of the | and | K. Name1 | twice a year with |
| **from their** | classrooms in the district to | R. Name2, | K. Name5 | both observation |
| **professional** | determine if what is presented | Project | M. Name6 | instruments for each |
| **development** | in PD is being used in the | Coordinator | D. Name7 | year of the grant. |
| **through classroom** | classroom) | S. Name3, |  |  |
| **observations** |  | and S. Name4 |  |  |
|  | **b) Classroom Lesson** | District Reps. |  |  |
|  | **Observation Instrument** | K. Name5, |  |  |
|  | (used to observe at least 10% | Internal |  |  |
|  | of the classrooms in the district | Evaluator |  |  |
|  | to determine if what is |  |  |  |
|  | presented in PD is being used |  |  |  |
|  | in the classroom) |  |  |  |
| **Measure growth in** | **Survey of Content** | District Math | Research | Year 1, teachers |
| **teacher pedagogical** | **Knowledge for Teaching** | Specialists | Team | will be assessed |
| **content knowledge** | **Mathematics (University of** | Project |  | during summer |
| **through pre and** | **Michigan)** | Coordinator |  | training and again |
| **post assessments** |  | Internal |  | at the end of the |
|  |  | Evaluator |  | school year. In |
|  |  |  |  | Years 2 and 3, |
|  |  |  |  | teachers will be |
|  |  |  |  | assessed only at |
|  |  |  |  | the end of the |
|  |  |  |  | school year. |
| **Analyze student** | **New Mexico Standards-** | District Math | Research | NMSBA is |
| **achievement on the** | **Based Assessment Results** | Specialists | Team | administered in |
| **state criterion-** | **(NMSBA)** | District Reps. |  | March of each year. |
| **referenced test by** |  | Internal |  | Results become |
| **teacher classroom** |  | Evaluator |  | available in |
| **(Summative** |  |  |  | September. |
| **Evaluation)** |  |  |  |  |
| **Analyze student** | **The short-cycle assessments** | District Math | Research | Short cycle |
| **achievement on** | **will be determined by the** | Specialists | Team | assessments will |
| **district selected** | **district.** | District Reps. |  | be administered at |
| **short cycle** |  | Internal |  | least four times per |
| **assessments** |  | Evaluator |  | year for each year |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **(Formative** |  |  |  | of the grant. |
| **Evaluation)** |  |  |  |  |
| **Measure the level of** | **a) Teacher Surveys** (to | District Math | Research | A random selection |
| **administrative** | determine the level of | Specialists | Team | of teachers will be |
| **support** | administrative support) | District Reps. |  | surveyed once per |
|  |  | Internal |  | semester for Year 1 |
|  |  | evaluator |  | and once per year |
|  |  |  |  | for Years 2 and 3. |
|  | **b) Teacher Focus Groups** (to | District Math | Research | At least one |
|  | determine the level of | Specialists | Team | teacher focus group |
|  | administrative support) | Internal |  | per campus will be |
|  |  | Evaluator |  | convened each |
|  |  |  |  | year of the grant. |
| **Track hours and** | **a) Professional Development** | District Math | Research | Data must be |
| **type of PD received** | **Teacher Sign-In Sheets** (to | Specialists | Team | collected and |
| **by teachers,** | demonstrate the quantity and | District Reps. |  | compiled after each |
| **principals, and** | type of professional | Internal |  | PD session. Data |
| **district** | development teachers have | Evaluator |  | will be analyzed |
| **administrators** | attended) |  |  | yearly. |
|  | **b) Professional Development** | District Math | Research | Data must be |
|  | **Principal/Administrator Sign-** | Specialists | Team | collected and |
|  | **In Sheets** (to demonstrate the | District Reps. |  | compiled after each |
|  | quantity and type of PD | Internal |  | PD session. Data |
|  | principals /administrators have | Evaluator |  | will be analyzed |
|  | attended) |  |  | yearly. |
| **Measure** | **Professional Development** | District Math | Research | Data collected and |
| **participants’** | **Teacher and Administrator** | District Reps. | Team | compiled after each |
| **satisfaction with the** | **Evaluations** (to determine the | Internal |  | PD session. Data |
| **PD attended** | quality of the PD and to help | Evaluator |  | will be analyzed at |
|  | adjust PD to the needs of the |  |  | least twice each |
|  | people attending PD) |  |  | semester to |
|  |  |  |  | determine the |
|  |  |  |  | quality of on-going |
|  |  |  |  | PD and to make |
|  |  |  |  | adjustments to |
|  |  |  |  | training. |
| **Measure how much** | **School Schedules** (to | District Math | Project | School schedules |
| **time teachers are** | determine if time is built into | District Reps. | Coordinator | will be collected at |
| **given at each grade** | each school’s schedule for | Internal |  | the beginning of |
| **level at each** | collaborative activities) | Evaluator |  | each school year. |
| **campus for** | **Teacher Focus Groups** | District Math | Project | The amount / |
| **collaboration** |  | District Reps. | Coordinator | quality of |
|  |  | Internal |  | collaboration time |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Evaluator |  | will be discussed |
|  |  |  |  | during yearly |
|  |  |  |  | teacher focus |
|  |  |  |  | groups. |
| **Measure the** | **a) District Budget—**(level of | P.I. & Co-P.I. | P.I. & Co- | A study of the |
| **district’s ability to** | fiscal responsibility taken by | District Reps. | P.I. | district budget will |
| **sustain positive** | the district to hire District Math |  | Project | be completed at the |
| **change in** | Specialists and other personnel |  | Coordinator | beginning of each |
| **mathematics** | to sustain the mathematics |  |  | fiscal year. |
| **instruction after the** | initiative) |  |  |  |
| **grant is over** | **b) District Budget—**(level of |  |  |  |
|  | fiscal responsibility taken by |  |  |  |
|  | the district to replenish |  |  |  |
|  | mathematics materials as |  |  |  |
|  | needed) |  |  |  |

Table V. answers questions concerning the reporting of the research findings.

1. Who is responsible for producing the reports?
2. To whom will the reports be presented?
3. Who will make the presentations?
4. When will the results be presented?
5. Who will make decisions based on the research results?

The reported results will be used by the design-based research teams to assist in modification of the model to increase its effectiveness.

