



Center for the Mathematics Education of Latinos/as

CEMELA News

<http://cemela.math.arizona.edu>

The University of Arizona · University of California, Santa Cruz · University of Illinois at Chicago · The University of New Mexico

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CEMELA's First Year: Developing Centerness

CEMELA, the Center for the Mathematics Education of Latinos/as, is nearing the end of its first academic year. CEMELA launched year one with a September meeting that included the ten PIs and the two full-time administrators from CEMELA's fiscal home. This meeting set the tone for the activities of year one, developing a timeline for CEMELA goals and determining how best to work as a long-distance team toward these goals.

The ten PIs have worked diligently this year to make the year one goals a reality. Top priority was placed on recruitment of Fellows; defining a research agenda; initiating activities at the university sites and in partnering districts; determining the structure of the CEMELA research database; and creating structures for Center identification, communication and dissemination of information such as the CEMELA logo, brochure, e-mail listserves, video- and phone conferences, and the CEMELA website (<http://cemela.math.arizona.edu>).

CEMELA PIs, Faculty, Fellows and a number of other associated students and staff members at each of the four sites helped CEMELA activities and research get

underway. Study groups for teachers, mathematics courses, after-school math clubs, and workshops for parents took shape across the CEMELA sites. Re-

searchers on all four campuses continue to collect demographic data for the CEMELA research database. Plans for local and cross-site studies have been generated to address CEMELA-wide research questions.

The use of e-mail listserves, regular telephone conferences, and all-site videoconferences have helped CEMELA maintain a sense of being a single research community that spans three time zones .

One of the highlights of CEMELA's first academic year will be the Spring Retreat, which will take place in Tucson, Arizona on May 24-25, 2005. Newly recruited graduate student and post-doctoral Fellows will have a chance to become acquainted with the Center, while a subset of CEMELA's Advisory Board will bring their expertise to the discussions. The retreat will give Center Faculty the opportunity to co-create graduate short courses and continue the discussion of the research agenda, the professional development activities and research database, while allowing Center Fellows the opportunity to solidify cross-site alliances. Center administrators and the Evaluation team will also join the retreat to discuss strategies for working with such a diverse and dynamic group of faculty and students.



CEMELA PIs and Director Cynthia Anhalt met in Tucson in September 2004 to discuss research and administrative agendas.

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Recruitment

A priority this year has been to recruit CEMELA Fellows, both graduate student and postdoc. CEMELA representatives have spread the news at the annual meetings of SACNAS, CMC at Asilomar, NCTM Research Pre-Session, NCTM, NCSM, and AERA. CEMELA PIs at all four sites worked closely with the graduate studies programs at their respective universities to recruit students interested in research and teacher education on the cultural and linguistic aspects of Mathematics Education for Latinos. Advertisements for Post Doctoral Fellows at each site were announced in a variety of higher education venues as well as on the CEMELA website.

As a result of these efforts, CEMELA welcomes a total of 13 graduate level and 5 post-doctoral Fellows in Fall 2005. Four of these Fellows started their positions in Spring 2005 and have played essential roles in initiating CEMELA activities at the universities and with partnering school districts.

CEMELA's Research Agenda

CEMELA conducts research in four areas: student learning; community and parents; teaching and teacher education; and policy. Taken together, these areas give the Center a holistic perspective on the teaching and learning of mathematics with Latino students. During the 2004-2005 academic year, CEMELA PIs met frequently at national conferences and via phone or teleconferences to define a CEMELA-wide research agenda that addresses each of these four areas.

The goal of CEMELA is to develop new scholars in mathematics education who have an understanding of the role of language and culture in mathematics learning, who have an understanding of the resources parents bring to this process, and who have an understanding of developing teachers' abilities in a way that maximizes sustainability.

CEMELA-wide Questions:

CEMELA-wide research questions will be addressed by CEMELA as a Center, utilizing the research database (below) and shared data collection instruments. The Centerwide approach to these questions will permit CEMELA to study these phenomena on a broader scale that will prove more informative for national educational trends and policy than would individual localized studies at each site.

