

U.S. Department of Education

Washington, D.C. 20202-5335



APPLICATION FOR GRANTS UNDER THE

NATIONAL PROFESSIONAL DEVELOPMENT PROGRAM

CFDA # 84.365Z

PR/Award # T365Z110201

Grants.gov Tracking#: GRANT10865388

Closing Date: MAY 09, 2011

**California State University, East Bay
and Fremont Unified School District**

ABSTRACT

Project STEM is a 5-year project involving California State University, East Bay and Fremont Unified School District, an urban school district with 41 schools and 32,000 students. This grant's main goal is to develop a secondary model that meets ELL needs and STEM high school standards. This grant will follow award-winning Guided Language Acquisition Design (GLAD) research-based strategies. GLAD was developed to meet the needs of elementary school ELL. This grant will identify GLAD strategies that will meet high school students' STEM standards.

Goals:

- (1) Recruit, select and mentor/advise a new high school cadre of one hundred fifty (150) student teachers who will become highly-qualified teachers to teach STEM classes through new ELL strategies implementing project learning and differentiating instruction as they assess each student;
- (2) Financially support one hundred and fifty (150) CSUEB STEM student teachers for a total of two hundred twenty-five thousand dollars (\$225,000);
- (3) Recruit, select and support ten (10) high school teachers who will receive GLAD Trainer of Trainers certificates for a total of one hundred fifty thousand dollars (\$150,000);
- (4) Recruit and select one hundred fifty (150) teachers to serve as mentor teachers to CSUEB student teachers and receive GLAD training for a total of one hundred ninety-nine thousand dollars (\$199,000);
- (5) Invite mentor teachers and student teachers to a STEM Summer Institute held each year at CSUEB. Nine hundred (900) teachers could benefit from this training.
- (6) STEM Club – Each of the high schools will be invited to develop a STEM Club. A minimum of five clubs could exist to implement the modules developed at the Institutes.

Competitive Preference Priority 2: Enabling More Data-Based Decision-Making will be the guiding force behind this project. Data collected from a needs assessment will guide the priority and implementation of the workshops of this grant.

Competitive Preference Priority 3: Promoting Science, Technology, Engineering, and Mathematics (STEM) Education. This priority will be integrated in all the objectives of the project.

Invitational Priority 2: Improving Preparation of All Teachers to Better Serve English Learners. This proposed comprehensive system will provide a model that will build consensus for a sustainable system of supports for high school teachers, students and educators throughout the California State University, East Bay, Teacher Education Department.

Project STEM will measure the improvement of EL's and will follow NPD and GPRA Measures.

- 1.1 The percentage of pre-service program completers who are State and/or locally certified, licensed, or endorsed in EL instruction. (Measured with Goal 3 and 4).
- 1.2 The percentage of pre-service program completers who are placed in instructional settings serving EL students within one year of program completion. (Survey at end of one year).
- 1.3 The percentage of pre-service program completers who are providing instructional services to EL students 3 years after program completion. (Survey conducted 3 years later).
- 1.4 The percentage of paraprofessional program completers who meet State and/or local qualifications for paraprofessionals working with EL students. (Survey at the beginning of each cohort of pre-service).
- 1.5 The percentage of in-service teacher completers who complete State and/or local certification, licensure, or endorsement requirements in EL instruction as a result of the program. (Completers will be identified and counted.).
- 1.6 The percentage of in-service teacher completers who are providing instructional series to EL students. (All in-service teachers will be identified at the beginning of training).

Contact: Lettie Ramirez, Ph.D. (510)885-2388 lettie.ramirez@csueastbay.edu

**Proposal submitted to US Department of Education
Office of English Language Acquisition, Language Enhancement, and
Academic Achievement for Limited English Proficient Students
National Professional Development Program
CFDA NUMBER: 84.365Z**

Project STEM

Submitted by:

California State University, East Bay

In partnership with:

Fremont Unified School District

Project STEM

In an effort to implement the latest and best research practices, Fremont Unified School District (FUSD) is partnering with California State University, East Bay (CSUEB) and creating Project STEM. This collaboration is following a known research-based model: Guided Language Academic Design (GLAD), which started as a U.S. Department of Education project for the Orange County Office of Education and has won numerous awards. GLAD is highly praised. However, it is an elementary model to meet the needs of English Language Learners (ELLs). Project STEM will follow the same theories and research practices. This grant's main goal is to develop a secondary model that meets ELL needs and STEM high school standards. After a review of the latest ELL literature, a new model of ELL Development will be created incorporating STEM standards for high schools. This new professional development model will impact the student achievement of FUSD's 32,000 students (Lawless & Pellegrino, 2007).

Competitive Preference Priority 2: Enabling More Data-Based Decision-Making.

This priority will be the guiding force behind this project. Data collected from a needs assessment will guide the priority and implementation of the workshops of this grant. In addition, each year, teachers will participate in a Summer Institute in which they will complete a survey to monitor the implementation and identify issues that need modification.

Competitive Preference Priority 3: Promoting Science, Technology, Engineering, and Mathematics (STEM) Education.

This priority will be integrated in all the objectives of the project. It is a well-known factor that today's students are very diverse and traditional methods of instruction are not working. Today's students are used to

playing videos, sending emails, texting, working and learning from technology. Oblinger (2004) recognized that by age twenty-one, students of the 21st Century have read less than 5,000 hours. As teachers, we need to learn new ideas to incorporate into our classes. The median age of teachers has increased from thirty-six to forty-three. A new model professional development is needed and Project STEM will address this need. Just having computers in our classrooms does not mean they are being used or used to the fullest potential. Project STEM will identify ways in which teachers can obtain new ideas to revitalize their teaching. They will develop units in Summer Institutes and GLAD workshops to be implemented in their classrooms.