|  |  |  |
| --- | --- | --- |
| **Table V: Analyzing and Reporting of Research Results** |  |  |
|  | ***Evaluation*** | ***Who will be*** | ***To whom will*** | ***Who will do*** | ***When will*** | ***Who will*** |
|  |  | ***responsible*** | ***the reports be*** | ***presentation*** | ***results be*** | ***make*** |
|  |  | ***for*** | ***presented?*** | ***s?*** | ***presented?*** | ***decisions*** |
|  |  | ***producing*** |  |  |  | ***based on*** |
|  |  | ***the*** |  |  |  | ***results?*** |
|  |  | ***reports?*** |  |  |  |  |
|  | **Initial meeting of** | Program | Research | Internal | Meet before | Research |
|  | **Evaluators/** | Coordinator | Team and | Evaluator | the project | Team and |
|  | **Researchers and LCPS** |  | Internal and |  | begins and | Internal and |
|  | **Reps to set** |  | External |  | Monthly | External |
|  | **Benchmarks/Measure** |  | Evaluator |  | thereafter | Evaluators |
|  | **ments for 3 year** |  |  |  |  |  |
|  | **project to align** |  |  |  |  |  |
|  | **model/data for** |  |  |  |  |  |
|  | **decision making** |  |  |  |  |  |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Measure what teachers** | Research | Principals | P.I. & Co-P.I. | Twice | Co-P.I. |
| **implement in their** | Team, P.I. | District Math |  | yearly— | District Reps. |
| **classrooms from their** | Project | Specialists |  | February | Principals |
| **professional** | Coordinator | Other district |  | and |  |
| **development through** |  | personnel |  | September |  |
| **classroom** |  |  |  |  |  |
| **observations** |  |  |  |  |  |
| **Measure growth in** | Research | Principals, | P.I. & Co- | August of | P.I. & Co-P.I. |
| **teacher pedagogical** | Team, P.I. | District Math | P.I. Project | each year |  |
| **content knowledge** | Project | Specialists | Coordinator |  |  |
| **through pre and post** | Coordinator | Teachers |  |  |  |
| **assessments** |  | Other district |  |  |  |
|  |  | personnel |  |  |  |
| **Analyze student** | Research | Superintendent | P.I. | October of | Superintende |
| **achievement on the** | Team, P.I. & | Principals, | Research | each year | nt Principals |
| **state criterion-** | Co-P.I. | Other district | Team | (results don’t | Other district |
| **referenced test by** | District | personnel |  | arrive in | personnel |
| **teacher classroom** | Reps | (Parents and |  | districts until |  |
| **(Summative** |  | community |  | September) |  |
| **Evaluation)** |  | members will |  |  |  |
|  |  | receive similar |  |  |  |
|  |  | data without |  |  |  |
|  |  | teacher info.) |  |  |  |
| **Analyze student** | Research | Principals | Co-P.I. | As short | Principals |
| **achievement on** | Team, P.I. & | Teachers | District Reps. | cycle | Teachers |
| **district selected short** | Co-P.I. | Other district | District Math | assessment |  |
| **cycle assessments** | District | personnel | Specialists | s are given |  |
| **(Formative Evaluation)** | Reps. |  |  | (four times |  |
|  |  |  |  | per year) |  |
| **Measure the level of** | Research | Superintendent | P.I. | Year 1: Jan. | Superintende |
| **administrative support** | Team, P.I. & | Principals | Research | and August | nt |
|  | C0-P.I. | Teachers | Team | Years 2 & 3: | Principals |
|  | District |  |  | August | Other district |
|  | Reps. |  |  |  | personnel |
| **Track hours and type** | Research | Superintendent | P.I. & Co-P.I. | August | Superintende |
| **of PD received by** | Team, | Principals | District Reps. |  | nt |
| **teachers, principals,** | District Math | Teachers |  |  | Principals |
| **and district** | Specialists | Community |  |  | Other district |
| **administrators** |  | members |  |  | personnel |
| **Measure participants’** | Research | P.I. & Co-P.I. | Research | At least | P.I. & Co-P.I. |
| **satisfaction with the** | Team | Project Director | Team | twice per | Project |
| **PD attended** |  | District Reps. |  | semester | Director |
|  |  |  |  |  | District Reps. |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Measure how much** | Project | P.I. & Co-P.I. | Project | August and | Co-P.I. |
| **time teachers are** | Director | District Reps. | Coordinator | May | District Reps. |
| **given at each grade** |  |  |  |  |  |
| **level at each campus** |  |  |  |  |  |
| **for collaboration** |  |  |  |  |  |
| **Measure the district’s** | P.I. & Co- | Superintendent | P.I. & Co-P.I. | During the | Superintende |
| **ability to sustain** | P.I. | Principals | District Reps. | preparation | nt District |
| **positive change in** | District |  |  | of the district | Budget |
| **mathematics** | Reps. |  |  | budget and | Committee |
| **instruction after the** |  |  |  | at the |  |
| **grant is over** |  |  |  | beginning of |  |
|  |  |  |  | each fiscal |  |
|  |  |  |  | year |  |

**Sample #3**

**Research Questions and Design**

The overarching research question in this study is: **In what ways can innovative media be used to fill conceptual** **gaps in middle grades mathematics**? The project team is interested in designing media to address specific gaps inconceptual understanding for middle grades students. The formative research was described earlier. Once full versions are completed, testing research will begin with randomized control trials.

**Randomized Control Trials for Years 3, 4, and 5**

The research team will use a study design strongly suggested by NSF (NORC, 2005), a Randomized Control Trial design for projects such as this one that is testing the effectiveness of a product for learning. The hypotheses to be tested, the protocols and instruments used for evaluative purposes and the planned statistical analyses are described below.



**Hypotheses, Evaluation Protocol, and Statistical Analysis**

**Hypothesis 1**

Students in experimental classrooms will increase their **conceptual understanding of given mathematical** **concepts** at a significantly higher level than students in control classrooms as measured on the New MexicoStandards Based Assessment (NMSBA).\*

|  |  |
| --- | --- |
| **Evaluation Protocol** | **Statistical Analysis** |

**Center for Research and Outreach**

College of Education, New Mexico State University http://cro.nmsu.edu/proposals.html

A. (NMSBA) mathematics results for students in Grades 6, 7, and 8 will be disaggregated and analyzed to determine similarities and differences in the performance of students in experimental classrooms as compared to those in control classrooms.



by overall mathematics proficiency,



by each area originally identified as an area of weakness



by ethnicity, gender, level of English language learning, socio-economic status and enrollment in special education

B. Results from post-test for each module will be analyzed to determine level of proficiency demonstrated by each student.

Pre-treatment equivalence will be compared with post-treatment scores by student within treatment and control classrooms. An analysis of variance will be used to compare the performance of students. in experimental and comparison classrooms. A mixed effects linear model will be used to examine differences in treatment means as well as differences in variability.

*\* NMSBA is administered in spring of each school year: results available September 1 of following school year.*

**

**Hypothesis 2**

Students will **retain their understanding of math concepts longer** in experimental than in control classrooms based on year-end scores over time on the NMSBA.



**Evaluation Protocol**

New Mexico Standards Based Assessment (NMSBA) mathematics results for students in Grades 6 and 7 will be disaggregated and analyzed by the categories listed above for the students.

Student scores will be aggregated by type of classroom, experimental or control. Repeated measures of student understanding will also be given 3 times during the one year experimental trial. NM schools give standardized formative assessments during the year. We will use these scores as well as repeat the post-test developed with the modules.

**Statistical Analysis**

Comparisons of year to year student test scores using an analysis of variance over students 6th and 7th grade years: 3 years of comparisons for 6th graders, 2 years of comparison for 7th graders.

**Hypothesis 3**

Students in experimental classrooms will **increase their effective use of math process skills** as measured on open-ended portion of the NMSBA at a significantly higher level than students in control classrooms.



**Evaluation Protocol**

Changes in the percentage of possible score points students earn on the open-ended portions of the NMSBA will be analyzed using a pre- and post-treatment. Changes in scores for experimental and control classrooms will be compared.

**Statistical Analysis**

Pre-treatment equivalence will be with post-treatment scores by student within treatment and control classrooms.

An analysis of variance will be used to compare the performance of students in experimental and control classrooms on the open-ended items on the test. A mixed effects linear model will be used to examine differences in treatment means as well as differences in variability.



**Hypothesis 4**

**Teachers** who use the multimedia tools with their students in experimental classrooms **will increase their mathematics pedagogical knowledge** at a higher level than teachers in control classrooms**.**

|  |  |
| --- | --- |
| **Evaluation Protocol** | **Statistical Analysis** |
| Participating teachers will be administered the *Numbers and Operations* | We will do a matched-pair item |
| and the *Geometry* components of the *Mathematical Knowledge for* | response analysis on the MKT to |
| *Teachers* test (MKT), annually to determine changes in their mathematics | determine change in mathematical |
| pedagogical knowledge. | pedagogical knowledge |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

From the schools currently partnering with the Institutes Math and Science Partnership program, the research team will choose 60 teachers who have agreed to try these materials with their students for a year. Thirty of these teachers will be randomly selected to serve as the experimental group in year one, while thirty of the teachers will serve as a control group. Both groups will do the same pre and post testing, teach similar content, and assist researchers with gathering data. Experimental teachers will use the *Math Program* multimedia modules. Student learning will be assessed in several ways including post-tests that are provided with the modules, and standardized short-term and annual assessments given at the school for all students.