I. Community and Parents:

Studies in this area address the informal mathematical learning experiences in Latino families and communities and how these influence children's mathematics learning in school. The Center will ask the all-site question:

What is the nature of Latino parents' perceptions of the teaching and learning of mathematics?

II. Student Learning:

Studies in this area address the relationships between language(s) and learning mathematics. This CEMELA-wide research question addresses student learning and conceptual understanding of mathematical content:

What is the nature of Latino learners' mathematical understanding and use of language in multiple settings?

The Research Database

CEMELA-UIC is responsible for creating and managing the CEMELA research database for the four project sites. The purpose of the database is twofold: first, it provides CEMELA with a historical record of project activities, such as what research is conducted; and second, it allows CEMELA to examine key questions concerning the mathematics education of Latinos across the four sites. For example, with the database, CEMELA can examine the effects of state and local policies related to native and second language use and mathematics learning or to the various learning contexts created by mathematics curricula in the four project sites. The database provides CEMELA with a powerful tool for analyzing how Latino K-8 students perform in mathematics given different contexts and resources. This, in part, supports CEMELA's original argument for performing research across four sites. This

combination of sites represents various significant environments in which Latinos reside.

Currently, each site is completing a demographics template for the database. This template organizes descriptions of each site according to various demographic categories such as size of Latino population, mathematics achievement, Latino enrollment patterns in advanced mathematics courses, relevant historical patterns of residency, or relevant histories of the relationship between colleges of education and mathematics departments.

Templates for other categories of information have been created and data will be compiled as the work of CEMELA progresses.

III. Teaching and Teacher Education:

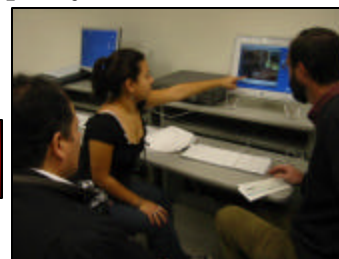
The CEMELA-wide question in this area addresses teacher professional development and preservice teacher education:

What is the nature of teachers' knowledge and use of Latino students' linguistic and cultural backgrounds to create effective mathematics learning environments?

IV: Policy

The CEMELA-wide question in this area addresses how school policy and organization support mathematics learning for this population:

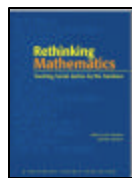
What is the impact of policy on Latino students' learning of mathematics?



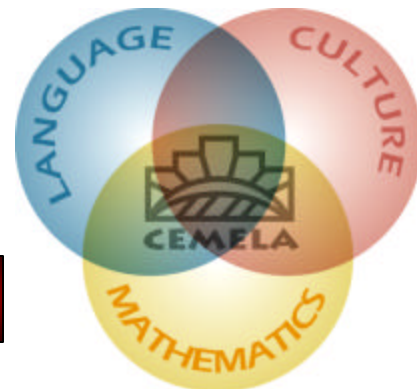
UCSC Fellows examine videorecordings from a mathematics classroom.

Individual and Cross-Site Research Studies

In addition to the CEMELA-wide research agenda, CEMELA Faculty and Fellows are involved in local (single site) and cross-site (more than one site) studies. While these local and cross site studies are connected to the CEMELA-wide research agenda, they provide a closer/deeper view of linguistic and cultural aspects of mathematics learning and teaching at each particular CEMELA site and setting: borderland, urban, migrant agricultural, and rural.



Eric Gutstein of UIC co-edited a new book: *Rethinking Mathematics: Teaching Social Justice by the Numbers*, a collection of over 30 articles addressing how to incorporate social justice into mathematics curriculum. Articles include ideas and lesson plans for teachers and reflections from classroom teachers and other mathematics educators.