Invitational Priority 2: Improving Preparation of All Teachers to Better Serve

English Learners. This proposed comprehensive system will provide a model that will build consensus for a sustainable system of supports for high school teachers, students and educators throughout the CSUEB Teacher Education Department. Project STEM is designed to increase the quality of the teachers who are currently in the district, and to increase the quality of the new teachers entering the profession. We are sure that by improving the quality of the professional development, student's academic achievement will increase. Table 1 and Table 2 provide **Facts about the Fremont Unified School District** with respect to student ethnicity and District organization, respectively.

Facts about Fremont Unified School District

Table 1. Fremont students in grades K-12

Ethnicity	Percentage %	In Addition
Latino	14.2	

African American	4.6	
White	20.7	
Asian	50.2	
Filipino	5.9	
Pacific Islander	0.9	
American Indian/Alaska Native	0.4	
Multiple or No response	3.1	
	17.6	English Learners
	18.8	Free and reduced-priced meals

Table 2. Fremont Unified School District Organization.

	Number of Schools	Enrollment	Number of Teachers
Elementary	28	17,312	822
Middle	5	4,833	192
High School	5	9,525	400
K – 12	1	254	12
Alternative	1	76	5
Continuation	1	263	17
	41	32,263	1,448

A. QUALITY OF THE PROJECT DESIGN (40 points)

1. The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified and measurable. (35 points)

The partnership between CSUEB and FUSD includes six (6) objectives that will cover

the development, implementation and evaluation of Project STEM.

CSUEB will be the fiscal agent of this grant, but FUSD has been and will continue to be involved throughout the duration of the grant.

GOAL of Project STEM is to develop and implement a model that meets ELL needs and STEM high school standards. This will be accomplished and measured by each of the six (6) objectives, and outcomes.

GOALS:

- (1) **Recruit, select and mentor/advise a new high school cadre of one hundred fifty (150) STEM student teachers who will become highly-qualified teachers to teach STEM classes through new ELL strategies implementing project learning and differentiating instruction as they assess each student.** Thirty (30) highly-qualified teachers will receive their credential to teach STEM classes with new ELL strategies each year of the grant. These STEM student teachers will be required to be in a student teacher placement for the duration of the school year.

Objective 1.1: Thirty (30) STEM student teachers will be selected every year to receive STEM/GLAD training.

Outcome 1.1: Thirty (30) student teachers are selected every year and become STEM/GLAD certified as they continue toward pursuing their teaching credential.

- (2) **Financially support one hundred and fifty (150) CSUEB STEM student teachers for a total of two hundred twenty five thousand dollars (\$225,000).** Each year, thirty (30) student teachers will receive fifteen hundred dollars

(\$1,500) to help them pay for their tuition and books to complete their teaching credential at CSUEB.

Objective 2.1: Thirty (30) STEM student teachers will be invited to participate as student teachers each year of the grant, in a year-long placement in FUSD.

Outcome 2.1: Thirty (30) STEM student teachers each year will receive mentoring by experienced FUSD teachers for a year.

Objective 2.2: Thirty (30) STEM student teachers will receive fifteen hundred dollars (\$1,500) each year to complete their teaching certification.

Outcome 2.2: Two hundred twenty-five thousand dollars (\$225,000) in scholarships will be available to STEM student teachers.

(3) Recruit, select and support ten (10) high school teachers who will receive

GLAD Trainer of Trainers certificates for a total of one hundred fifty

thousand dollars (\$150,000). Two teachers will be selected each year to

continue their training and receive their Trainer of Trainers certificate. FUSD has been implementing GLAD at the elementary level; however, no model exists for STEM high school teachers. Project STEM will address this void.

To become a Trainer of Trainers is a long process but this major undertaking is needed in an effort to establish the foundation for this grant. In years to come, FUSD will have its own coaches and be able to train all of its teachers to meet the needs of all its 32,000 students. This effort will plant many seeds that will keep on flourishing after the grant has ended.

Objective 3.1: One hundred fifty thousand dollars (\$150,000) will be allocated for ten (10) teachers to become "Trainers of Trainers" during the five (5) years of the

grant.

Outcome 3.1: Ten (10) teachers will become “Trainers of Trainers” and receive GLAD certification, using reserve funds of one hundred fifty thousand dollars (\$150,000).

Objective 3.2: Two (2) teachers will be selected every year to obtain “Trainers of Trainers” certification, training costing up to thirty thousand dollars (\$30,000).

Outcome 3.2: Two (2) teachers per year will complete the GLAD certification at the Trainer of Trainer Institute, and support participating teachers in Project STEM.

Objective 3.3: Teachers, as Trainers of Trainers, will sign contracts agreeing to stay in the district for a minimum of three (3) years and provide training/coaching for at least ten (10) teachers per year.

Outcome 3.3: Teachers receiving Trainer of Trainers certification will sign a contract to stay in the district for a minimum of three (3) years and provide training/coaching to ten (10) teachers per year.

Objective 3.4: Participating teachers will disseminate information in conferences, videos, publications and modeling lessons throughout the duration of the grant.

Outcome 3.4: Participating teachers disseminate information in Summer Institute, conferences, publications, videos and modeling lessons throughout the duration of the grant.