In year 4, the 30 comparison teachers will become the experimental teachers and 30 additional teachers will be randomly selected within the same schools to serve as control teachers. One of the advantages of this design is that all of the schools in the population selected will currently be members of one of the state MSP projects and will be receiving monthly professional development opportunities not specifically related to *Math Program* materials, whether they are in experimental or control classrooms. During the last year, the research team anticipates testing *Math* *Program* in schools outside of the given partner districts, either in another state or in New Mexico, in order to answerthe research question about usefulness in any school.

**WORK PLAN/ACTION PLAN/SCOPE OF WORK**

Here you must specify objectives you will meet over a given period of time and how you intend to meet them. This portion of your proposal should contain a graphic timeline as well as a table of objectives, activities, and responsibilities.

The entirety of the Action Plan may consist of a detailed table or timeline.

Your Work Plan/Action Plan/Scope of Work describes:



What you will do



How you will do it



Who will perform each task



Spells out multiple objectives



Includes a timeline

**Sample #1**

**Work Plan**

The success of the research project requires a district-wide adoption and implementation of a reform-based social science curriculum. Your Town Public Schools (YTPS), the district partner for the proposed project, is planning to adopt *Investigation in Number, Data, and Space* for all

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

elementary schools and *Connected Social Sciences 2* for all middle schools, beginning in the Fall of 2007. The project work plan includes designing summer social science academies for all district teachers; providing follow-up professional development during the academic year; and establishing school-based learning communities for continual review and refinement of teaching practices based on student learning outcomes. In addition, principals and school-based social science leaders will participate in on-going professional development to learn how to support teachers through the change process.

The district-wide social science reform effort will allow the project staff to focus on evaluative research on the effects of the model on the district, schools, administrators, teachers, students and the community, as well as to integrate design-based research methodologies for modification of the model as it is being implemented.

The work will begin with an assessment of each school and teachers’ readiness to implement a standards-based curriculum. Through OUR PROJECT and other projects, we have developed a means for evaluating a school’s capacity for change toward reform-based social science and a sequenced level of professional development options based on the needs of each school. District administrators and principals will be asked to assist their school’s readiness for change using the

Concerns-Based Assessment Model (CBAM) and its evaluation of readiness for different types of professional development as suggested by the following professional development options, including Lesson Modeling, Lesson Study, Curriculum Planning, and Topic Specific Sessions. These options have already been developed and align with the CBAM levels for each school in a district. Table II outlines the Stages of Concern, possible indicators, and relevant support.

|  |  |  |
| --- | --- | --- |
| ***Stages of Awareness*** | ***Expressions of Concern*** | ***Professional*** |
|  |  | ***Development Options*** |
| INFORMATIONAL | "What is this all about?" | Topic Specific |
| CONCERNS | "How will these standards directly affect me?" | Professional |
| PERSONAL CONCERNS |  | Development |
|  |  |  |  |
| MANAGEMENT | "I am spending all my time managing materials | Team | Curriculum |
| CONCERNS | and planning lessons.” | Planning |  |
|  |  |  |
| CONSEQUENCE | “How is my use affecting learners? How can I | Lesson Modeling |
| CONCERNS | refine it to have more impact?” |  |  |
| COLLABORATION | "How can I coordinate what I am doing with | Team | Curriculum |
| CONCERNS | others in my grade level?” | Planning |  |
|  | "I think there are some changes we could | and/or Lesson Study |
| REFOCUSING | make to improve things.." |  |  |
| CONCERNS |  |  |  |

The time is perfect for testing a district-based social science reform system, since all districts in New Mexico are in the process of deciding on a new social science adoption. This means that all of the needed curriculum materials will be available with no additional costs. The proposed partners,

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

the Sometown District and the Desert State University OUR PROJECT Program, will provide support in terms of costs and personnel for implementing the project. Specifically, OUR PROJECT will provide implementation support for all middle school principals, teachers and students. The district will provide additional funds for professional development and plans to hire social science specialists for the schools. This will allow the staff to focus on evaluative research on the effects of the model on the district, schools, administrators, teachers, students and the community, as well as use design-based research methodologies for modification of the model as it is being implemented.

