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University of Illinois at Chicago
Project English Learning through, Mathematics, Science and Action Research
(ELMSA)

Consortia Partners: LEA: Office of Language and Cultural Education (OLCE), Chicago Public Schools (CPS) and, SEA: English Language Learner Division, Illinois State Board of Education

Project Description:

The purpose of this 5-year project is to provide professional development to forty K-8 teachers, from both Bilingual and mainstream classrooms situated in low economic settings, in order to improve teaching and the learning of language minority students (LMS) in the more advanced areas of literacy, science, and math, through a transformative action research model of teacher development that integrates literacy, math, and science activities. Our teachers apply cutting edge principles of learning and development to collaboratively design and implement curricular activities based on the students' *funds of knowledge* and national mathematics, science, and literacy standards. These activities simultaneously develop students' advanced thinking while having immediate relevance to their lives. The significance of this project is in its integration of the principles of effective instruction with LMS and standards of reformed mathematics, science, and language arts. The target student population has a persistent history of underachievement in the critical academic areas of advanced literacy, mathematics, and science. Mathematics and science education is undergoing fundamental changes in what students are expected to know and be able to do in the subject, and such reforms have not always included teachers in Bilingual/ESL programs. Standards-based, or reformed, mathematics and science teaching emphasizes problem-solving, construction of knowledge, oral and written communication, and higher order thinking even in lower grades. This provides an excellent context for developing literacy and second language skills. Moreover, standardized tests reflect these new emphases. Consequently, it is critical that all teachers of this potentially high-risk student population be better prepared and skilled at implementing this type of instruction. Given the foregoing, developing all teachers' abilities to implement effective practices for LMS through the context of

Part III: Narrative

The significance of *Project ELMSA* (English Learning through Mathematics, Science, and Action Research) resides in the integration of the principles of effective instruction for ELLs (English language learners), language minority students (LMS), and inquiry based science and mathematics teaching. It, thereby, addresses simultaneously two critical areas needing improvement for ELLs and LMS (henceforth, LMS only) --not only locally but nationally. The principles of effective instruction for LMS include 1) a curriculum that reflects high standards, and 2) an integrated curriculum that includes the development of literacy across content areas. Both of these elements represent approaches to teaching that are innovative for most teachers. Because these elements of teaching so strongly relate to improved academic achievement among LMS, it is critical that teachers be able to implement them. Furthermore, in 2010, the National Science Teacher's Association strongly advocated action research models for professional development and dedicated their September issue to the topic. According to Bigelow (2010), "Action research gives teachers opportunities to reflect on their teaching, explore and test new strategies, assess the effectiveness of the new strategies, and make decisions about which ones to use (and with which students, subjects, or classes)."

The teaching of science and mathematics now involves standards that include students being able to communicate mathematical and science thinking in writing, and to derive high level and complicated mathematical and science meanings as those that are found in word problems and more complex science texts. These same skills and abilities are now incorporated into updated standardized tests of achievement. Reformed science and mathematics instruction presents contexts in which LMS should do both high level academic work and extend literacy

skills across content areas. However, again, this represents innovative teaching for most teachers, and one not easily implemented if it has not been experienced or guided through professional development.

The proposed project also is significant because it is intended that one of its outcomes be the creation of teachers who have experiences doing collaborative instruction change and sharing experiences with colleagues. The staff development represents a more innovative model (collaborative action research) that has greater likelihood of sustainability. A focus of this activity is the establishment of a cadre of teachers who have developed specific skills to assist other teachers. This cadre will also be a resource for the district as identified teachers who can model better teaching across the content with LMS--something that is lacking to a great extent.

Criterion (a) Quality of the Project Design

The primary goal of Project ELMSA is to produce a pool of highly trained and qualified teachers of English learners who can develop academic English proficiency through the content areas of mathematics and science in the Chicago Public Schools. A secondary goal of the project is to develop teachers who can use inquiry/action based methods to both develop new learning strategies and activities for LMS as well as evaluate current curricular practices. Teachers will develop the analytic skills to document change within themselves, their students, as well as their sites ("3S's" of change, see Razfar, In Press).

Project ELMSA is aligned with the following competitive priorities:

In accord with competitive preference priority 3—Promoting Science, Technology, Engineering, and Mathematics (STEM) Education—through this grant we will: "increase opportunities for high-quality preparation of, or professional development for, teachers or other educators of STEM subjects."

In accord with competitive priority 2—Enabling More Data-Based Decision making—the project will: "collect (or obtain), analyze, and use high quality and timely data, including data on program participant outcomes, accordance with privacy requirements, in the following priority area: Improving instructional practices, policies, and student outcomes in elementary or secondary schools." The key personnel have demonstrated such rigor on previous teacher training projects with presentations at major national conferences (e.g. Razfar and Nasir, 2010; Troiano and Razfar, 2009), evaluation reports, and papers that are being prepared for publication in peer-reviewed journals on the topics of teacher development, content based instruction for English learners, and case-studies of culturally relevant pedagogy.