(4) Recruit and select one hundred fifty (150) teachers to serve as mentor teachers to CSUEB student teachers and receive GLAD training for a total of one hundred ninety-nine thousand dollars (\$199,000). Teachers in Project

STEM will participate in a systematic implementation of professional development. Teachers will have the opportunity to mentor and learn from a new cadre of student teachers. Having computers in the classroom is not enough for teachers to use this technology. By pairing a new eager-to-learn student teacher with an experienced mentor, both will benefit. Each will learn from the other and both will learn about the latest STEM strategies that incorporate ELL needs. Mentor teachers will receive professional development at the Summer Institute and throughout the year at GLAD workshops.

Objective 4.1: Thirty (30) teachers will participate in STEM/GLAD training each year of the grant for a total of at least one hundred fifty (150) participants over the five (5) years of the grant. They will support/mentor future teachers.

Outcome 4.1: A minimum of one hundred fifty (150) teachers will complete STEM/GLAD training and they will support/mentor teachers.

(5) Invite mentor teachers and student teachers to a STEM Summer Institute held each year at CSUEB. Nine hundred (900) teachers could benefit from the training. All participating teachers and student teachers will be invited to participate in a STEM Summer Institute in which they will be able to share ideas, obstacles, and concerns in relation to the implementation practices, and Project STEM will be able to modify these areas in the following year. During this STEM Summer Institute, teachers will be able to develop new units/projects/modules to implement in their classrooms.

Objective 5.1: Teachers and student teachers will be invited to attend annual professional development workshops where STEM topics will be addressed.

Science, Technology, Engineering, and Math areas will be presented with innovative ideas to energize teachers and students.

Outcome 5.1: All participants will attend STEM Summer Institute.

(6) STEM Club. Each of the high schools will be invited to develop a STEM Club. Five thousand dollars (\$5,000) per year will be allocated to supplies such as books and materials needed to conduct experiments.

Objective 6.1: STEM Club high school students will be invited to present modules at the annual Summer Institute.

Outcome 6.1: STEM Club high school students will present modules at the annual Summer Institute.

STEM Club will invite students to participate in hands-on experiments, developing products and even lessons to present to elementary students. Reports from the U.S. Department of Labor (2008-09) suggest that in five to seven years the U.S. will need 100,000 more engineers, 85,000 more scientists, and 150,000 more K-12 math and science teachers.

2. The extent to which the design of the proposed project reflects up-to-date knowledge from research and effective practices. (5 points)

Project STEM is starting with an award-winning model and is infusing the content standards needed at the high school level. This is a win-win combination. Science, technology, engineering and math standards will be used to develop modules using ELL strategies to invigorate high school classes in which they are taught.

Project STEM is based on the GLAD Model, a declared Project of Academic Excellence and Exemplary Program by the U.S. Department of Education and the California

Department of Education, respectively. It is a professional development model of staff training that is based on the acquisition of language and it uses research-based strategies to modify the delivery of instruction to the students. The model has two components: the "What" and the "How."

In the "What," GLAD integrates a balanced literacy approach to the teaching. In this case, STEM strategies will be modified to meet the needs of ELL by incorporating listening, speaking, reading, and writing as academic language is taught to all students. These strategies are invaluable tools in a multilingual setting such as the one in Fremont. GLAD uses metacognitive strategies in which the meaning of the content and the relevance to real life situations are emphasized. Since the STEM content is applied using relevant and meaningful strategies, classroom discipline is minimized. The "How" is divided in four (4) elements: (1) Theory and Research, (2) Demonstration Lesson, (3) Follow-Up, and (4) Trainers.

Element 1: Theory and Research - Practical implications are shared in a two-day training. Second language acquisition and brain compatible teaching are presented.

Element 2: The Demonstration Lesson: This is a week-long modeling of the lessons in an actual classroom. Teachers come to observe one of the trainers present the lesson to the students, while the other trainer explains to the teachers/student teachers the strategies that are used. In the afternoon, teachers are coached as to the planning, preparation of the lesson and successful strategies presented that day.

Element 3: Follow-up and Coaching: This is modeled after Art Costa's cognitive coaching elements. The trainer observes the lesson and provides feedback to the teacher. This is what is often missing in professional development implementation

models. Project STEM will incorporate this and will carry it further by providing the Summer STEM Institute for teachers to develop units, share successful strategies, and identify and solve problems.

Element 4: Trainers: Teachers who will become trainers in Fremont must follow GLAD Guidelines:

- designated by their districts as staff development trainers
- committed to working in teams of two or more
- committed to extensive training and practice

For certification (in addition to training requirements for teachers), the following apply:

- minimum of six months of classroom use
- 2-4 practice demonstration lessons with team partner(s)
- 2-4 practice in-services presenting theory, research and classroom application with team partner(s)
- development of a GLAD unit and coaching notes
- certification/evaluation done by a GLAD NTC (National Training Center) staff on presentation of both the workshop and demonstration session

1. Teach to the Highest

- A classroom environment that values the student and provides authentic opportunities for use of academic language and maintains the highest standards and expectations for all students (Goodman,1982; Shefelbine, 1995; Cummins, 2001; Smith,1986; and Collier, 1995).

2. Brain Research--Metacognition

- A time to activate and focus prior knowledge; inquiry charts, brainstorming, and

clustering (Costa, 1981; Kovalik1986).

- An opportunity to insure a common base of understanding and scaffolding, direct experiences, films, visuals, teacher read-alouds (Krashen, 2003; Collier, 1995; Long, 1990; Vygotsky, 1978).