**Sample #2**

**ACTION PLAN FOR STUDENT ACHIEVEMENT THROUGH INCENTIVES AND LEADERSHIP**

**Goal 1 – Restructure Instructional Time, Roles for Principals &Assistant Principals, and Pay System to include Incentives**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Objectives** | **Actions** | **Timeline** | **Responsibility** | **Outcomes** |
| Create a 4-day | The school board in | Year One of the | Superintendent, | The newly |
| school week | YTSD (Your Town | grant will require | Associate | restructured |
| with extended | School District) has | this restructured | Superintendent, | school week will |
| hours and a | already passed a | school week to be | & School Board | have 4 extended |
| one-day/week | resolution to extend | in place. | approve. Deputy | days and an |
| community- | student instructional |  | superintendent in | additional day of |
| based learning | time, is considering |  | charge of | community |
| day. | this model and |  | community- | learning. |
|  | surveying parents. |  | learning | involvement in |
|  |  |  | facilitation | schools. |
| Reassign | The Center for | The timeline for | Associate | Principals will |
| principals to | Educational | professional | Superintendent | become |
| instructional | Leadership (CEL) in | development is | for Education, | increasingly |
| leadership | partnership with the | based on moving | and SAIL | comfortable with |
| duties and | YTSD instructional | through the 5 | Principle | facilitating |
| provide | leadership team will | stage model | Investigator and | instructional |
| training | introduce and | toward leadership. | Director, P. | learning in |
|  | implement the | Intense | Garcia will work | classrooms. They |
|  | systemic | professional | with the DSU | will adapt a new |
|  | professional | development in | team from the | type of |
|  | development (PD) | years one and | Center for | leadership that |
|  | model. | two will lead to | Educational | involves |
|  | Coordinators, | graduate programs | Leadership (CEL) | collaborative |
|  | coaches, and PD | and advanced | to implement PD. | work with |
|  | experts will be hired | professional |  | teacher leaders. |
|  | to assist in year one. | development in |  |  |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | years three to five. |  |  |  |  |
| Reassign |  | The Department of |  | Intensive training |  | Dr. H. Chavez | Principals, |
| assistant |  | Educational |  | in accountability |  | with CEL and Dr. | Assistant |
| principals to |  | Management |  | literacy will be |  | Bill Smith, Dept. | Principals, and |
| become |  | (EMD) and the |  | provided |  | .Head for EMD | Developing |
| student |  | Center for |  | beginning in year |  | will work with J. | Leaders will be |
| performance |  | Educational |  | EMD and CEL |  | Doe, YTSD to | able to use data |
| and |  | Leadership (CEL) |  | will teach |  | provide support | to make |
| assessment |  | will provide classes |  | analyzing, |  | for Assistant | decisions with |
| specialists and |  | and professional |  | understanding and |  | Principals. this | faculty related to |
| provide |  | development in |  | profiling student |  | program | improving |
| training. |  | collaboration with |  | performance |  |  |  | student |
|  |  | YTSD evaluation |  | within school |  |  |  | achievement. |
|  |  | team. |  | sites. |  |  |  |  |
|  |  |  |  |  |
| **Goal 2 and Goal 4– Create a systemic model for increased professional leadership leading to** |
| **increased student achievement** |  |  |  |  |  |  |
| **Objectives** |  | **Actions** |  | **Timeline** |  | **Responsibility** |  | **Outcomes** |
| Implement a new |  | Implement five |  | As soon as Project |  | D. Martinez, |  | Participants will |
| model for |  | levels of the |  | SAIL is approved, |  | Bill Smith, H. |  | develop at the |
| leadership |  | Systemic |  | participants will |  | Chavez and C. |  | level(s) |
| provided by CEL |  | Leadership Model |  | be selected and |  | Johnson who |  | appropriate for |
| and EMD. |  | for developing |  | the specifics of |  | will assist with |  | them. Principals, |
| Collaborative |  | leaders at all levels |  | the professional |  | in-depth |  | assistant |
| develop with the |  | in knowledge, |  | development |  | instructional |  | principals, and |
| YTSD district, |  | skills and |  | activities will be |  | content |  | developing leaders |
| administrative |  | dispositions |  | finalized. All five |  | workshops and |  | (Ps, APs, & DLs) |
| training program, |  | leading to |  | levels will be |  | coaching. |  | will become |
| courses, and |  | increased student |  | addressed |  |  |  | highly qualified as |
| professional |  | achievement. |  | simultaneously, |  |  |  | systemic, |
| development |  | Leadership |  | but leaders will |  |  |  | contextual, |
| opportunities |  | development will |  | move from one |  |  |  | accountability |
|  |  |  | begin with |  | level to the next. |  |  |  | literacy, and |
|  |  |  | provisional |  | to another. |  |  |  | instructional |
|  |  |  | teachers and |  |  |  |  |  | leaders. |
|  |  |  | proceed through |  |  |  |  |  |  |
|  |  |  | highly qualified |  |  |  |  |  |  |
|  |  |  | principals. |  |  |  |  |  |  |
| **Goal 2 and Goal 4– Create a systemic model for increased professional leadership (continued)** |
| **Objectives** |  | **Actions** |  | **Timeline** |  | **Responsibility** |  | **Outcomes** |
| Provide |  | Special workshops |  | As soon as Project |  | Dr. Martinez |  | Principals, Assist. |
| instructional |  | will be provided |  | SAIL is approved, |  | will work with |  | Principals and |
| support in target |  | by faculty |  | participants will |  | university |  | Developing |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| areas: math, | researchers |  | be selected and | researchers, Dr. | Leaders will |
| science/inquiry | working in |  | the specifics of | Gray, C. | routinely share |
| and special | collaboration with |  | the professional | Johnson, Elliot | examples of |
| education | YTSD |  | development | Blue, K. Smith, | specific teaching |
|  | instructional |  | activities will be | and YTSD | and curriculum |
|  | specialists to help |  | finalized | instruction | strategies are |
|  | grow pedagogical |  |  | group. | associated with |
|  | content knowledge |  |  |  | improved student |
|  | in target content |  |  |  | achievement. |
|  | areas. |  |  |  |  |
| Increase data- | Step 4 of |  | AP.’s will receive | Elliot Blue, H. | Principals, |
| driven decision- | professional |  | intensive support | Chavez from | Assistant |
| making and | development for |  | in year one and | the DSU and | Principals, and |
| accountability | leadership, the |  | two, including | Mark Randall | Developing |
|  | assistant principal |  | help in analyzing | from YTSD will | Leaders can. |
|  | (AP) level will |  | & understanding | design | document |
|  | emphasize data- |  | student & school | Professional | examples of |
|  | driven decision- |  | data &using data- | development | decisions in |
|  | making and |  | based research |  | teaching, |
|  | accountability for |  | strategies for |  | assignment, |
|  | all YTSD |  | decision making. |  | curriculum, |
|  | participants. |  | In years 3-5 APs |  | assessment and |
|  |  |  | will mentor new |  | intervention that |
|  |  |  | APs in |  | have been made |
|  |  |  | accountability |  | on the basis of |
|  |  |  | literacy. |  | data analysis. |
| Provide | Educational |  | Courses leading to | Elliot Blue, | At least 20 |
| opportunities for | Management and |  | the degree will be | EMD | teachers from |
| teachers to | Development will |  | offered when the | department | YTSD will enter |
| become assistant | offer and |  | training begins. |  | programs to help |
| principals and | Educational |  | The degree will |  | them get their |
| principals. | Specialist degree |  | take two years to |  | administrative |
| Provide masters | in it for |  | complete. |  | licensure. At least |
| and education | participants who |  |  |  | 10 principals will |
| specialist | are interested. |  |  |  | become involved |
| degrees. |  |  |  |  | in advanced |
|  |  |  |  |  | leadership work. |
| **Goal 4- Increase recruitment and retention of teachers and administrators** |  |
| **Objectives** | **Actions** |  | **Timeline** | **Responsibility** | **Outcomes** |
| Form partnership | YTSD and DSU |  | Three retreats | D. Martinez, | The contribution |
| with DSU pre- | will collaborate |  | will occur during | Bill Smith, H. | of each entity will |
| service | through a series of |  | the first year of | Chavez and C. | seem to |
| administrator and | retreats to plan how |  | the Project SAIL. | Johnson | participants to |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| teacher programs |  | degrees and | One will occur at |  | blend seamlessly. |
| to increase |  | preparation | the beginning of |  |  |
| enrollment of |  | programs will | each of the |  |  |
| local majority |  | inculcate salient | subsequent four |  |  |
| Hispanic teachers |  | aspects of the | years. |  |  |
| and |  | models for teaching |  |  |  |
| administrators. |  | and leadership. |  |  |  |
| Continue reform |  | Provide funding to | The activities | D. Martinez, | Retention of |
| orientation of |  | pursue advanced | outlined will be | Bill Smith, H. | teachers |
| Your Town |  | degrees, attend | offered to YTSD | Chavez and C. | &administrators |
| schools as models |  | professional | teachers | Johnson | will continue. |
| for student |  | conferences and | throughout the |  | Hispanic teachers |
| success. |  | participate in | grant. |  | from the |
|  |  | professional |  |  | community will |
|  |  | leadership |  |  | move into |
|  |  | opportunities, |  |  | leadership roles. |
| **Goal 5- Increase Informal and Out-of-School Learning for students through university and** |
| **community partnerships** |  |  |  |
| **Objectives** |  | **Actions** | **Timeline** | **Responsibility** | **Outcomes** |
| Invite agencies to |  | $300,000 has | An RFP for | B.Curry, deputy | The community- |
| provide programs |  | been allocated as | Friday | superintendent | based learning |
| both academic and |  | matching funds | community | in YTSD and | program will grow |
| in recreational and |  | for community | programs will be | Associate | each year and |
| health on one |  | agencies to offer | issued in year | Superintendent | increase by at |
| day/week in the |  | programs on | one of the grant. | for Student | least one new |
| YTSD area. |  | Fridays. Ongoing | Additional grants | Services will | program. It is |
|  |  |  | programs in | will be sought to | facilitate the | anticipated that |
|  |  |  | some schools | increase | growth of | additional |
|  |  |  | like the science | community and | community and | community |
|  |  |  | clubs and family | parent | parent learning | learning will also |
|  |  |  | festivals will be | participation. | involvement | be added on some |
|  |  |  | expanded to |  |  | evenings and |
|  |  |  | more schools. |  |  | Saturdays |
| Require SES |  | YTSD’s | After the grant is | B. Curry and H. | SES programs |
| providers to provide |  | instructional | awarded a | Chavez and | will be better |
| tutorial programs on |  | team, principals | meeting will be | DSU’s Alliance | coordinated with |
| Fridays and connect |  | and teacher | set up with SES | program. | regular school |
| these programs to |  | leaders will meet | providers |  | programs and |
| in-class activities |  | with SES | requiring them to |  | increased student |
|  |  |  | providers to | coordinate |  | achievement will |
|  |  |  | work on a plan to | activities with |  | occur. |
|  |  |  | connect tutoring | regular school |  |  |
|  |  |  | with classroom | offerings and to |  |  |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | learning | offer activities |  |  |
|  |  | and workshops |  |  |
|  |  | on Fridays. |  |  |