Objectives of Project ELMSA

(a.1) The extent to which the goals, objectives, and outcomes to be achieved are clearly specified and measurable. This proposal is for a 5 year (60 months) professional development project which has basically three primary working goals. The first is to produce a pool of highly trained elementary teachers (K-8) to work with English language learners in the content areas, especially in Math and Science in the Chicago Public Schools (CPS). The emphasis will be on developing teachers' skills and knowledge to advance students in reading for information (e.g., science texts and mathematics word problems), writing in the genres related to content areas (e.g, explanations, argumentation), and doing oral presentations to demonstrate learning. Second, the grant will provide opportunities for currently employed elementary teachers to complete their ESL/Bilingual endorsement as well as the option of continuing towards a Masters in Education (M.Ed). This will build capacity in the schools so that they better serve the needs of English Language Learners in Illinois. Additionally, we will provide workshops to administrators and teachers at the elementary level on how to best meet the academic needs of ELLs. Third,

teachers will develop action research modes of inquiry and develop models for collaborative inquiry and pedagogical practices that will sustain the instructional improvements garnered through participation in **Project ELMSA**. This includes the ability to better measure and assess student learning and the ability to demonstrate professional growth. The following are the project's specific operational objectives. (a) Each objective is followed by the activities which will be undertaken to achieve the objective; (b) each item includes a description of the documentation that will be used to evaluate it and a statement of the criterion to know if the goal is met. (c) A proposed time frame for addressing and meeting the objectives is attached to the end of this section

Objective 1. Produce a pool of highly trained elementary teachers (K-8) to work with English language learners in the content areas, especially in Math and Science in the Chicago Public Schools (CPS). And be able to simultaneously integrate principles of effective instruction for ELLs.

Documentation: Enrollment in course leading to approval certification in Bilingual/ESL, enrollment in specially designed courses focusing on content-based literacy development and action research, results of pre and post personal observations of instruction; participants' portfolios of instructional work; lesson plans; reports of classroom-based inquiries; video-taped lessons; interviews with participants regarding key concepts.

Goal is met if: 99% of participants complete the full list of courses sponsored by this project; 93% of participants implement a pre and post observation for both science and mathematics and principles of effective instruction for LMS and show changes in positive direction; interviews indicate greater ability to provide examples of concepts; portfolios of work demonstrate positive changes in the target areas.

Activities to Achieve Objective 1:

1. Provide participants with the five courses that comprise the approval in Bilingual/ESL Education and four specially designed courses, one each semester. These specially designed courses will carry academic credit that can be applied toward certification, degrees, or simply advancement, but will not constitute a complete certification program (See Table 1 Timeline for details).

Documentation: Records of enrollment; course syllabi; participant-produced work.

Goal is met if: Records indicate that 99% of project teachers participated in all courses.

2. Engage participants in an after-school seminar each semester in order to have participants develop and refine action research skills, engage in on-going collaboration-building, present examples of redesigned lessons, or meet with consultants.

Documentation: Records of attendance in the seminar; session agenda; teacher formative evaluations.

Goal is met if: Records indicate that 93% of project teachers participated in all sessions.

3. Provide participants with course sessions and classroom-based activities that develop skills in using existing observation protocols for sheltered instruction and reformed science and mathematics, and in designing own rubrics for specific instructional areas and student performance.

Documentation: Course syllabus and activity descriptors; teacher-produced artifacts from classrooms, portfolios of teachers' own work.

Goal is met if: Records indicate that 93% of project teachers implemented and analyzed observation protocols and developed own lesson rubrics.

Objective 2. Provide participants with financial support in the form of course tuition

Documentation: Roster of participants; appropriate record of financial assistance.

Goal is met if: 99% of participants receive financial assistance for three semester sessions in one academic year.

Activities to Achieve Objective 2:

1. Provide each participant with support in terms of tuition plus student fees each semester..

Documentation: Roster of participants; appropriate record of financial assistance.

Goal is met if: 99% of participants receive financial assistance for the four semesters

2. Provide each participant with a $250 book allowance.

Documentation: Roster of participants; appropriate record of financial assistance.

Goal is met if: 99% of participants receive financial assistance for the four semesters

Objective 3. Develop and utilize a staff development model consistent with current research literature, that is based on a coherent set of activities and processes that foster instructional problem-solving and inquiry, and independent curriculum design and decision making; that moves away from a traditional model of isolated workshops.

Documentation: Records of small and large group teacher planning meetings; teachers' curriculum planning documents and professional portfolios; oral and written cases describing action research projects.

Goal is met if: Records and formal/informal observations indicate that 93% of the teachers engaged in action research, sharing results with colleagues, and engaged in small group activities to design reformed curriculum.

Activities to Achieve Objective 3:

1. Provide participants with a course and additional summer course sessions where they develop

and extend their skills in action research, present video case studies from their classroom, and work on sharing results with school colleagues and other audiences.

Documentation: Course syllabus and activity descriptors; teacher-produced artifacts from classrooms, portfolios of teachers' own work.

Goal is met if: Records indicate that 93% of project teachers implemented and analyzed their own action research, classroom changes, and presentations to others.

2. Develop teachers' understanding of using problem-solving strategies, action research, and collaborative curriculum reform

Documentation: Records of seminars and meetings with teachers; examples of teachers' instructional inquiries; formal/informal interviews with teachers; observations of teachers engaged in instructional problem solving.