Research Presentations

CEMELA PIs took the opportunity to share CEMELA related research at national and international conferences this year:

American Educational Research Association (AERA), April 2005, Montreal, Canada

- “More Than Language: Characterizing Mathematical Academic English Discourse Practices.” Part of the symposium: Evidence of How Domain-Specificity in Academic Discourse Impacts English Learners from Multiple Methodological Perspectives. Judit Moschkovich, CEMELA-UCSC.
- “Teachers’ Conceptions About Mathematics and Diversity in Two Urban Districts: Results From an Effective Schools Study” Richard Kitchen, CEMELA-UNM
- “Equity and Diversity Studies in Mathematics Learning and Instruction,” Eric Gutstein, Discussant, CEMELA-UIC

National Council of Supervisors of Mathematics (NCSM), April, 2005, Anaheim, CA

- “Teaching English Language Learners: Research and Practice; Challenges and Intervention,” Miriam A. Leiva, The University of North Carolina at Charlotte (CEMELA Advisory Board member), Cynthia Anhalt, CEMELA-UA, Richard Kitchen, CEMELA-UNM, Judit Moschkovich, CEMELA-UCSC.

National Council of Teachers of Mathematics (NCTM) Research Pre-session, April 2005, Anaheim, CA

- “Latinos and Mathematics Learning and Teaching: What We Know, Don’t Know, and Need to Know” Research Symposium, “Setting the stage: A framework for research in mathematics learning and teaching for Latino students,” Marta Civil, CEMELA-UA.
- “Mathematics Teachers’ Conceptions and Instructional Practices To Address Student Diversity” Richard Kitchen, CEMELA-UNM; Virginia Horak CEMELA-UA; and Julia Aguirre, CEMELA-UCSC.
- “Culturally Relevant Mathematics: What Does This Mean for Latino Learners?” Judit Moschkovich, CEMELA-UCSC.
- “Teaching And Learning Mathematics For Social Justice In Latino Schools,” Eric Gutstein, CEMELA-UIC.
- Session Discussant: Betsy Brenner, UC Santa Barbara and CEMELA Affiliated Faculty.

Fourth Congress of the European Society for Research in Mathematics Education (CERME 4), February 2005, Sant Feliu de Guíxols, Spain

- “Engaging with Parents on a Critical Dialogue about Mathematics Education” Bety Quintos-Alonso and Marta Civil, CEMELA-UA, and Jill Bratton, former MAPPS researcher at the UA.

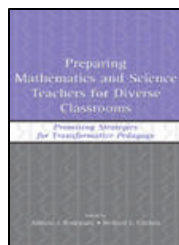
California Mathematics Council Annual Conference, December 2004, Asilomar, CA

- “Language Issues in Learning Mathematics” Judit Moschkovich, CEMELA-UCSC.
- “Highly Effective Teachers’ Conceptions of Mathematics” Richard Kitchen, CEMELA-UNM

National Science Foundation, “Culturally Responsive Mathematics” November 2004 Washington, DC

- “Language and Learning Mathematics: An Overview” and “Language and Learning Mathematics: Two cases.” Judit Moschkovich, CEMELA-UCSC.

Richard Kitchen of UNM recently co-edited *Preparing Mathematics and Science Teachers for Diverse Classrooms: Promising Strategies for Transformative Pedagogy*. Rick also authored a chapter in the volume titled “Making Equity and Multiculturalism Explicit to Transform Mathematics Education.”



CEMELA Seminars

All-Site Videoconference Seminars

CEMELA has made monthly videoconference seminars a priority in Spring 2005. Four videoconference seminars took place, each led by a different CEMELA site. These seminars provided the opportunity to discuss research questions, administrative issues, professional development questions, the CEMELA research database, and to hear from Alan Schoenfeld, a member of the CEMELA Advisory Board.

Fall 2005 will begin a new set of monthly videoconference seminars. With a year of experience under its belt, CEMELA will utilize these seminars to discuss academic topics, invite key speakers to share with the sites, and generate a cross-site academic discourse to maintain the "Center" approach to CEMELA's research among Fellows (graduate student and post doctoral), Faculty, administrators, and PIs.