**Goal 6- Develop and disseminate a sustainable model that builds capacity for achievement through leadership and incentives**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Objectives** | **Actions** | **Timeline** | **Responsibility** | **Outcomes** |
| Continue to present | YTSD personnel | Current | D. Martinez, | One district in |
| successful models | and collaborating | presentations on | Bill Smith, H. | New Mexico, |
| of increasing | faculty are | YTSD’s district- | Chavez and C. | Espanola that is |
| student achievement | already involved | wide successful | Johnson will | very low in |
| in high need | in presenting a | reform will | continue to | achievement has |
| districts at state, | district-wide | continue. As the | write about the | already visited |
| national, and | approach to | new model of | reform and | YTSD and is |
| international | raising | improving | present at | implementing a |
| conferences. | achievement in | student | national and | similar model. |
| Continue | math and | achievement | international | Additional |
| partnership with the | literacy. | through incentive | conferences. | districts will be |
| DSU sponsored | Presentations | pay and |  | invited to partner |
| Alliance for the | have been done | leadership |  | with YTSD in |
| Advancement of | to the state | development. |  | increasing |
| Teaching and | legislature and |  |  | achievement |
| Learning which | invited from as |  |  | especially for high |
| includes 25 | far away as |  |  | need areas. |
| districts, regional | Oxford, England |  |  |  |
| educational centers, |  |  |  |  |
| and others. |  |  |  |  |

**Sample #3**

**Project Plan**

**A) Strategic Plan -** Goals and Global Outcomes

The overarching goal of the OUR PROGRAM CENTER is to improve student academic performance through out-of-school academic enrichment for students and increased opportunities for parents to help their children succeed in school and become involved in community-based learning themselves.

**Goal I.** As a result of academic mentoring by undergraduate university students througheach of four regional centers, students will improve their performance in reading and math as measured on short-cycle assessments (Measures of Academic Progress, MAP and Developmental Reading Assessment, DRA)—and the state-mandated summative assessment, the New Mexico Standards-Based Assessment (NMSBA).

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Goal II.** As a result of authentic project and inquiry-based learning in the STEM (science,technology, engineering, and mathematics) fields, students will improve their writing, math, science, technology and problem-solving skills as demonstrated by improved performance on district assessments and quality of products.

**Goal III.** As a result of opportunities to participate in dance, music and art activities andcommunity performances, students will further develop their reading and mathematics skills, demonstrate increased performance on district assessments, and show better attendance and retention in school.

**Goal IV.** Families will take a larger role in supporting their students in reading andmathematics learning as a result of opportunities to participate in family literacy and numeracy activities. OUR PROGRAM will involve families in the learning activities experienced by their children during the after-school and summer enrichment programs from dancing to doing science experiments.

**Management Goal**: The project will be carefully managed at the district level by aprofessional project coordinator with previous experience in managing out-of-school learning. This person will be assisted by a certified teacher at each of the four centers, additional YTSD SEMAA teachers, and university facilitators. All learning activities in the OUR PROGRAM CENTER will align with each school’s educational plan for student success (EPSS) and with specific student learning needs based on achievement data from the home schools. Programs offered by DSU already have proven success in increasing student interest and achievement in school and are supervised by university professors and staff. The district’s 21st Century Learning Communities Center (21stCLCC) Project Coordinator will, with the support of the district, create a OUR PROGRAM Centers Advisory Council representing the project stakeholders. This group will provide advice and feedback to the Project Coordinator and facilitate communication about the centers. The

Project Coordinator will also be supported by the district’s Parent Coordinator and the

Parent Outreach Ambassadors (POA) located at the 21 schools in the district. On-going partnerships like the YTSD-ENLACE partnership will also help connect the home school communities with the four centers and their activities.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**Sample #4**

****

**Timeline**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **2009** | **2010** | **2011** |  | **2012** | **2013** |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **Development** |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Wave 1: 5-8 Products |  | Development and revision | Delivery |  | Revision as needed |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Wave 2: 5-8 Products |  |  |  |  |  | Development and Revision |  |  | Revision as |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | Delivery | needed |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Wave 3: 4-5 Products |  |  |  |  |  |  | Development and Revision | Delivery |  |
|  |  | Website |  |  | Working prototypes available for download |  | Final versions |  |
|  |  |  |  |  | available |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **Formative Testing** |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Learning Games Lab |  | Test characters, interface and ideas, with ~ 60 youth throughout year. |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Teachers and Classrooms |  |  |  |  | Test working prototypes with teachers and students |  |  |
|  |  |  |  |  |  |  | in ~20 classrooms annually. |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Quality Assurance |  |  |  |  |  | Review materials twice annually. |  |  |
|  |  | Committee |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Randomized, Controlled |  |  |  |  |  |  | Wave 1 |  | Wave 2 | Wave 3 |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  | Trials |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **External Evaluation** |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Evaluate progress on |  |  |  |  |  | Mid- and end-of-year staff surveys |  |  |
|  |  | goals and objectives |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**EVALUATION PLAN**

You need to create a means and a schedule to verify whether your goals are met. Both a summative (for instance, an annual survey or test) or **formative** (in terms of progress toward goals) evaluation should be included in your plan.

An evaluation plan verifies:



How goals will be measured/evaluated o Often uses benchmarks

o Spells out when evaluation occurs

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

o May be formative and/or summative

o Usually in the form of a table, but may contain introductory text

**Sample #1**

The following section describes the evaluation plan for Math-PROJECT. The plan will be carried out by internal and external evaluators, who will be in charge of gathering data to ensure that we meet the project goals and benchmarks The evaluators with assistance from district site researchers will gather, analyze, and report formative and summative data back to the partnering districts and the research team on a continuous basis as part of the design-based research design (See Appendix C for the design-based research model). In Math-PROJECT the evaluation plan interacts with the design-based research that drives this project. As data is gathered and feedback is given to and provided back by the partner district leadership teams, there will be unanticipated changes as we refine how to build capacity for achievement in each district. Because we are using design-based research, which allows for modification of a project as it is implemented, it is difficult to include additional unanticipated research. The following basic benchmarks & timelines for year 1 and 2-5 are below. Additional measurements and benchmarks will emerge as the result of design-based research.