Goal is met if: 93% of project participants conducted an action research project(s); records indicate that small and large group meetings occurred to enhance teachers' use of instructional problem solving and action research; observations of teachers. .

3. Provide opportunities for teachers to videotape themselves for instructional self-analyses, and to videotape instructional activities as teaching episodes for others.

Documentation: Video recordings, records of meetings, field-notes and observations.

Goal is met if: Records indicate that 75% of the teachers used video recordings for instructional research projects and for collegial teaching episodes

4. Provide financial and clerical support for participants writing of cases to be shared with others.

Documentation: Financial record of substitute for a teacher; written cases; records of stipend payment.

Goal is met if: Records indicate that 100% of the teachers who write cases to be shared received

financial and clerical support; at least 93% of participants write cases.

Objective 4. Plan and implement an instructional model that encourages, at least 93% of the teachers to collaborate among themselves, and/or with someone outside the project, and to conduct inquiries integrating reformed science and mathematics and principles of effective instruction for LMS particularly in the area of advanced literacy.

Documentation: Appropriate records of meetings and planning; action research reports and/or video or written cases; curriculum and instructional plans that demonstrate target integration and advanced academic learning; presentations to others outside the project.

Goal is met if: Records indicate that at least 93% of the teachers have collaborated and have used a form of action research to aid in curriculum planning and student assessment; that teachers make presentations to others.

Activities to Achieve Goal 4:

1. Training activities will be conducted to develop and enhance teachers' skills to utilize collaborative planning activities and instructional inquiries.

Documentation: Appropriate records and minutes of meetings; course syllabi and/or session agenda; videotaped observations and field-notes; teachers' own journals, projects and data.

Goal is met if: 93% of the teachers engage in instructional inquiries and collaborative activities such as planning and peer coaching.

2. Recruit groups of 5 –8 teachers from the same school, with preference given to pairs consisting of Bilingual Education and mainstream teachers.

Documentation: Records indicate that groups of teachers are from the same school and represent both Bilingual Education and mainstream classrooms.

Goal is met if: 93% of project participants are part of a group of 5-8 teachers from the same

school.

Objective 5. Provide opportunities for project participants and personnel to conduct workshops for district staff development personnel in CPS, principals, and other teachers.

Documentation: Meeting agendas; power point presentations, roster of participants in meetings.

Goal is met if: 75% of participants present cases, videotape analyses, etc. at workshops or conferences.

Activities to Achieve Objective 5:

1. At the end of participation and/or during teachers' own staff development activities, participants will be encouraged to present their action research cases or other examples of work to principals, district staff developers, and other teachers.

Documentation: Records of meetings; roster of participants outside of the project.

Goal is met if: Records indicate that 75% of the teachers presented cases, etc. in a workshop format.

2. Provide opportunities for some participants to present action research results at professional conferences.

Documentation: Proposal for presentation; program description and handouts.

Goal is met if: One third of each cadre of participants create a proposal for presentation at a professional conference.

To these **Project Objectives** we add these **GPRA Performance Measures:**

GPRA Performance Measure 1.1: The percentage of in-service program completers who are State and/or locally certified, licensed, or endorsed in Bilingual/ESL instructions.

GPRA Performance Measure 1.2: The percentage of in-service program completers who are placed in instructional settings serving English learner students within one year of program

completion.

GPRA Performance Measure 1.3: The percentage of in-service teacher completers who are providing instructional services to EL students 3 years after program completion.

GPRA Performance Measure 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.

(a,2) The extent to which the proposed project reflects up-to-date knowledge from research and effective practice.

(b.3) Extent the design reflects up-to-date knowledge from research and effective practice

Current research literature on effective instruction of ELLs points to the critical nature of extending students' language/literacy abilities into content areas (Echevarria, J., Vogt, M., & Short, D., 2004) such as mathematics and science (Moschkovich, 1999a; 1999b). In such areas, teachers need to be highly knowledgeable of the language demands (e.g., getting meaning from complicated texts, demonstrate knowledge through oral presentations, and demonstrate knowledge through writing in various genres such as explanations and argumentations) (Wong-Fillmore and Snow, 2002). Math and science teachers have an important role in mediating instruction for ELs by drawing on multiple modes of communication (Goldenberg, 2008; Razfar, Khisty, Chval, 2011). Also, research in teacher development challenges the effectiveness of short-term workshops and points to models that redefine teachers as having knowledge but needing to be wiser about making instructional decisions and about judging what are appropriate strategies, materials, and classroom organizations to support ELLs. Action research (or classroom-based inquiries) satisfies these needs (e.g., Fosnot, 1989; Mills, 2007; Wasserman, 1994). Just as active learning has positive benefits for students, so, too, does it benefit teachers.

The proposed project strongly reflects the idea that knowledge is constructed by learners in the process of reflection, inquiry, and action. Therefore, instead of dispensing a list of prescribed methods to a large group of teachers, the teachers will be immersed in an environment where they are engaged in questioning, investigating, imagining, and debating. The courses that teachers receive will emphasize these ideas and activities. Teachers also need to be part of a community of learners, and this project is based on forming such a community. The PI and Co-PI have conducted research in these areas and have extensive experience connecting research to practice.