Local Site Seminars

In addition to the all-site videoconferences, each institution held regular local seminars to build community among the different Center participants. The foci of these seminars varied to meet the needs of each institution. At UA and UIC, the focus was on building understandings across disciplines (i.e., mathematics, mathematics education, language and culture). The UA team had formal presentations by CEMELA Faculty (R. McGraw and P. Wiles each presented on research in mathematics education; E. Rubenstein-Avila and M.C. Combs each presented on language issues; W. Vélez presented on a mathematics topic). At UIC, faculty from Mathematics and the College of Education (mathematics educators) met weekly to discuss research on language, culture, and Latinos; begin discussions of how to improve Latinos' participation in UIC's mathematics courses; and co-sponsor a colloquium

by Sybilla Beckman, University of Georgia.

At UCSC, the seminar emphasis was on defining local research projects, connecting local research projects to the CEMELA research agenda, and designing teacher professional development. Current research at UCSC includes an examination of the beliefs and practices of both new and long-term elementary and middle school teachers who work with Latino students and an exploration of vocabulary development and reading comprehension in mathematics for English learners. At UNM, the emphasis was on defining the research agenda (in terms of both local studies at UNM and contributions to CEMELA-wide research questions) and identifying the professional development goals for the upcoming summer institute for teachers in Albuquerque.

Professional Development

The Professional Development activities described on these two pages are the contexts and sites for research that will address CEMELA-wide questions in the area of teaching and teacher education. Research will seek to understand the interaction of teachers' knowledge of mathematics, culture, and language with the mathematics instruction they provide in their classrooms.

At the University of Arizona:

Ochoa Elementary Teacher Study Group

The first teacher study group in Tucson started in February 2005 with eight teachers from Ochoa Elementary (a CEMELA-UA partner school). The UA team held six meetings this year with an emphasis on building community and preparing for continued teacher reflection in the upcoming academic year. The group explored topics in multiplication and measurement, and shared readings and teaching cases. In Fall 2005 the group looks forward to developing concepts of teacher inquiry and using events from their own teaching as cases to examine. A highlight of the Spring 2005 study group was its participation in the NCTM annual meeting in Anaheim, California. This helped build a sense of teacher-researcher community with the CEMELA-UA team. Many of the teachers reported on their experience at NCTM in the final study group meeting of the semester. In June, the study group will observe Olga Torres (CEMELA-UA Teacher Leader) while she teaches mathematics to her fifth grade bilingual class, then meet with her to talk about their observations and to continue exploring issues of language and culture in the

teaching and learning of mathematics.

TUSD and SUSD Middle School Cohort I

CEMELA is developing a series of five, three-unit courses at The University of Arizona for middle school teachers that focus on broadening and deepening their knowledge of mathematics. These courses serve as professional development specifically designed for teachers of Latino/a students.

The first cohort of 18 mathematics teachers from five middle schools in two school districts (TUSD and SUSD) in Tucson, Arizona is enrolled in the first course of the series (Spring 2005). The co-instructors for the course are Mathew Ondrus and Cynthia Anhalt. Algebra topics that have been explored in the course include functions of various types (in various representations and contexts), links between algebra and geometry (Pythagorean Theorem), and algebraic manipulations (algebra tiles).

Chaparral Middle School Teacher Lesson Study

In Fall 2005, CEMELA-UA will initiate a teacher lesson study group at Chaparral Middle School, a CEMELA-UA partner school in Sunnyside School District in Tucson.

Professional Development (continued)

At the University of California, Santa Cruz:

This summer, CEMELA-UCSC will be working with over 100 K-12 teachers in a week-long mathematics institute sponsored by one of UCSC's partnering districts, North Monterey County Unified School District. The thrust of the work with these teachers focuses on mathematics teaching strategies for English learners and Latinos/as.

The goals for this work are to increase teacher understanding of the following:

- 1) Language/culture can be a resource (rather than a barrier) for mathematics learning and teaching
- 2) Latinos/English learners can successfully engage in high level mathematics discussions and problem-solving activities.

- 3) Teachers have a critical role in promoting mathematical discourse that supports student access to, and advancement in, mathematics.