*Outcome Goals, Benchmarks and Evaluation for Math-PROJECT*

**Goal I: Implement a sustainable system-based leadership model in each partner district that can be researched, modified, and by the end of the grant replicated and disseminated to other high-need districts.**

|  |  |
| --- | --- |
| **Benchmarks:** | **Evaluation:** |
| Partner districts will have established a | Administer the New Mexico Quality Mathematics |
| mathematics district leadership tem | Education Matrix (QMEM) Rubric to all members of |
| (DLT) representing key stakeholders | the DLTs at their first meeting. After the results are |
| by the End of Year 1. | compiled and analyzed, they will be presented to each |
|  | DLT. The QMEM will be administered to DLTs |
|  | annually as one indicator of positive change of math |
|  | instruction and learning in the district. |
|  | Each participating district will— |
|  | submit a list of DLT members/participants along with |
|  | a description of the stakeholder group each member |
|  | represents. |
|  | submit meeting times, dates, and location for all DLT |
|  | meetings. |
|  | submit minutes from each DLT meeting which will |
|  | include a) the names of the members in attendance, b) |



**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |
| --- | --- |
|  | the goals of the meeting, c) the issues discussed, d) |
|  | the decisions made, e) the tasks accomplished, and f) |
|  | the next steps. |
| The mathematics DLT will complete a | Each participating district will— |
| plan of action for mathematics | submit a completed Plan of Action by the End-of |
| teaching and learning by the end of | Year 1. |
| Year 1. |  |
| The DLT will use data to modify their | Each participating district will— |
| actions in Years 2-5 to increase the | submit a modified Plan of Action at the End-of Year |
| effectiveness of the model in their | 2, 3, 4, and 5 which includes data which |
| district. | documents/justifies the necessity for change in the |
|  | original Plan of Action. |



**Mathematics Partnerships for Achievement through Leadership (Math-PROJECT) Evaluation Plan (page 2)**

**Goal II a: Improve teacher knowledge for teaching mathematics through challenging courses and curricula.**

|  |  |
| --- | --- |
| **Benchmarks:** | **Evaluation:** |
| A new Masters of Arts in Teaching | Track number of students admitted and retained in the |
| Mathematics (MAT) will be | MAT program. |
| developed and taught collaboratively | Collect and analyze the student course evaluations for |
| by mathematicians and educators. | each course in the MAT program. |
|  | Conduct and analyze an exit interview with any student |
|  | leaving the MAT program prior to receiving their |
|  | degree. |
|  | Conduct focus groups each year with randomly selected |
|  | participants in the MAT program to gain the students’ |
|  | perspectives as to the successes and failures of the |
|  | MAT program |
| An advisory group consisting of | The advisory group will— |
| district teachers will be formed to | submit a list of its members along with a description of |
| advise the development and | the grade level and/or course each member teaches. |
| implementation of the MAT. | submit meeting times, dates, and location for all |
|  | advisory group meetings. |
|  | submit minutes from each advisory group meeting |
|  | which will include a) the names of the members in |
|  | attendance, b) the goals of the meeting, c) the issues |
|  | discussed, d) the decisions made, e) the tasks |
|  | accomplished, and f) the next steps. |
| A major goal of the MAT program is | Administer the Mathematical Knowledge of Teaching |
| to enable teachers to become | (MKT) Measure (University of Michigan) in the fall of |
| mathematics leaders. They will a) | each year of the grant as a pre-post assessment. |
| gain knowledge of mathematical | Each MAT program participant will— |



**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |
| --- | --- |
| strategies for meeting the learning | complete and submit a professional development log |
| needs of diverse communities; b) | documenting any and all training they have provided |
| gain skills in facilitating teacher | during the school year. |
| professional learning communities | document (in a short narrative) any and all of the |
| (PLCs), c) provide structures and | opportunities offered by the MAT courses for them to |
| resources for curriculum alignment, | demonstrate their skills through modeling lessons or |
| standards-based instruction, | through facilitating/leading staff development. |
| problem-based learning, |  |
| mathematics discourse and formative |  |
| assessments. |  |



**Goal II b: Increase the quality, quantity and diversity of mathematics teachers. MAT graduates will become math leaders to support mathematics teaching and learning in their districts.**

|  |  |
| --- | --- |
| **Benchmarks:** | **Evaluation:** |
| Students in the MAT program who are | Track hours for pre-service teachers being |
| classroom teachers will serve as mentors for | mentored by MAT students. |
| pre-service teachers and offer classroom | Conduct focus groups with pre-service teachers |
| experiences and opportunities to gain further | at the end of every semester. |
| mathematical knowledge needed for |  |
| teaching. |  |
| Districts will hire additional qualified math | Compare the district mathematics |
| specialists from their own communities to | specialists/teacher ratio prior to the |
| support mathematics teachers at the district | implementation of the grant with the ratio after |
| level. | the completion of the grant. |



|  |  |
| --- | --- |
| **Scope of work for Lead External Evaluator – Jorge Smith** | **Focus of** |
|  | **Time** |
| 1. Construct a logic model—graphic model of the program over time including resources, | Two to three days |
| inputs, expected outcomes. This document provides a conversation piece between |  |
| evaluators and other stakeholders to examine and critique the progress of the program. |  |
| Communication with program staff about model implications. |  |
| 2. Background reading – external evaluator needs to get up to speed on the components of this | Three to five days |
| program, similar programs, and research indicators |  |
|  |  |
| 3. Visit NMSU and districts in the field to help with data collection, sample the climate of the | Ten days |
| program, and communicate with team members. This would take place both in the fall and |  |
| spring and involve travel and time spent in New Mexico as well as reflection time to report |  |
| on and communicate back with New Mexico team. |  |
| 4. Visit NMSU and districts in the field to help with data collection, sample the climate of the | 10 years |
| program, and communicate with team members. This would take place both in the fall and |  |
| spring and involve travel and time spent in New Mexico as well as reflection time back in Texas to |  |
| report on and communicate back with New Mexico team. |  |
| 5. Conferencing with New Mexico team by phone as well as preparation and reflection on the | Two days per year |
| meetings. |  |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |
| --- | --- |
| 6. Visit New Mexico when there is “down time” for program staff to provide feedback and | Five days |
| participate in reflection, perhaps in the summer and/or winter. |  |
| 7. Read and report on data generated by New Mexico staff annually | Two to five days/ |
|  | year |