Target Population

According to the 2009-2010 Illinois District Report Card, Of the 409,279 students enrolled in Chicago Public Schools, 12.2% are classified as ELL. However, the overwhelming majority of students could be classified as language minority students (LMS), including African-American (45%) and Latino students (41%) and low income families (86%). It is precisely this population of student that shows the greatest disparity in performance on state performance measures like the ISAT in reading, mathematics, and science. For example, at the fifth grade level, nearly 2/3 of African Americans, 1/3 of Latinos, and a 1/3 of ELL students do not meet the state's standards in mathematics, the figures are worse for reading where nearly a half of ELL students do not meet the state's standards, and in Grade 7 science testing the figures are more dramatic especially for ELL students where 62% were below standard. Not surprisingly, as the grade level increases so does the disparity. The results from the state's IMAGE exam, which measures annual growth in English for students enrolled in state approved transitional bilingual programs for less than three years, reveals a desperate need to improve instruction of mathematics to this segment of the student population where over 72% are below the standard in CPS. There is general agreement among educators and researchers that the distinct type of

English used in classrooms, referred to as *academic language, is* a variable that often hinders the academic achievement of many language minority students, even though such students might be proficient in varieties of English used in non-academic contexts (Cummins, 1981; Hamayan & Perlman, 1990; Saville-Troike, 1984, 1991; Spanos, Rhodes, Dale, & Crandall, 1988; Razfar & Leavitt, In Press). Spanos et al. (1988) apply this perspective on academic language to mathematics and The National Science Teachers Association (1991) and Chamot and O'Malley (1986) describe the functions of scientific academic language. This decontextualized language is at the root of LMS struggles and teachers of LMS need to engage in modes of inquiry that will address the linguistic issues that uniquely affect LMS. Project *ELMSA* is intended to enhance and strengthen the science and mathematics instruction (and by implication effective instruction of LMS particularly in advanced learning and literacy) of those teachers, K-8, who are responsible for the education of second language learners particularly in mainstream classrooms where they have been transitioned. It is assumed that this development of these teachers will result in improved achievement of LMS in critical academic areas beyond science and mathematics since the strategies to be developed can be applied generally throughout the curriculum The proposed project addresses the need 1) to have the science and mathematics instruction LMS receive be consistent with current reforms in science and mathematics education: that it emphasize problem-solving, sense-making, and higher level science and mathematics even in the lower grades; 2) to widen the net of teachers (i.e., mainstream teachers) who have an understanding of the principles of effective instruction for LMS; and 3) to develop teachers who can model and implicitly disseminate improved instruction to others, who have enhanced skills for collaboration. The proposed project will be a collaborative effort between

Chicago Public Schools (AREAS III & IV) and the University of Illinois at Chicago, College of Education, Bilingual/ ESL Program who will provide the professional development.

Since Latinos make up the largest group of second language learners in Chicago, it is reasonable to focus attention on the preparedness of teachers to instruct this student population. It is well recognized that nationally, Latino students have a persistent underachievement in science and mathematics, and that failure in this subject adversely affects many other areas such as later entry into college and into various professions. However, since the introduction of the "*Standards*" (1989) by the National Council of Teachers of Mathematics, mathematics teaching has undergone radical changes. In essence, there is less emphasis on worksheets, decontextualized numerical problems, memorization of rules and algorithms, and linear progression from one topic such as operations with rational numbers to a supposedly higher level topic such as geometry or algebra. Reformed science and mathematics teaching, instead, emphasizes students' active learning around language-rich problems that they might even generate themselves, conceptual development and reasoning, integration of content areas, and early connections with advanced mathematical concepts. These changes also are reflected in new versions of standardized tests. In light of the importance of achievement in science and mathematics for LMS and the radical changes that are occurring, there is a need for instruction to keep up in this area with LMS. Moreover, such approaches to curriculum and instruction could provide excellent opportunities for LMS to engage in rigorous academic learning and to develop high levels of literacy and proficiencies in English and Spanish as they engage in making sense of mathematical problems and writing explanations of their work.

There is also a need to develop examples of this type of innovative effective instruction for LMS. Currently, in schools that serve great numbers of LMS, there are virtually no examples

of reformed science and mathematics teaching with LMS nor examples of instruction that integrates this with effective instruction principles. Classrooms that model this kind of instruction are important since all teachers need to be able to see concretely what the innovation looks like in order to change appropriately. Also, there is a need to develop new models of staff development used with teachers of LMS. Current research on professional development has demonstrated better and more lasting effects when teachers are active learners in and designers of their professional development, when it is immediately connected to their own practice, when teachers are encouraged to be independent thinkers and problem-solvers, and when teachers develop new ways of working together. The proposed project will utilize these findings to create examples of these activities and at the same time, create much needed cadre of teachers who can model the target instruction and who know how to share it with others.

Significance and Magnitude of Problem

The proposed project is situated in one of the country's largest and most troubled urban school districts, Chicago. The district (CPS) also has one of the largest populations of second language learners particularly Latinos. These students overwhelmingly tend to live in neighborhoods typical of inner city areas with low-income families, high unemployment, and high crime rates. The proposed project will target schools in the neighborhoods known as Pilsen and Little Village where the population is nearly 100% Spanish-speaking. In these schools, only 17% of the students, grades 3-6, perform above grade level on standardized tests of achievement in reading, and 35% of the students, grades 3-6, perform above grade level in science and mathematics. More importantly, current scores on the ISAT standardized test further indicate that these students' overall performance declined particularly in the areas that comprise two-thirds of each of the respective reading and science and mathematics areas: interpretive and evaluative

reading and problem solving and conceptual understanding. These are the areas that get addressed and developed when instruction emphasizes meaning-making, writing across the curriculum, and advanced integrated curriculum, the very areas that too often are de-emphasized with LMS, but which this project addresses.