Teachers will engage in critical reflection using mathematics video cases. Teachers will also receive a comprehensive information packet with mathematics activities, resources and the latest research on the roles language and culture play in mathematics teaching and learning. Work with teachers will continue over the course of the school year.

CEMELA-UCSC is also working with the New Teacher Project induction program to provide support to recent graduates who are in the first 2 or 3 years of teaching. Currently, CEMELA-UCSC is working with the Mentors and advisors who support new teachers.

At the University of Illinois at Chicago:

UIC will select a teacher each year who will work closely with academic faculty on the after-school project and other research activities. The teacher/researcher will assist CEMELA-UIC by ensuring that the focus of university research capitalizes on what teachers know and that the results will benefit other teachers and schools. Kim Alamar, a sixth grade teacher noted for her work on science talk with bilingual students, will be the first UIC "Teacher Leader". Kim does a remarkable job of developing students' biliteracy in Spanish and English and inspiring high level inquiry with rich dialogues and active learning. Interestingly, Kim does not speak Spanish, and therefore, she is a model of how a monolingual teacher can support her students and at the same time promote

knowing and learning in two languages. Kim and her colleague, Claudia Greene (both former partici-

Lena Licón-Khisty of UIC is working with S. Kolian to co-author *Mathematics Education and ELLs in Iowa: A Training Manual for State Mathematics Consultants for the Improvement of Instruction*. The manual is due for completion in June, 2005.

pants in an earlier professional development project led by Lena Licón Khisty), have received national recognition for their work with science talk with bilingual students. UIC has selected to frame professional development around concepts of teacher research and collaborative investigations into classroom mathematics practice. The after-school "math club" will provide a context for teachers from the same school to develop and enhance their abilities to observe children, connect with parents, analyze children's mathematical thinking, respond to children in ways that guide their development, and develop lessons that capitalize on children's linguistic and social resources. During the summer, UIC faculty will select participating teachers and coordinate a workshop for them in which they will assist in the development of the after-school curriculum and learn skills for guiding and supporting students' thinking. CEMELA-UIC will work with twelve teachers throughout the year who will assist in creating and modifying problems for the "club", will be the primary responders that form the "wizard", and will be ethnographers/researchers for the after-school project.

At the University of New Mexico:

The first cohort of teachers to participate in the UNM CEMELA Summer Institute in the summer of 2005 has been recruited. The Institute for 35 K-5 teachers will be held in Albuquerque on June 6-17, 2005. The participating teachers work in elementary schools in one of UNM's partner districts. All participating teachers will receive a stipend; obtain materials and supplies at no cost; and be assigned a classroom coach to support their instruction in mathematics for two consecutive years. The teachers will also be asked to support CEMELA research activities by participating in interviews and supporting classroom observations. The primary goal of the UNM Summer Institute is to introduce participants to a multidisciplinary, problem-solving approach to mathematics instruction that addresses the unique needs of Latinos in the K-5 classroom, using Cognitively Guided Instruction (CGI) as a theoretical base.

UNM will also be initiating a study group for 10-12 K-2 teachers at Roosevelt Elementary School beginning in the fall of 2005. This study group will examine how to integrate problem-solving approaches such as Cognitively Guided Instruction (CGI) with bilingual education/ESL strategies in mathematics. These study group participants will lead two full-day conferences for UNM Summer Institute participants. This will allow practicing teachers opportunities to share some of what they have learned to improve the mathematics education of their Latino students, with a specific focus on improving classroom practice.



Teachers in Albuquerque explore hands-on learning and teaching techniques

Preservice Teachers

Undergraduate students with an interest in education have ample opportunity at all four CEMELA sites to obtain experience in the CEMELA mathematics education programs. At UIC, undergraduate students will serve as research and teaching assistants in the after-school program at Whittier Elementary. They will help the K-6 student participants know how to use the electronic resources and equipment (e.g., scanners, digital cameras, and graphic programs). It is intended that they will be role models for the K-6 students, and at the same time, they will strengthen their Spanish/English biliteracy and mathematics. It also is hoped that their experiences with CEMELA Fellows, teachers, and other researchers will encourage them to pursue teaching as a profession.