- Students taught how and encouraged to organize thoughts and texts utilizing multiple intelligences: graphic organizers, summaries, visuals, or contextual and semantic clues (Costa, 1981; Krashen, 2003; Long, 1990; Marzano, 2004).

- Metacognitive aspect of teacher and students modeling how an answer was arrived at, not merely what the correct answer was (Costa, 1981; Farr and Tone, 1994).

3. Brain Research and Second Language Acquisition

- A student-set purpose for learning; motivation; stated result or goal; student choices; connections made between personal background knowledge and new learning, inquiry charts.

- Chances to negotiate meaning from language and text; cooperative activities for problem-solving and social skills; heterogeneous/homogeneous flexible groupings (Long, 1990; Kagan, 2001; Vygotsky, 1978; Cummins, 1991; Shefelbine, 1995).

4. Reading and Writing To, With, and By Students

- Reading that stresses the purpose and joy before the skills; beginning with writing and reading one's own language; immense amounts of being read to; time for silent sustained reading and silent sustained writing with oral book-sharing and quickshares (Goodman, 1982; Krashen, 2003; Flores, 1996; Trail, 1994; Shefelbine, 1995).

- Direct teaching of concepts, vocabulary, and necessary skills; text patterns,

academic language, writing patterns; decoding skills (Chall, 1983; Report to the National Commission on Teaching & America's Future, 1996; Marzano, 2004; Beck, 2002; Shefelbine, 1995).

- Writing that stresses the metacognitive use of reading and writing as a process; use of clustering/brainstorming to initiate writing; acceptance of developmental level of writer; editing and revising done in appropriate places in the process. No over-editing in early drafts; not all writing brought to editing stage; use of conferencing methods to guide student through the process; use of logs for personal responses to texts or issues; use of interactive journals (Goodman, 1982).

- Language functional environment; language charts, poetry kept on walls - read and used by students; reading and writing the walls daily. Big Books on walls, shared reading/writing experiences (Trail 1994; Cummins, 1991; Ada, 2003).

5. Active participation in all components of the unit, negotiating for meaning, comprehensible output personal interactions and 10/2 (Long, 1990; Cambourne, 2002; Cummins, 1991; Goldenburg, 2003; Costa, 1981).

6. A theme, year planning, and strategies that foster standards-based learning, respect, trust, identity, and voice. The use of personal interaction values, oral ideas and cross-cultural respect. (Cummins, 1991; Berman, 1991).

7. Ongoing assessment and evaluation using a variety of tools to provide reflection on what has been learned, how it was learned, and what will be done with the information. Assessment, ongoing and summative, based on strengths as well as needs. Direct teaching of test language and test-taking skills. (Costa, 1981; Farr and Tone, 1994; Treadway, 1995).

B. QUALITY OF PROJECT PERSONNEL (10 points)

1. The qualifications, including relevant training and experience, of the project director. (5 points)

Dr. Lettie Ramírez will be the Director and Principal Investigator. She is a Professor in the Department of Teacher Education at California State University, East Bay. She has successfully administered several grants from the U.S. Department of Education: OELA, Title VII, Title III, as well as Teacher Quality Enhancement.

Dr. Ramírez' areas of interest are teacher preparation, English Language Learners, bilingual and multicultural education. Dr. Ramirez has over twenty years of teaching experience at the university level and thirteen years of teaching experience in the public schools in Texas and California.

Besides being in charge of day-to-day project administration, she will be actively involved in this partnership with districts and schools. Dr. Ramirez is GLAD certified. She also will be involved in evaluation, data collection, and dissemination.

2. The qualifications, including relevant training and experience of key personnel. (5 points)

GLAD-certified trainers will be providing the training for CSUEB student teachers and for teachers in FUSD. Selected Trainers of Trainers will start their training the first year and will go through a rigorous process that often takes over two years to be certified.

Dr. Deborah Sims, Assistant Superintendent, Fremont Unified School District. Dr. Sims will be a guiding force behind Project STEM. She is a leader in the district and stands behind this effective, research-based project. She is familiar with GLAD and is eager to see it implemented at the high schools integrating STEM.

Mr. Juan Espinosa, Director of Federal and State Programs, will be the contact person at Fremont USD. He will coordinate the workshops, locations, number of participants, etc. with Project Director.

Dorine Mendelsohn, Administrative Assistant, will devote 50% effort throughout the grant. She will be a valuable employee as she has ten (10) years' experience managing these types of Department of Education grants. She will be responsible for collecting information from the participants and processing their scholarships. She will also schedule meetings and coordinate professional development.

C. QUALITY OF MANAGEMENT PLAN (20 points)

(1) The adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks. (15 points)

Project STEM will have several people in leadership positions that will give focus and guidance to implement the project as planned. Dr. Lettie Ramirez will be responsible for the proper implementation of this plan but will have the approval of the district Assistant Superintendent, Dr. Deborah Sims. In addition, Mr. Juan Espinosa will guide the efforts at the district while the recruitment, selection, and evaluation will be taking place by the project director.

Dr. Debora Sims will be collaborating with us as this project moves forward and overseeing the professional development for the high schools. Each of the specific responsibilities will be outlined below.

Timelines and Milestones: Each of the goals has its own timelines and milestones.

The first year of the grant has different timelines, but the subsequent years will have more time to plan and implement. Below you will find the specific implementation plan followed by milestones and responsibilities. Dr. Ramirez will be the Project Director and will be responsible for organizing and chairing meetings.