Identifying and Addressing Gaps

The specific gaps have been identified primarily in two ways. First, it is well recognized that CPS is highly concerned about the poor achievement of minority students in science and mathematics and advanced literacy. In the last ten years, much effort by the LEA and various IHEs has gone into trying to remedy the situation. However, test scores among second language learners, especially Latinos, have not shown significant and lasting improvement to affect high school and early college participation. But as noted in Section (a), the principles of effective instruction for LMS have not been included in the aforementioned efforts. In essence, little attention has been given to the unique needs of second language learners in science and mathematics reform. As a consequence, there are very few teachers in CPS who can model reformed science and mathematics that also reflects effective instruction for LMS. Such models are critical since they enable others to better comprehend, envision, and implement much needed new instructional strategies. This is a major concern of the Office of Language and Culture Education (OLCE) at CPS which gave specific input to the need for the proposed project. Second, principals of key schools (Saucedo, Corkery, Spry, and Finkle) in the geographical area were surveyed regarding the gap in services and opportunities addressed by the project. These principals of relatively large schools unanimously indicated that the lack of significant improvement among LMS in mainstream classrooms and in the areas of advanced learning was at a critical point. They further indicated an overwhelming gap in teachers being able to integrate

curricula, in general, and science and mathematics and literacy in particular. Current professional development activities did not address adequately or sufficiently LMS's learning beyond the basics and into this area. The overall effect of these gaps is that there is relatively no example of the kind of high level integrated instruction with LMS that other teachers, inservice or preservice, can draw upon. The proposed project will fill these gaps by 1) developing a cadre of teachers who can model the target instructional strategies (i.e. reformed science and mathematics and effective instruction for LMS); and 2) strengthening this cadre of teachers in their abilities to share their new knowledge and skills (i.e., becoming Leaders).

The proposed project is designed to provide professional development for teachers and other educational personnel who are either serving or preparing to serve ELL students. In doing so, the goal is to assist all teachers to meet State certification requirements for teachers of ELLs. Likewise, the project is designed so that activities serve as models for improving the IHE curriculum for preparing teachers and other educational personnel of ELLs, models that will be incorporated into the redesigning or updating of current courses. To achieve these goals, the design of the project reflects three critical areas. First, that the improvement of academic achievement be the foremost guide for the project's activities. This means 1) that curricula, lesson plans, and instructional examples teachers develop be based on state and local standards, and that these standards can be identified in whatever artifact teachers produce; and 2) that teachers develop as part of their action research inquiries better methods to document student learning and to utilize LEA standardized tests and reports. Second, that new instructional strategies be based on current research of effective instruction for second language learners even though the context is science and mathematics. This means that 1) there be an environment of active learning that facilitates teachers' acquisition of research in both Bilingual/ESL Education

and Science and mathematics Education; and 2) that teachers learn to recognize these concepts through the use and refinement of various observation protocols. Third, that the professional development be based on research to maximize internalization and sustainability. This means 1) that the project stresses fewer participants but a longer concentrated period of time for development; 2) that the activities of the project foster teacher-centered inquiries and active learning; and 3) that teachers develop skills and attitudes for peer collaboration especially between Bilingual Education teachers and mainstream teachers.

The State of Illinois has spent the last few years developing and refining its State Standards for English as a New Language (ENL). School districts and IHEs have begun to ensure that teaching and the preparation of teachers conform to these standards. UIC was actively involved in working on the Standards and is now working with schools and districts to implement them. All of the teacher preparation courses for preservice and inservice teachers are required to demonstrate how a course's content supports these standards. In addition, the first ENL standard has to do with Content Knowledge: "The competent ENL teacher has a comprehensive command of the language of instruction, subject matter, methods of inquiry, and structure of the discipline(s) and creates learning experiences that make the content meaningful to all students while building on the students' linguistic and cultural diversity." This is a new conceptual area for teachers in Chicago, and this is in essence, the target objective of the proposed project.

Sustainability and Building Capacity

In order to maximize sustainability, teachers will be developed through the context of action research and peer collaboration. Through Projects LSciMAct and ATTACH, we have built a cadre of expert teachers who can serve as mentors and conduct professional development

sessions. We are currently drawing on previous cohorts for their expertise to work with the current cohorts conducting action research. The changes in instruction and the mode of staff development require extensive opportunities for teachers to work actively and in small groups, to learn in an environment that is highly interactive and supportive. It is assumed that there is greater likelihood that the changes will take hold under these conditions, and consequently there will be effects beyond the project and after it is ended. Also, part of changing teachers' skills and attitudes about themselves as inquirers and instructional problem solvers, is changing their role in staff development. The project is designed to capitalize on the cadres of action researchers that are developed by having them produce videotapes of the target instruction and written cases of inquiries, and to share their learning in public forums. The project includes many opportunities through the course teachers take, workshops that teachers will offer to district and school level personnel, and participation in local, regional, and national conferences to share their learning and new ways of teaching. Having teachers present their work in this public way, genuinely shifts the staff development from outside teachers' experiences to centering directly in them. Past professional development activities based on this model suggest the lasting effect of change. .It also should be noted that examples of the type of instruction this project will strive for are rare at the national level, too. IHE courses will be refined or even redesigned as a result of this project. Other in-service and pre-service teachers will gain from this project during its tenure and afterwards. Lastly, we foresee the possibility of collecting teachers' work and creating a "case book" that can be used in courses at other IHE's and in school districts.