**Sample #2**

**Table X: Evaluation Plan for XYZ Reading Research**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | ***Person(s)*** | ***Person(s)*** |  |
| ***Evaluation*** | ***Evaluation Instruments*** | ***Responsible*** | ***Responsible*** | ***Timeline*** |
|  |  | ***for*** | ***for Analysis*** |  |
|  |  | ***Collection of*** | ***of Data*** |  |
|  |  | ***Data*** |  |  |
| **Measure what teachers** | **a) Levels of Use Observational Rubric** | District | University | Random classrooms will be observed |
| **implement in their** | (used to observe at least 10% of the | Reading | Research | twice a year with both observation |
| **classrooms from their** | classrooms in the district to determine if | Specialists | Team | instruments for each year of the |
| **professional development** | what is presented in PD is being used in the | (to be named) | K. Gray | grant. |
| **through classroom** | classroom) | R. Round, | K. Blue |  |
| **observations** |  | Project | M. Red |  |
|  | **b) Classroom Lesson Observation** | Director |  |  |
|  | **Instrument** (used to observe at least 10% | S. Triangle, |  |  |
|  | of the classrooms in the district to | District Rep. |  |  |
|  | determine if what is presented in PD is | K. Gray, |  |  |
|  | being used in the classroom) | Internal |  |  |
|  |  | Evaluator |  |  |
| **Measure growth in teacher** | **Survey of Content Knowledge for** | District | University | For Year 1, teachers will be |
| **pedagogical content** | **Teaching Reading (University of** | Reading | Research | assessed during summer training |
| **knowledge through pre** | **Michigan)** | Specialists | Team | and again at the end of the school |
| **and post assessments** |  | R. Round, | K. Gray | year. For Years 2 and 3, teachers |
|  |  | Project | K. Blue | will be assessed only at the end of |
|  |  | Director | M. Red | the school year. |
|  |  | K Blue, |  |  |
|  |  | Internal |  |  |
|  |  | Evaluator |  |  |
| **Analyze student** | **New Mexico Standards-Based** | District | University | NMSBA is administered in March |
| **achievement on the state** | **Assessment Results (NMSBA)** | Reading | Research | of each year. Results become |
| **criterion-referenced test by** |  | Specialists | Team | available in September. |
| **teacher classroom** |  | K. Blue, | K Gray |  |
| **(Summative Evaluation)** |  | Internal | K Blue |  |
|  |  | Evaluator | M Red |  |
| **Analyze student** | **The short-cycle assessments will be** | District | University | Short cycle assessments will be |
| **achievement on district** | **determined by the district.** | Reading | Research | administered at least four times per |
| **selected short cycle** |  | Specialists | Team | year for each year of the grant. |
| **assessments** |  | S. Triangle, | K. Gray |  |
| **(Formative Evaluation)** |  | District Rep. | K. Blue |  |
|  |  | K. Blue, | M. Red |  |
|  |  | Internal |  |  |
|  |  | Evaluator |  |  |
|  |  |  |  |  |
| **Measure the level of** | **a) Teacher Surveys** (to determine the level | District | University | A random selection of teachers will |
| **administrative support** | of administrative support) | Reading | Research | be surveyed once per semester for |
|  |  | Specialists | Team | Year 1 and once per year for Years |
|  |  | K. Blue, | K. Gray | 2 and 3. |
|  |  | Internal | K. Blue |  |
|  |  | Evaluator | M. Red |  |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **b) Teacher Focus Groups** (to determine | District | University | At least one teacher focus group |
|  | the level of administrative support) | Reading | Research | per campus will be convened each |
|  |  | Specialists | Team | year of the grant. |
|  |  | K. Blue, | K. Gray |  |
|  |  | Internal | K. Blue |  |
|  |  | Evaluator | M. Red |  |
|  |  |  |  |  |
| **Track hours and type of** | **a) Professional Development Teacher** | District | University | Data must be collected and |
| **PD received by teachers,** | **Sign-In Sheets** (to demonstrate the | Reading | Research | compiled after each PD session. |
| **principals, and district** | quantity and type of professional | Specialists | Team | Data will be analyzed yearly. |
| **administrators** | development teachers have attended) | S. Triangle, | K. Gray |  |
|  |  | District Rep. | K. Blue |  |
|  |  | K. Blue, | M. Red |  |
|  |  | Internal |  |  |
|  |  | Evaluator |  |  |
|  | **b) Professional Development** | District | University | Data must be collected and |
|  | **Principal/Administrator Sign-In Sheets** | Reading | Research | compiled after each PD session. |
|  | (to demonstrate the quantity and type of | Specialists | Team | Data will be analyzed yearly. |
|  | professional development | S. Triangle, | K. Gray |  |
|  | principals/administrators have attended) | District Rep. | K. Blue |  |
|  |  | K. Blue, | M. Red |  |
|  |  | Internal |  |  |
|  |  | Evaluator |  |  |
| **Measure participants’** | **Professional Development Teacher and** | District | University | Data must be collected and |
| **satisfaction with the PD** | **Administrator Evaluations** (to determine | Reading | Research | compiled after each PD session. |
| **attended** | the quality of the PD and to help adjust PD | Specialists | Team | Compiled data will be analyzed at |
|  | to the needs of the people attending PD) | S. Triangle, | K. Gray | least twice each semester to |
|  |  | District Rep. | K. Blue | determine the quality of on-going |
|  |  | K. Blue, | M. Red | PD and to make necessary |
|  |  | Internal |  | adjustments to training. |
|  |  | Evaluator |  |  |
| **Measure how much time** | **School Schedules** (to determine if time is | District | R. Round, | School schedules will be collected |
| **teachers are given at each** | built into each school’s schedule for | Reading | Project | at the beginning of each school |
| **grade level at each campus** | collaborative activities) | Specialists | Director | year. |
| **for collaboration** |  | S. Triangle, |  |  |
|  |  | District Rep. |  |  |
|  |  | K. Blue, |  |  |
|  |  | Internal |  |  |
|  |  | Evaluator |  |  |
|  | **Teacher Focus Groups** | District | R. Round, | The amount and quality of |
|  |  | Reading | Project | collaboration time will be |
|  |  | Specialists | Director | discussed during yearly teacher |
|  |  | S. Triangle, |  | focus groups. |
|  |  | District Rep. |  |  |
|  |  | K. Blue, |  |  |
|  |  | Internal |  |  |
|  |  | Evaluator |  |  |
| **Measure the district’s** | **a) District Budget—**(level of fiscal | C. Circle, P.I. | C. Circle, P.I. | A study of the district budget will |
| **ability to sustain positive** | responsibility taken by the district to hire | L. Sphere, | L. Sphere, | be completed at the beginning of |
| **change in reading** | District Reading Specialists and other | Co-P.I. | Co-P.I. | each fiscal year. |
| **instruction after the grant** | personnel to sustain the reading initiative) | S. Triangle, | R. Round, |  |
| **is over** | **b) District Budget—**(level of fiscal | District Rep. | Project |  |
|  | responsibility taken by the district to |  | Director |  |
|  | replenish reading materials as needed) |  |  |  |
|  |  |  |  |  |

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**MANAGEMENT PLAN**

Your team should be organized with a clear division of labor based upon expertise and experience. You can also graphically depict the management of your grant.

Your management plan depicts:



Who is in charge of which aspects of the project



Who provides overall supervision



How support is structured and the rationale for this structure



Strengths and weaknesses of team members in relationship to their duties

**Sample #1**

**Quality of Project Personnel**

**Expertise and Responsibilities**

****

**Lead P.I. and Director of Research: Dr. K. Gray**

****

Provide budgetary oversight

Hold regular project management meetings Attend PI meetings as requested



Oversee internal researchers



Serve as lead author on all reports and articles published

Dr. Gray is currently the Associate Dean for Research in the College of Education. She is also a Professor of Learning Technologies and Curriculum. She continues to do research on the design and implementation of learning environments for education. She has been involved in education as a teacher, administrator and college professor for almost 40 years and is currently P.I. for the Mathematically-Connected Communities project. She has written four books and published numerous academic articles.



**Co-P.I. and Director of Development: Dr. B. Brown**

Oversee production of Math Project modules. Serve as lead author on all design documents created

Lead regular project design meeting.

Dr. Brown currently directs development in Desert State University’s Learning Games Lab, overseeing formative and predictive research on game characters, use and educational potential. Her PhD is in instructional technology, and her research emphases are in game development and interactive media. She has been developing educational games for 14 years including games on science and math concepts. Additionally, Dr. Brown served as the lead developer on the pilot Math Project materials, covering development of games and animations for handheld computers or other mobile devices.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html



**Co-P.I. and Director of Formative Testing: Dr. J. Blue**

Oversee all formative evaluation, securing formative test groups, collecting data.

Oversee video development and publishing of all final resources.

Compile formative data for analysis by development team.

Dr. Blue serves as Director of Media Productions and the lead instructional designer on game and instruction activities, ensuring they meet national standards and measurable learning objectives. She has more than 30 years experiences working on multimedia educational tools and development, particularly for science and math instruction. Under Dr. Blue’s leadership, the Desert State University (DSU) team has produced more than 20 science and math education, food safety, nutrition and obesity games, touch screen public kiosks, Web sites, animations, videos and print publications in several different languages, including, Spanish, Navajo, Mandarin, Cantonese, Fijian and English. She has served as senior personnel on more than 50 funded grants to date.



**Math Content Specialist: Dr. T. Red**

Serve on design team guiding math content and Conduct formative evaluation in classrooms

pedagogical approach.

Dr. Red is an associate professor for mathematics in the Department of Mathematical Sciences at Desert State University where his specialization is the study of topology. For the past five years, as part of the Mathematically-Connected Communities grant. He has worked extensively with colleagues in the College of Education, middle school math teachers, and middle school students. He was the math specialist for the Pilot Math Project Animations.