As soon as the grant is funded, representatives from Fremont and CSUEB including Project Director, Assistant Superintendent of Instructional Services, and Director of State and Federal Programs, will start the implementation calendar.

- Develop applications, contracts, surveys, evaluations, establish dates for interviews (first quarter of grant)
- Establish quarterly meetings with Leadership Team are scheduled
- Presentation to Fremont Unified School Board (each year)
- Invitation to present Project STEM at High Schools to invite teachers (each year)
- Send flyers to all FUSD schools to recruit experienced teachers for Trainers of Trainers, participate in workshops and surveys (each fall)
- Invite student teachers at CSUEB to participate in Project STEM (spring each year)

Goal 1: Recruit, select and mentor/advise a new high school cadre of one hundred fifty (150) STEM student teachers. (Responsible parties: PI and Fremont Leadership Team) Thirty (30) highly qualified teachers will receive their credential to teach STEM classes with new ELL strategies each year of the grant. These STEM student teachers will be required to be in a student teacher placement for the duration of the school year.

- In collaboration with Fremont Leadership, notifications will be sent out to all student teachers entering the CSUEB credential program (October in first year of grant;

spring in subsequent years)

- Receive applications. (November in first year of grant; spring in subsequent years)
- Schedule interviews. (December in first year of grant; spring in subsequent years)
- Planning sessions between student teachers and University Personnel/FUSD
- To develop schedules of classes that will incorporate all classes instead of offering them in isolation. (January in first year of grant; spring in subsequent years)

Goal 2: One hundred fifty (150) CSUEB STEM student teachers will receive two hundred twenty-five thousand dollars (\$225,000), to help them financially for the duration of the grant. (Responsible parties: PI and Fremont Leadership Team) Each year, thirty (30) student teachers will receive one thousand five hundred dollars (\$1,500) to help them pay for their tuition and books to complete their teaching credential at CSUEB.

- One hundred and fifty student teachers will be recruited to participate for the duration of the grant. (November in first year of grant; spring in subsequent years)
- Applications will be reviewed; interviews will be scheduled to select a total of one hundred fifty (150) candidates during the five years of the grant.
- Student teachers will receive one thousand five hundred dollars (\$1,500) to remain in FUSD for the one (1) year duration of their student teaching, totaling two hundred twenty-five thousand dollars (\$225,000).

Goal 3: Recruit, select and support ten (10) high school teachers who will receive GLAD Trainer of Trainers Certification. (Responsible parties: PI and Fremont Leadership Team)

- Advertise, interview and select ten (10) experienced teachers with three years or more of teaching experience for Teacher Trainer and teacher support for the duration of the grant (fall in first year of grant; spring in subsequent years).
- Experienced teachers will be recruited to apply (October in first year of the grant; spring in subsequent years).
- Two (2) candidates will be selected each year (spring in each year of grant)
- Plan orientation and schedule the support they will give to teachers for the rest of the year
- Request presentations at Summer STEM Institutes, TESOL, NABE, and Educational Conferences.

Goal 4: Recruit and select one hundred fifty (150) teachers to serve as mentor teachers to CSUEB student teachers. (Responsible party: PI) In collaboration with Fremont leadership, notifications will be sent out to all teachers with more than three (3) years experience. (October, first year of grant; spring in subsequent years)

- Notification of partnership will be sent to all District schools to inform current teachers working in the district of this grant. (October in first year of the grant; Spring in subsequent years)
- Review of applications (November in first year of the grant; spring in subsequent years)
- Thirty (30) candidates will be selected; orientation will be scheduled (spring in each year of grant)
- Schedule Project STEM Teachers to receive STEM/GLAD and/or other workshops needed (summer in each year of grant)

- Plan and schedule continued support of teachers from year one to five.

Goal 5: Invite mentor teachers and student teachers to a STEM Summer Institute held each year at CSUEB. (Responsible party: PI)

- STEM Summer Institute will be held each year of the grant.
- All participants will be invited to attend the STEM Summer Institute
- Teachers will receive additional support/training in the components of STEM
- Student teachers along with Master Teachers will present STEM units.
- Poster sessions and invited speakers will be part of STEM Institutes.

Goal 6: STEM Club. Each of the high schools will be invited to develop a STEM Club. Five thousand dollars (\$5,000) per year will be allocated to supplies such as books and materials needed to conduct experiments. (Responsible party: PI)

- Clubs will be invited to participate in the summer Institute
- Teachers will receive additional support for materials, supplies, etc.
- All high schools will be invited to have a STEM Club

(2) The extent to which the time commitment of the project director and principal investigator and other key project personnel is appropriate and adequate to meet the objectives of the proposed project. (5 points)

Dr. Lettie Ramirez will direct the project with 50% effort. This will include the day-to-day monitoring and implementation of the project. Also, it will include but not be limited to the collection of data, monitoring implementation of lessons, and scheduling of workshops and Leadership Team. The other 50% of her time, she is professor in the Department of Teacher Education and will participate in the advising, interviewing and selection of student teachers. She is also Coordinator of the Bilingual Cross Cultural

Language Development Program.

D. QUALITY OF THE PROJECT EVALUATION (30 points)

As schools continue to respond to the No Child Left Behind Act, they need to provide teachers who are "highly qualified" and meet adequate yearly progress, among other mandates. FUSD will provides the evaluation tools necessary to gauge the quality of ELL instruction as well as the support/guidance needed by FUSD teachers. In addition, at the end of the year, data will be analyzed in relation to student academic achievement and proficiency levels.