Criterion (b): Quality of Project Personnel

The College of Education at the University of Illinois at Chicago (UIC) has traditionally maintained a close relationship with the Chicago Public Schools and the State

Office of Education. The Bilingual/ESL Program at UIC usually collaborates and supports CPS schools on behalf of second language learners. Following this tradition and in consortium with the Illinois State Board of Education and the Chicago Public Schools (CPS), the College of Education at the University of Illinois at Chicago is proposing a professional development program in order to support the CPS schools need to train "mainstream" teachers in all-English classrooms on effective ways to address the needs of second language learners in their classrooms. Through the proposed project, we also intend to support the College of Education faculty's efforts to learn about L2 learners educational needs in order to infuse knowledge about English language learners in the content of their courses.

In writing this proposal, the personnel in the Bilingual/ESL Program at UIC has consulted and coordinated our efforts with the Chicago Public Schools and the State Illinois Board of Education. We have consulted and had discussions about the teacher training needs at CPS with Ms. Diane H. Zendejas, Chief Officer of the Office of Language and Cultural Education (OLCE). These offices have agreed to work in consortium with UIC in this project. We have also consulted with Ms. Robin Lisboa from the State of Illinois Office of Education who has provided us with information related to the bilingual teacher shortage in Illinois and she also supports the need to train in-service teachers on developing academic language through action research models for professional development.

(b.1) Extent to which applicant encourages applications for employment from underrepresented groups. UIC College of Education has a long history of striving to ensure its faculty, staff, and student body, at all levels, have the participation of members from traditionally underrepresented groups. UIC is an urban university that is dedicated to serving the needs of one of the country's most diverse cities, Chicago. Both the PI (Director) and the Co-PI (Coordinator)

are members of minority groups. Therefore, the project personnel and the IHE have a track record of successfully providing opportunities for employment to members of underrepresented groups. Past projects funded by DoE have had significant participation by persons from underrepresented groups. The project will hire two people: the project Coordinator and a Fieldsite Instructor. Both positions require experience teaching in Bilingual classrooms, fluency in Spanish, and working knowledge of diverse cultures. Given this, there is strong likelihood that the persons will be from an underrepresented group.

(b.2) Qualifications of the Proposed Project Director

A. Principal Investigator/Director, Aria Razfar. Dr. Razfar is an Assistant Professor in Curriculum and Instruction, Bilingual/ ESL Program, and teaches courses at both the undergraduate and graduate levels. He has been doing research and evaluation on ELL issues for nearly 15 years and has published his research in a number of journals. He has been a director or co-director for other OELA professional development grants. He has served as the Project Director for *Project LSciMAct* and the co-director for *Project ATTACH*. He has expertise in the areas of literacy, language minority education, and learning and instruction where he has published in national and international journals and handbooks. He also has extensive experience in integrating language learning with the content areas (e.g. Razfar & Leavitt, In Press; Razfar, Khisty, and Chval, 2011). He has collaborated with nationally recognized scholars who specifically look at the intersection of mathematics, science, and bilingualism. He has developed action research models for teacher education and has presented his work at national conferences such as the American Education Research Association (AERA), National Association of Bilingual Education (NABE), and National Council of Teachers of Mathematics (NCTE). In addition, he brings substantial experience in the areas of mathematics and science

education where he was a Co-Principal Investigator for CEMELA (Center for Mathematics Education of Latinos/as), a national consortium of IHE's researching mathematics education for Latinos funded by the National Science Foundation. The proposed Project Director will also be in charge of carrying out the research plan for the project.

(b.2) Qualifications of Key Personnel

The Project Co-Investigator/Coordinator: Zitlali Morales is a tenure-track ESL/Bilingual Education assistant professor hired in 2010, who teaches *CI 482: Assessment & Instruction: Multilingual/Multicultural Perspective*, one of the Bilingual/ESL Approval courses. She earned her PhD in Urban Schooling from UCLA, working under Kris D. Gutiérrez for her dissertation. She graduated in 1998 with an undergraduate degree in Cultural Anthropology from Stanford. Among her research interests are academic identity, bilingual education, achievement of English language learners (ELLs), and educational experiences of immigrant students.

The Project Evaluator: Dr. Ranfen Li is proposed as the external Project Evaluator. She was the Director of Research at Malcolm X Community College - Chicago, for eight years before accepting a position at UIC in administration. Dr. Li is currently Director of Assessment, Office of Programs and Academic Assessment. For over 25 years she has served as external Project Evaluator for multiple Title III and Title VII grants for the Bilingual Program at UIC, and has established working relationships with the bilingual faculty. Currently she is Project Evaluator for three NPD grants and she helped OELA pilot the current format for collecting GPRA data. She has always approached evaluation from a formative standpoint, providing evaluative feedback to the project directors for the purpose of improving the programs. She's very accessible and timely in her work with project directors.