**Research Team: K. Square, Dr. A. Circle, N. Triangle**

Design research and find best instruments Run statistical analysis including mixed effects models

Collect and analyze data Compile and analyze all findings, make reports

K. Square served 33 years as the Director of Assessment, Strategic Management and Accountability first for the Neighbor State School District and later in the YourTown School District. He has since retired from public school work and has been teaching assessment and research at Desert State University while also serving on the research and evaluation team for several math projects in the Institute for Mathematics and Science Education. Dr. A. Circle, Assistant Professor in Special Education is an experienced statistician and researcher in the area of learning with technology. N. Triangle, has been an instructor in the department of Educational Statistics for the last 16 Years. She serves as a statistician for various grants across the college and assists doctoral students and faculty with research design.



**External Evaluation and QA Committee Coordination: The Important Institute**

Conduct annual evaluation of project to analyze progress towards goals.

Appoint members, establish protocol and compile data from Quality Assurance committee.

The Important Institute is a non-profit educational agency focusing on research and development, evaluation, quality assurance and strategic planning, and related professional development and technical assistance. Important Institute staff have conducted scientifically-based research, design-based research and have evaluated STEM and other programs for thirty years, including similar recent projects. The Important Institute has expertise in carrying out these services for universities, school districts and regional agencies with diverse populations. S. Astute, the executive director of Important Institute, has a background and expertise in research & evaluation, quality assurance, mathematics education, e-learning, professional development, and effective educational programs for English Learners.

**Results from Prior NSF Support**

K. Gray is currently a Co-P.I. on the *Scaling Up Mathematics for Achievement* XYZ grant, which is in its second year. This project is researching how a model for building capacity for mathematics achievement based on previous work on

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

the Gadsden Mathematics Initiative works in a larger and more diverse district. Dr. Gray previously worked as a researcher in the Gadsden Mathematics Initiative (GMI) and conducted a Student Outcomes Study that investigated how professional development in that project affected student achievement. The GMI recently ended but was a very successful NSF project, nominated as a Golden Nugget. Math scores of low-income, English-Language Learners in this district continue to outperform similar students in the state and in some grades (3rd and 8th ) are higher than average scores for all students.

**Sample #2 (Graphic Management Plan)**

****

**Teacher Leader Candidates** **Principals**

 Commit to a 2-Year Institute that leads to K-12 Attend One-Week Summer Math

Mathematics Coach Certificate Institute for Principals (Includes

 Participate in 3-Week Summer Academies (6 cr. hrs./sum.) $1000 stipend)

 Participate in four semesters of integrated education and Participate in monthly

mathematics coursework (21 credit hours) partnership planning meetings

 Implement learning from institute in school setting and with Teacher Leader and

agree to be coached and observed by MC2 faculty and PROGRAM Field Mentor

researchers  Develop agreements with

 Partner with school principal to develop and implement Teacher Leader candidates to

plan for school mathematics improvement develop and implement a school

 Receive up to $10,000 annual stipend for efforts after based plan for mathematics

contract time. improvement

Partner Districts

* Establish a rigorous, standards-based curriculum
* Establish expectation and structure for professional learning communities in schools
* Provide guidance for institute development and Teacher Leader selection
* Support Principal and Teacher Leader plans for improving mathematics learning of students and teachers

***PROGRAM***

PROGRAM Staff/Faculty

* Collaboratively develop and teach institute courses that lead to Master of Arts in Teaching Mathematics (MAT-Math)
* Provide school based coaching and mentoring to Teacher Leaders and partnering principals
* Ensure PROGRAM institute activities address K-12 student learning needs
* Establish Distance Educ. Master of Arts in Teaching Math
* Research, evaluate, and adjust PROGRAM activities to respond to participant needs

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

**LETTERS OF SUPPORT**

While resumes have a list references and artistic submissions include a portfolio, grant proposal should contain letters of support to place your work and abilities in a professional context.

**Sample#1**

The National Science Foundation

Re: OUR PROJECT

CI-TEAM RFP #070X-XXX

To Whom It May Concern:

I am pleased to write this letter in support of the grant application submitted by New Mexico Tech and partners throughout the state of New Mexico to implement OUR PROJECT – a Cyber-infrastructure Training, Education, Advancement and Mentoring model. This project helps to address the critical need in New Mexico to advance students in STEM careers and engage teachers in rural and minority districts with professional development and technology tools.

The partners of this project have all worked many years in the fields of education with a focus on technology and STEM. Under this grant, these dynamic partnerships would be leveraged using existing educational programs to demonstrate the power of infrastructure, collaboration and mentoring to improve on opportunities that exist for rural and minority students.

As \_(head or rural education, etc)\_\_\_\_\_\_\_\_\_\_\_\_\_I strongly support OUR PROJECT and the combined efforts of the partners to secure funding to advance education through eLearning and the use of cyber-infrastructure tools for New Mexico’s population of minority and rural students.

There is a critical need in New Mexico for these teachers to become confident and well engaged in the STEM programs available in today’s environment. OUR PROJECT would benefit (program, my interests, etc) by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. I would be able to work with this project

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-and the demonstration project findings would

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The importance of this project is….

Sincerely,

Name

Title, contact info

**Sample#2**

February XX, 20XX

The Selection Committee

Some Program Fund Grant Application

U.S. Dept. of Education, XXXXXX

1212 Main Street

Room 12123

Name of City, State, Zip

To BIG COMMITTEE:

As the Executive Director of the New Mexico Association of “School-Related Activities,” I am writing this letter of support for the SOME PROGRAM. SOME PROGRAM is being submitted by the Your Town School District (YTSD) in partnership with (VARIOUS PRESTIGIOUS

INSTITUTIONS).

The goals of the SOME PROGRAM provide for a systemic approach to raising academic achievement of students in the Gadsden Independent School District. The recent history of YTSD demonstrates the commitment of district personnel to developing high quality programs based on educational research and providing the support necessary to successfully implement these programs district wide. The result has been continuous improvement in the academic achievement of students in the district.

Research has consistently proven the importance of high-quality teachers. Many New Mexico school districts are very rural and deal with the unique challenges of border schools. These districts consistently combat the problem of retaining high-quality teachers. The results of the SAIL program and the documentation recorded describing the implementation will be beneficial in providing a guide for other school districts that are facing similar challenges.

**Center for Research and Outreach**

College of Education, New Mexico State University

http://cro.nmsu.edu/proposals.html

As the Executive Director of the New Mexico Association of “School Related Activities,” I highly support SOME PROGRAM and believe the implementation of this program will provide data that can be used for increasing academic achievement in school districts throughout our country.

Respectfully,

Supporter M. Name

Supporter M. Name, Ed.D.

Executive Director

New Mexico Association of “School Related Activities”

**Sample#3**

July 31, 20XX

Dr. M. Gray

New Mexico State University

Las Cruces, NM 88001

Dear Dr. Gray,

On behalf of the Your Town School District, I would like to extend to you our support of the **OUR** **PROGRAM** grant proposal. As a district, we are excited about the opportunity to look at differentapproaches to educate our children and provide professional development for our staff. The potential that this grant provides in looking at different methods to address common issues is immense. YTSD has never shied away from a challenge, or from change and this proposal will give us an opportunity to address both.

Should there be need for any additional information, please do not hesitate contacting me.

Sincerely,

<signature on file>

M. Brown, Superintendent

Your Town School District

P.O. Box XX

Sometown, NM 88XXX

Phone: (505)XXX-XXXX

Fax: (505)XXX-XXXX