Competitive Preference Priority 2: Enabling More Data-Based Decision-Making.

FUSD is data driven; therefore, there will be quarterly meetings to determine the direction of the implementation. Pre- and post-surveys, approved by the CSUEB Institutional Review Board, will also provide data that can guide the trainings and coaching. OPAL (Observation Protocol for Academic Literacies) (Appendix C) data will also be collected as well as student teachers' videos and evaluations to guide the project. Board advisors will monitor to close the widening gap in academic achievement of their diverse school population, including ELL. In addition, Dr. Chris Faltis, UC Davis, an ELL expert in secondary education has been asked to serve as an evaluator.

1. The extent to which the methods of evaluation are thorough, feasible, and appropriate to the goals, objectives, and outcomes of the proposed project. (10 points)

FUSD is based on the inquiry process. This will provide a thorough collection of data and evaluation from day one. This is not a top-down model pushed by administration, but is a process that invites teachers to analyze (pre-survey), reflect (post-survey) and

move toward improving their teaching practices (OPAL). This comprehensive and evaluative professional development model will then prioritize activities/workshops based on teachers' needs.

Invitational Priority 2: Improving Preparation of All Teachers to Better Serve English Learners. FUSD will meet this priority by collecting data and tracking the participation of teachers in surveys and workshops, as well as with STEM/GLAD unit implementation and coaching. This data-driven implementation will aid in the preparation of beginning teachers as well as improving the quality of current teachers to better serve ELLs.

The OPAL (observations) will capture for teachers the classroom practices and interactions from socio-cultural and language acquisition perspectives, giving them the opportunity to assess their own teaching and make necessary changes to improve their teaching. Dr. Magaly Lavadenz from The Center for Equity for English Language Learners at Loyola Marymount University, co-author of the OPAL, will be participating in the evaluations/observations of this grant. Quarterly data collected will be presented to the Leadership Team to monitor the implementation and progress of FUSD.

2. The extent to which the methods of evaluation include the use of objective performance measures that are clearly related to the intended outcomes of the project and will produce quantitative and qualitative data to the extent possible. (10 points)

Evaluations will be carried out by Dr. Magaly Lavadenz who developed the OPAL and which will help in the implantation process. Each of the goals will be reviewed by the Leadership Team each quarter. Please see Table 3 regarding the areas that subdivide

FUSD. These areas are to be evaluated in addition to the goals and activities that will compose each area. The committee will meet quarterly to assess progress being made toward project goals and objectives, and propose program modifications. The Leadership Team will be chaired by the Project Director.

Table 3 Benchmarks of Each Area

Trainer of Trainers	Student Teachers	Mentor Teachers	ELLs
Creation of Leadership Team Inform School Board Inform Teachers	Present Information to Future Candidates at CSUEB	Creation of Leadership Team Present Information to School Board Inform Teachers	Baseline Proficiency levels Grade levels Academic Achievement
Invitation/Flyers Creation of Data Base Recruitment Application Selection of TOT	Applications Select Candidates Orientation Advising	Invitation/Flyers Orientation Application Selection of Teachers	Identify Students Obtain Data Grades
Assess Training Needed Apply to STEM/GLAD	Develop Calendar Notify Mentor of Student Teacher	Schedule survey Identify Need Training	Assess English Proficiency

Schedule Training	Schedule STEM/ GLAD	STEM/GLAD	Schedule Leadership Team Quarterly
Schedule Coaching	Schedule OPAL	OPAL	End of Year
Assess by Leadership Team	Schedule Coaching	Schedule Coaching	Evaluation

FUSD’s major goal is to improve and set higher standards to provide effective instruction to ELLs. This model offers research-based characteristics of effective instruction. There will be several methods of evaluation that will prove its effectiveness: (1) Students’ academic successes will be monitored and evaluated each year; (2) Student teachers’ observations/evaluations will improve as they implement STEM/GLAD and receive “support/mentoring;” (3) Experienced teachers will enter a new phase in their teaching careers as they “support/mentor,” become Teacher Trainers, and continue their educational development; and (4) Student teachers will receive financial support to become teachers and continue to support their community. All goals will eventually lead to the academic achievement of ELL students, and their teachers and community will benefit in the process.

FUSD will continue the current systemic evaluation of ELLs in the district, but in addition, it will collect additional data in regard to the teachers who have participated. The OPAL and coaching will provide additional support to teachers and student teachers.

FUSD will be evaluated using formative and summative methods through analysis of

both quantitative (students' proficiency level, OPAL, grades, pre- and post-surveys, STEM/GLAD workshops) and qualitative (teacher observations, project-generated surveys, questionnaires, and district-adopted assessments that measure language development) data.

Every time there is an activity, workshop, new materials introduced, etc., we will collect information to determine the appropriateness and effectiveness of the implementation. In addition, videos will be developed to help current and future teachers implement new strategies to help all students. Student teachers will be required to videotape themselves and evaluate their teaching. Current teachers will receive support/guidance in terms of coaching, modeling lessons, and materials they can use in their classrooms.

3. The extent to which the methods of evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes. (10 points)

To begin the implementation of this project, FUSD will conduct a teacher survey. This pre- and post-survey will identify the needs of the district teachers and will guide the implementation of the grant. In addition, FUSD will follow effective models of professional development. Educators from the district office and university will create a Leadership Team which will meet quarterly and will analyze, reflect on and make any changes in the implementation of the project as needed. This Leadership Team will review the objectives established at the beginning of the grant, and after objectives and activities are implemented. The Leadership Team will participate in the development of the application process, the scheduling of workshops, and the selection of candidates. Participating teachers and student teachers will also follow the inquiry process to

evaluate their teaching and implementation of STEM/GLAD units (Appendix B), as well as OPAL (Appendix C).