Criterion (c): Quality of the Management Plan

(c.1) Adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, etc. and milestones. The proposed project is for 60 months. In essence, the goals of the project are to develop teachers to be able to enact lessons which reflect high standards and integrated curricula, relatively innovative strategies, through a model of staff development whereby teachers enact their own instructional action research inquiries and resolve curriculum and instructional problems. Current literature on such change processes and staff development activities (e.g. Lieberman, 1995) suggest that these kinds of goals require several years to achieve. Given this, the overall time frame for the project is appropriate in that one cadre of 15 teachers will take 6 specially designed courses, in addition to the five courses leading to Bilingual/ESL approval, to be followed by a second cadre doing the same thing. Since teachers will need to take courses on a part-time basis, it will require 7 semesters or 2 ½ years for two cohorts of teachers to complete the objectives of the project. In essence, when the first cohort finishes, the next one will begin. The design of the project is such that the objectives are achievable within the designated time frame and within the specified budget.

The management plan includes a Project Coordinator/Field Supervisor (50% time) who will be a person with teaching experience and who will work closely with teachers in small and large group meetings and in individual classrooms. Given the labor intensive nature of the activities, the Project Coordinator can only adequately work with about 5-6 teachers at a time. However, this is consistent with trying to maximize active in-depth learning among the teachers. Two Field Instructors will be hired 50% time to assist the Project Coordinator in doing classroom based professional development, in conducting small group seminars, and assisting teachers with

conducting their action research. An undergraduate assistant will be hired to assist with cataloguing teachers' work, e.g., video recording, transcribing classroom activities, organizing day-long sessions and workshops, and acquiring and managing training materials, etc. The PI is based in the IHE will be 15% time consistent with university regulations for release time during the academic year but will be 100% time for months during the Summer to develop and carry out the Summer training seminar as well as direct research and evaluation efforts. The PI will monitor the project and ensure the objectives are met, and will oversee all training including teaching one or more of the specially designed courses. The Co-PI will work closely with the PI and Proj. Coordinator/Field Supervisor to facilitate these responsibilities and will assist in carrying them out (e.g, teaching specially designed courses and seminars, and doing classroom observations). The PI, Co-PI, and Project Coordinator/Field Supervisor will form an overall management team to monitor the ongoing particulars of the project and will meet regularly to plan and implement activities. The following discussion delineates the responsibilities of key personnel and their time commitments.

A. Principal Investigator: Responsibilities: This person will be responsible for overall management of the project, for teaching activities, for assisting in training the other personnel, for guiding staff development activities, and for guiding the gathering of data. The PI is also a faculty member at UIC and will redesign courses to meet the goals of the project as described in earlier sections. The PI will commit 15% of his time during the academic year to teaching, planning and to guiding subsequent implementation activities. During the Summer, the PI will commit two months to project activities.

B. Project Coordinator/Field Supervisor. Responsibilities: This person will have responsibilities for the day-to-day management of the project which includes assisting in teaching, carrying out staff development activities (e.g, conducting small/large groups meetings, training teachers to do inquiries), identifying and coordinating outside consultants, conducting classroom-based staff development with teachers (modeling and observing target instruction and meeting once a week individually with teachers), developing and coordinating Summer Training Seminar, coordinating day-long sessions and workshops, and coordinating project evaluation activities. This person will also be responsible for community/public relations. The person will be 50% on the project. Given the nature of the goals, objectives, and tasks of the project, it is important to have a person who can coordinate all activities on campus and in the field

C. Field Instructors. Responsibilities: The instructors will be responsible for assisting the PI and the Project Coordinator in conducting classroom-based staff development, gathering training materials, cataloguing teacher produced materials, transcribing teachers' projects, in managing staff development activities, in videotaping classroom activities. This much time is required for the project because the nature of some of the tasks involve working one-on-one with teachers and the Project Coordinator would not be able to accomplish this without some assistance.

(c.2) Extent time commitments of director and other key personnel are appropriate and adequate.

The PI will be 15% during the academic year. This is a standard course release for UIC. This time will be given to managing the project and for teaching one course per year for the project plus his regular Bilingual/ESL approval courses. In addition, he will use summer time to conduct action research training. The Co-PI will devote one course per year for the project and will assist in the action research work during the summer. She too will teach courses for the approval as

part of her regular teaching load. The Project Coordinator will be a doctoral student and will carry out responsibilities in accordance with the appointment and the needs of the project. As described above, there will be two Field Instructors (50% time doctoral student) will assist with project activities

(c.3) Adequacy of procedures for ensuring feedback and continuous improvement in the operation of the proposed project.

Feedback is ensured in the following ways. First, the essence of the project revolves around teachers participating in active learning environments. This condition allows for continuous feedback as teachers voice ideas, concerns, questions, and understandings in the course of learning. Second, as a matter of procedure, teachers will be asked to complete a detailed course evaluation form regarding content and instruction. Third, a process will be developed whereby principals, district level staff developers, and other teachers not in the project but in the target schools will be asked for input regarding general issues of instruction, development , and improvement. This is reflected in our continuing and close work with schools and in support from CPS.