CEMELA-UA also incorporates preservice teachers into a variety of local activities. Undergraduate students are involved in running the after-school Math Club program at

Ochoa Elementary school. Undergraduates have also been actively involved as participant observers in regular mathematics classrooms in partner elementary schools in Tucson. These students also take field notes in the elementary school teacher study group at Ochoa and during the Middle School graduate-level mathematics course offered by the University of Arizona.

CEMELA-UCSC works closely with two pre-service programs, CMST (a program for undergraduates interested in teaching) and the Education Department's MA/Credential program (it should be noted that in California, all pre-service teachers are post BA). CEMELA Faculty teach courses for both undergraduates and in the MA/Credential Program and are incorporating CEMELA activities (such as video cases and readings by CEMELA PIs) into these pre-service courses.

Math for Parents

Math for Parents activities provide opportunities to research informal mathematics learning environments for Latino families. This research will seek to identify the perceptions and understandings Latino parents bring to their children's learning of mathematics.

CEMELA-UA organized a series of regular Math for Parents workshops at two partner elementary schools: Ochoa Elementary in TUSD and Ocotillo Elementary in SUSD. These workshops have been designed to further engage Latino parents in mathematics education in K-8 schools and explore mathematics as learners themselves. Both groups of mothers met regularly during the Spring 2005 semester and participated in community building exercises and studied material that paralleled their children's curriculum. This focus helped the par-

ents establish a relationship of trust and camaraderie among the workshop participants while learning mathematics. At Ochoa the focus was on fractions, decimals and percents, while at Ocotillo they explored whole numbers and different algorithms.

UIC has incorporated parental participation in their after school program at Whittier Elementary School. They will use this context to develop a cohort of parents who can support their children with standards-based mathematics. Parents will participate in activities designed to develop computer skills (a requested theme), skills in responding to children's mathematical questions, and skills in using contexts at home to support learning. Parents will use email to "talk" with children and others about mathematics, outlining and reinforcing the language element inherent in mathematical learning.

In Albuquerque, UNM faculty conducted two workshops on Cognitively Guided Instruction (CGI) in Spanish for Parents at a partner school in January 2005 to familiarize parents with the type of mathematics used in their child's classroom.

CEMELA researchers at UA and UCSC are planning to collaborate with Shelley Goldman and Roy Pea at Stanford University, who work on the Family Math project, part of the NSF LIFE Center on research on mathematics in informal settings. UCSC Faculty and Fellows will begin collecting ethnographic and interview data next Fall. This research connects two areas of the research agenda (parents and student learning) by collecting data on mathematical activity outside of school settings that include adults as well as children and analyzing how languages are used in multiple out-of-school settings.

GRADUATE STUDIES

All four CEMELA sites have successfully recruited doctoral students to begin research and study in fields relating to Mathematics, Culture, Language, and Education in Fall 2005. Students will pursue a course of study in their program of choice at their home institution while carrying out CEMELA research. CEMELA Fellows (graduate students and post-docs) will also participate in the yearly CEMELA Schools. These Schools will focus on 2 or 3 Short Courses (developed to reflect the Center's conceptual framework) and on opportunities for Fellows to discuss their own research with other Fellows and with CEMELA faculty.

CEMELA Fellows will have the benefit of interacting with faculty members from all four sites, engaging in joint research studies across sites, meeting and presenting at conferences, taking part in CEMELA Seminars, and playing a role in teacher education activities.

Focus on Students: After-School Math Programs

The after-school programs for elementary students are opportunities to address CEMELA-wide questions pertaining to student learning of mathematics and the nature of this learning in different settings. The programs at UIC and UA will allow examining the same research questions at two sites.

UA After-school Project

The after-school Math Club at Ochoa Elementary School has been meeting twice a week since February 2005. The goal of the Math Club is to form a learning community with elementary school students of grades three, four and five, who were nominated by their teacher or principal. The students are given the opportunity to advance their understanding of mathematics by engaging in meaningful activities that take place in a supportive, enjoyable, bilingual setting.