Project STEM is data driven, and there will be many types of data collected throughout the grant. Dates given below are when data collection will begin.

- Documentation of meetings between CSUEB and partnering district (October 2011)
- Educational data will be collected on the participants from the district and CSUEB during the selection and application process (October 2011)
- Personal data will be collected from applications and during the interviews. (Oct 2011)
- Personal data will be collected from the mentors during the interviews. (Oct 2011)
- Acceptance Letter (October 2011)
- Documentation of orientation (November 2011)
- Memorandum of Agreement will document the participants' commitment. (Nov 2011)
- Memorandum of Agreement will document the mentors' commitment (Nov 2011)
- Trainer of Trainers: Documentation of meetings with certified professional development trainers (November 2011)
- Memorandum of Agreement for Trainers of Trainers, who agree to stay in the district for three (3) years (November 2011)
- Identify needs of teachers for professional development (November 2011)
- Student work will be collected throughout their professional development (on-going)
- Documentation of follow-up and coaching by trainers (on-going)

The evaluation plan reflects the goals and objectives of the academic and professional components of the proposed project and is aligned with district, university, and NCLB requirements. The plan provides for both formative and summative

evaluation, and we will be using the program action-logic model for assessment.

Formal Assessment of the participants: will be evidenced through academic work and professional development training of the proposed project and is aligned with district, university, and NCLB requirements.

Formal Assessment of the students: instructional validity of the schools API scores, and individual standardized test at the end of the year.

Informal Assessment of the students: will be evidenced through curricular validation teachers collect in their classroom to measure the progress of LEP students.

Professional References

Ada, A. F. (2003). *A magical encounter: Latino children's literature in the classroom* (2nd ed.). Boston: Allyn & Bacon.

Beck, I. L., McKeown, M.G., & Kucan, L. (2002). *Bringing words to life: Robust vocabulary instruction*. New York: Guilford Press.

Berman, et al (1991). "Meeting the challenge of language diversity." California Legislature.

Cambourne, D. (2002). *Authentic assessment and authentic standards*. Phi Delta Kappan, 81(5), 405-407.

Chall, Jeanne S. (1983). *Learning to read: The great debate*. New York: McGraw Hill.

Chall, Jeanne S. (1983). *Stages of reading development*. New York: McGraw-Hill.

Collier and Thomas (1995). *Longitudinal study of successful programs for second language learners*.

Costa, Art (1981). "What human beings do when they behave intelligently and how can they become more so." California State University, Sacramento.

- Cummins, J. (1991). "Knowledge, power and identity in teaching English as a second language." Draft, CAFE.
- Cummins, J. (2001), *Language, power, and pedagogy: Bilingual children in the crossfire*. Philadelphia: Multicultural Matters.
- Cummins, J. and Swain (1996). *Negotiating identities*. CAFE.
- Farr and Tone (1994). "Portfolio and performance assessment." Harcourt Brace.
- Flores, J. L. B. (Eds.) (1996). *Children of la frontera: binational efforts to serve Mexican migrant and immigrant students*. Charleston, WV: Clearinghouse on Rural Education and Small Schools.
- Goldenburg, A. (2003). *Computers, the Internet and new media for learning*. In W. M. Reynolds & G. E. Miller (Eds.) *Handbook for psychology: Vol. 7. Educational psychology* (393-427). Hoboken, NJ: Wiley.
- Goodman, K. (1982). *Language and literacy: The selected writings of Kenneth S. Goodman*, Boston: Routledge & Kegan Paul.
- (Kagan, S. (2001). *Teaching for character and community*. Educational Leadership, 59(2), 50-55.
- Krashen, S., (2003). Three roles for reading for minority-language children. In G. Garcia (Ed.), *English learners: Reaching the highest level of literacy learning*. Newark, DE: International Reading Association.
- Kovalik, Susan (1986). Remarks, Mentor Teacher Conference, Anaheim, CA.
- Long, M. H. (1990). Maturational constrains on language development. *Studies in Second Language Acquisition*, 12, 251-285.

- Marzano, R. J. (2004). *Building background knowledge for academic achievement: Research on what works in schools*. Alexandria, VA: Association for Supervision and Curriculum Development.
- McTighe and Wiggins, G. (1998). *Understanding by design*. ASCD.
- Oblinger, D. G. (2004). *The next generation of educational engagement*. Journal of Interactive Media in Education, 8. Retrieved April 14, 2010, from <http://www.jime>.
- Report of the National Commission on Teaching & America's Future (1996). *What matters most: Teaching for America's future*. New York, NY: The National Commission on Teaching & America's Future.
- Shelfbline, J. (1995). *Learning and using phonics in beginning reading*. New York, Scholastic, Inc.
- Smith, Frank (1986). *Insult to Intelligence*. Arbor House.
- Trail, Leanna (1995). *Highlight my strengths*. Rigby.
- Trail, L. (1994). *Making reading meaningful for language minority students*. Paper presented at the annual conference of the National Association for Bilingual Education, Los Angeles, CA.
- Treadway, L. (1995). *Socratic seminars: Engaging students in intellectual discourse*. Educational leadership, 53(1), 26-29.
- Vygotsky, L. (1978). *Mind and society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. and trans.). Cambridge, MA: Harvard University Press.