Criterion (d): Quality of the project evaluation

(d.1) Extent methods of evaluation are thorough, feasible, and appropriate to the goals, objectives, and outcomes of the proposed project. To ensure appropriate impact in improved teaching practice, the proposed project will use multiple measures, quantitatively and/or qualitatively, and assessment tools, such as, 1) teachers' portfolio of their inquiries and curriculum redesigns. This will include analyses of videotapes and student learning; 2) peer observations; and 3) written cases. Also, as a result of the training, the following context indicators will be examined: 1) if teachers' lessons reflect higher standard and meaning-making;

2) if teachers' lessons reflect attention to language issues and appropriate instruction; 3) if students engage in active problem solving; 4) if teachers foster oral and written development through mathematical and science explanations; and 5) if teachers are better able to connect instructional decisions to student performance based assessments.

(d.2) Extent the methods of evaluation include the use of objective performance measures. Formative and summative indicators of program effectiveness have been delineated for each goal and objective for the proposed project in Section (a) *Quality of the Project Design.* In that section, each item (goals and objectives) is followed by a description of the documentation that will be used to evaluate the item and the criterion to know if the goal is met.

(d.3) Extent to which methods of evaluation provide for examining the effectiveness of implementation strategies. In addition to the indicators noted above and in Section (c), the project will use other formative evaluation methods which include 1) course evaluations, 2) on-going assessment of participants' development particularly through observations of their discussions and analyses of the work they produce, and 3) formal and informal classroom-based observations based on published protocols for the target instructional strategies. Indicators of the appropriateness of the implementation strategies include a) if teachers are actively engaged in team planning and teaching so that students' two languages are appropriately used in instruction, b) if teachers are actively engaged in integrating content, c) if teachers listen more and better to students' explanations of their thinking, d) if teachers are better models of appropriately using the native language and sheltering the second, and e) if there are fewer missed opportunities to develop both or either language during content instruction. Also, indicators will be if students are more actively engaged in learning and if their work demonstrates increased performance in writing complicated text (in either language), doing the same in science and mathematics, and

increased problem solving and thinking skills. Lastly, formative evaluation measures have been outlined earlier for staff development. However, the indicators of the appropriateness of the program's staff development would be a) if teachers are actively engaged in curriculum planning, in curriculum and instructional problem solving, b) if teachers are actively engaged in setting agendas and priorities for staff development, c) if teachers are actively engaged in researching their own instruction (e.g., via videotapes) in order to take action, and d) if teachers are engaged in positive and collegial discussions with others.

(d.4) Extent to which the methods provide performance feedback and permit periodic assessment of progress toward intend outcomes. The foregoing sections clearly outline methods for on-going assessment of the project's activities. There are multiple contexts in which to make assessments such as in the courses teachers take, in teachers' classrooms as they instruct, in action research seminars which are intended to give teachers opportunities to set agendas and priorities, and in group work sessions. The key indicators for assessing progress also have been delineated. In addition, there are multiple measures of the project's impact toward the intended outcomes. For instance, it is possible to measure through teachers' coursework (e.g., portfolios), through peer observations, through teachers' pre and post self-assessment using protocols, through teachers' presentations in workshops, and through teachers' own analyses of students' achievement.

TABLE 1: Project Time Frame of Activities

Each Semester of the project participants will take 1 course leading toward an approval in Bilingual/ESL Education. In addition, participants will take the following courses

<u>Year 1</u> Cohort 1 (20 Teachers)

Fall, 2011	Course 1	Improving Learning Environments through Action Research (Develop tools for classroom inquiries)
Spring, 2012	Course 2	Integrating Math, Science, & ESL
Spring, 2012	Course 3	Redesigning curriculum, lesson plans, and assessments

(SUMMER OPTION AVAILABLE FOR SOME STUDENTS)

Year 2

Fall, 2012	Course 4	Study group for collaborating and writing cases.
Spring, 2013	Course 5	Improving Learning Environments through Action Research II (Refine tools for classroom inquiries; This is an Independent Study course that spans one year and cohorts meet regularly with field instructors)
Spring, 2013	Course 6	Presentations of action research work

Year 3

Fall, 2013 Participants complete remaining approval courses and/or any other requirement for M.Ed.

Cohort 2 (20 Teachers) Begins

Spring, 2013	Course 1	Improving Learning Environments through Action Research (Develop tools for classroom inquiries)
Sum., 2013	Course 2	Redesigning curriculum, lesson plans, and assessments

Year 4 Cohort 2

Fall, 2013	Course 3	Integrating Math, Science, & ESL
Spring, 2014	Course 4	Study group for collaborating and writing cases.

Spring, 2014 Course 5 Improving Learning Environments through Action Research II (Refine tools for classroom inquiries; This is an Independent Study course that spans one year and cohorts meet regularly with field instructors)

Year 5 Cohort 2

Fall, 2014 Course 6 Presentations of action research work

Spring, 2015 Participants complete approval courses and/or any other requirement for M.Ed. Plus completion of teachers' cases for publication

Sum. 2015 Completion of teachers' cases for publication and final presentations.

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