To extend the school's mathematics curriculum, we use strategy games, logic puzzles, children's literature, and creative art pieces that showcase the connections that mathematics has with everyday life. In particular, the students have written stories about geometrical concepts and made collages by taking pictures of where they see mathematics in the world around them.

The goal for the remainder of the school year is to form a stronger connection with the students, gain a better understanding of their community and home lives, and weave that connection and understanding into the mathematics activities. One planned activity is to have the students create a skit about mathematics and perform it for their parents, friends, and teachers.

"Puro Teflón! Let's see what we can learn, because in our heads we have Puro Teflón!" - a mother at Ochoa Elementary in Tucson, implying that when it comes to learning mathematics, nothing sticks for her. The Math for Parents Workshops put on by CEMELA-UA hope to prove her wrong.



CEMELA cross-site research includes plans to link the UIC and UA after school programs via electronic communication. The students will explore mathematics problems, then communicate their experiences with the problems via e-mail to their long-distance peers.

UIC After-school Project

CEMELA-UIC has developed an after-school project based on the Fifth Dimension project and "La Clase Mágica" (see work by Kris Gutierrez, Olga Vasquez, Marjorie Gallegos, or Luis Moll). "La Clase Mágica" has focused primarily on literacy development, but UIC is extending this work to focus on mathematics.

The after-school project is a multi-faceted endeavor involving children, parents, teachers, university undergraduate students, and CEMELA Fellows and Faculty. The project will consist of a "mathematics club" for any fourth or fifth grade student who volunteers to participate. The children will meet one or two times per week to solve high-level mathematical problems. UIC developers are selecting problems that will give students a variety of experiences. Problems will encourage students to draw solutions, use a calculator and record their keystrokes, and communicate questions and strategies electronically to both parents and to a "wizard" who responds in both Spanish and English. The purpose is to engage students in mathematical activities that require collaboration, communication (oral and written), and critical thinking. The electronic communications will be our primary source of data for understanding, among other things, the linguistic and cultural resources children bring to learning mathematics. Ultimately, our objective is to provide examples of Latino children doing high level problem-based mathematics and mathematical writing in both Spanish and English.

The program will take place at Whittier Elementary, a Pre-K-6 school that is 99.9% Latino. Whittier is in a working class neighborhood in the inner-city of Chicago. It also is a dual language school that has a goal of biliteracy for all its students. The after-school project will begin in September with the new academic year.

A key research question has emerged from UIC's after-school project. Pamela Quiroz will examine networking among the children, undergraduate students, parents and teachers. Her goal is to map the processes involved in how Latino students develop identities as "math learners" and the role of language brokering and biculturalism in facilitating the development of these cross-generational relationships and social capital.

CEMELA Short Courses

Currently under development:

- *Teaching mathematics for equity and social justice in K-12 schools: Theory and practice* (E. Gutstein)
- *Latinos and Schooling* (P. Quiroz)
- *Language and Teaching Mathematics* (S. Celedón-Pattichis and L. Licón Khisty)
- *Language and Learning Mathematics* (J. Moschkovich)



Math for Parents Workshop

External Evaluation

CEMELA's external evaluation is being conducted by MJ Young & Associates of Tucson, Arizona, under the leadership of M. Jean Young. Each CEMELA site cooperates with a local Evaluation Liaison who is responsible for coordinating the external evaluation at that location. These liaisons visit all CEMELA activities: the after-school programs, parent groups, professional development classes, and weekly seminars. Evaluation Liaisons at each site include Jill Forney at the UA, Nicole Hidalgo at UCSC, and Lisa Gabaldon at UNM. UIC is currently in the process of naming a liaison. The Liaisons are responsible for collecting data at their site and collaborating with Jean Young on the overall evaluation.

In March, the Evaluation team met to discuss this year's evaluation. It was a lively two-day meeting during which they developed evaluative study questions, protocols and other instruments they will use for the evaluation.

The evaluation team looks forward to meeting everyone at the CEMELA Retreat in May.



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