Appendix A

Sample Unit – Project GLAD

BIOLOGY: CELL STRUCTURES AND FUNCTIONS

(High School)

IDEA PAGES

I. UNIT THEME - All living things are classified and interdependent:

- Living things share similarities that allow them to be classified
- All living things share certain needs and depend on each other
- Different ecosystems can be impacted by humans
- Cross cultural:
 - Views on ecological needs differ -- whales, fishing
 - Biomes/ecosystems have common characteristics around the globe

II. FOCUS/MOTIVATION

Observation charts	Realia	Laser discs
Inquiry charts	Big Book	Experiments

III. CLOSURE/ASSESSMENT

- A team cell project. Teacher/student developed rubric
- An individual and class social action plan - performance indication
- A personal exploration
- Teachers and student made quizzes: specialization
- Assessment of learning logs
- A cause and effect expository writing piece - to prompt

CONCEPTS - SCIENCE STANDARDS - High School

Science:

1. The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cells. As a basis for understanding this concept:

- a. *Students know* cells are enclosed within semipermeable membranes...
- b. *Students know* enzymes are proteins that catalyze...
- c. *Students know* how prokaryotic cells, eukaryotic cells...
- d. *Students know* the central dogma of molecular biology...
- e. *Students know* the role of the endoplasmic reticulum and Golgi apparatus...
- f. *Students know* usable energy is captured from sunlight by chloroplasts...
- g. *Students know* the role of the mitochondria in making...
- h. *Students know* most macromolecules...
- i.* *Students know* how chemiosmotic gradients in the mitochondria...
- j* *Students know* how eukaryotic cells are given shape...

Investigation and Experimentation:

1. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations. Students will:

- a. Select and use appropriate tools and technology...
- b. Identify and communicate sources of unavoidable experimental error.
- c. Identify possible reasons for inconsistent results...
- d. Formulate explanations by using logic and evidence.

- e. Solve scientific problems...
- f. Distinguish between hypothesis and theory as scientific terms.
- g. Recognize the usefulness and limitations of models and theories...
- h. Read and interpret topographic and geologic maps.
- i. Analyze the locations, sequences, or time intervals...
- j. Recognize the issues of statistical variability and the need for controlled tests.
- k. Recognize the cumulative nature of scientific evidence.
- l. Analyze situations and solve problems that require...
- m. Investigate a science-based societal issue by researching...
- n. Know that when an observation does not agree...

V. VOCABULARY

acids	chemical	endocytosis
active	chloroplast	endoplasmic reticulum
amino acid	compounds	energy
animalia	contrast	enzymes
assembly	covalent bond	equilibrium
atoms	cytoplasm	eukaryotic
autotroph	cytoskeleton	exocytosis
bacteria	diffusion	function
bases	deoxyribonucleic acid	fungi
carbohydrates	DNA	glucose
carbon	electron	Golgi apparatus
cells	elements	

Appendix B

OPAL (Observation Protocol for Academic Literacies)

OPAL Domains, Definitions and Description of Indicators

[from *The Multilingual Educator 2011*, "OPAL: A Tool for Supporting Teachers of English Language Learners" by Elvira G. Armas, Ed.D. and Magaly Lavadenz, Ph.D.]

OPAL Domains	Description of Indicators
<p>1.0 Rigorous and Relevant Curriculum</p> <p>A rigorous and relevant curriculum is cognitively complex, relevant, and challenging. It allows educators to value and capitalize students' linguistic and cultural backgrounds.</p>	<p>1.1 Emphasizes problem solving and critical thinking</p> <p>1.2 Provides access to materials, technology, and resources</p> <p>1.3 Establishes high expectations</p> <p>1.4 Organizes curriculum and teaching</p> <p>1.5 Provides access to content in primary language</p> <p>1.6 Facilitates transfer of skills from primary language</p>
<p>2.0 Connections</p> <p>Bridging connections with students' prior knowledge is the ability to link content to students' lives, histories, and realities in order to create change.</p>	<p>2.1 Relates instructional concepts to students' realities</p> <p>2.2 Helps students make connections</p> <p>2.3 Makes learning relevant and meaningful</p>

<p>3.0 Comprehensibility</p> <p>Comprehensibility is the attainment of maximum student understanding in order to provide access to content for all students.</p>	<p>3.1 Scaffolds instruction</p> <p>3.2 Amplifies student input</p> <p>3.3 Explains key terms</p> <p>3.4 Provides feedback and checks for comprehension</p> <p>3.5 Uses informal assessments</p>
<p>4.0 Interactions</p> <p>Interactions are varied participation structures that facilitate access to the curriculum through maximum engagement and leadership opportunities.</p>	<p>4.1 Facilitates student autonomy</p> <p>4.2 Modifies procedures to support learning</p> <p>4.3 Communicates subject matter knowledge</p> <p>4.4 Uses flexible groupings</p>

Teacher interviews, focusing around the OPAL's four domains, can use questions such as these:

1. What professional development has most impacted your teaching practices with English Learners?

2. Relevant and Rigorous Curriculum

Your lesson today was on (interviewer inserts specific point from observation).

How do you plan to ensure that you differentiate instruction for ELs?

How do you make decisions about the curriculum you teach?

3. Comprehensibility

When you were (interviewer inserts specific point from observation), what strategies were you using to make sure that students understood what you were teaching?

4. Connections & Praxis

What strategies do you use to help ELs make connections to content or daily lives?

5. Interactions

How do you handle the grouping of students in your classroom?

What has been most successful?