



Centerness: From Vision to Action

CEMELA will complete its second year in July 2006. What a year it has been! Year two marks the first academic year for CEMELA's first group of Fellows. We also laid the framework for CEMELA's research agenda. This included using technology to communicate and work across sites; developing the CEMELA database to centralize the collection and sharing of information across sites; and beginning data collection.

Year two has seen expansion of year one activities, plus the addition of new research studies. CEMELA has continued its work with students, teachers, and parents while developing multi-site projects. The After School Math Club at the University of Arizona is now joined by UIC's *Los Rayos de CEMELA*, which uses a community approach to involve students, teachers and parents in after school mathematics activities. UA and UIC are working together to combine after school activities and create cross-site communication between researchers and participants in the after school settings.

Another new program this year has been the opening of the Social Justice High School in Chicago, Illinois. The first class of enrollees began attending in fall

2005. The school is another place where CEMELA researchers will focus their agenda, particularly on the teaching of mathematics for social justice.

January of 2006 brought the first annual CEMELA School to Tucson, where graduate students, post-docs, teachers, faculty and PIs came together for five days to take CEMELA short courses and work in multi-site research groups.

CEMELA has also become more familiar with communications technologies in year two. In addition to continuing the use of videoconferencing, phone conferencing and messaging technology started in year one, researchers now use *Elluminate* to communicate across sites, compare notes, share Power Point presentations, and work in research teams.

All this technology does not replace face-to-face communication. CEMELA Fellows, PIs, and participants meet in person whenever possible as they travel to conferences (CMC, AERA, NCTM, PME) to present CEMELA research, to CLT meetings, and to other CEMELA sites specifically to collaborate on projects.

Year two has been a time of unification and moving forward as a center. Keep an eye out for CEMELA results — we are beginning to present and publish CEMELA findings, always with a focus on connecting culture, language, and mathematics. We will share what we are learning with the goal of positively impacting the teaching and learning of mathematics with Latino students, now and for years to come.



CEMELA Fellows at the University of Arizona use internet technology to work with their research partners at the University of New Mexico.

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First CEMELA School — January 2006

By Virginia Horak & Kelley Merriam Castro (UA)



The first annual CEMELA School took place January 11-16, 2006, hosted by the CEMELA team at the University of Arizona. Principal Investigators,

graduate students, post-doctoral researchers, affiliated faculty, a subset of Advisory Board members, and teachers came together to discuss research methodology, CEMELA administration, cross-site research projects, and to continue to develop common theoretical frameworks around which CEMELA bases its research. At the heart of the school were the CEMELA Fellows: graduate students and post-doctoral researchers from the four CEMELA sites who worked together to expand CEMELA's common theoretical foundation and strengthen the ties among cross-university research teams.

The CEMELA School was a multi-faceted event. The CEMELA Fellows attended three short courses. They joined PI Eric Gutstein from UIC and Julia Aguirre from UCSC for a course on Social Justice. A second short course on Sociocultural Theory was led by PI Luis Moll from UA. A third short course led by PI Judit Moschkovich from UCSC was dedicated to mathematics education research methodology. Presentations on video-sharing technology (given by Professor Shelley Goldman and Graduate Student Angela Booker from Stanford University) provided CEMELA participants with powerful tools for carrying out their research.

Each afternoon, the CEMELA research teams met for intense discussions on advancing the cross-site research agenda. One point of focus during CEMELA's first two years has been the initiation of CEMELA-wide research projects. Four research working groups met during the afternoons: 1) Teaching and Learning Mathematics in Latino Classrooms; 2) Teaching Mathematics for Social Justice; 3) Engaging with Parents in Mathematics; and 4) Student Learning of Mathematics in After-School / Out-of-School Settings. The members of the CEMELA teams took full advantage of the person-to-person hours to catalyze these projects and define specific research questions and collaborative activities.

Elementary and middle school teachers from CEMELA-UA and CEMELA-UCSC also took part in the CEMELA school. About 18 teachers and Teacher Leaders joined the "Teaching and Learning

Mathematics in Latino Classrooms" working group on Thursday afternoon, while four teacher leaders from UCSC attended the entire CEMELA School and four Teacher Leaders from the UA attended selected sessions. The participation of experienced, practicing classroom teachers is not only imperative to CEMELA's mission, but the dialogue among teachers and researchers helps maintain vital communication and collaboration between the two groups.

As a nascent center, CEMELA's challenges have been to create successful cross-site research teams and to create integrated research projects that incorporate mathematics, mathematics education, social justice, culture, and language. The first CEMELA School was an overwhelming success, allowing participants to confront these challenges face-to-face and take specific steps toward meeting the goals of CEMELA. The PIs and Fellows took advantage of every moment available to discuss research agendas and to establish the solid relationships that are the foundation of a multi-university consortium. The conversations continue through the use of online "chat" forums, data sharing, video technology and cross-site travel as members of these cross-site projects prepare to present at the annual AERA and NCTM conferences.

CEMELA School Highlights

- **Social Justice Short Course**
Led by PI Eric Gutstein, UIC
- **Sociocultural Theory Short Course**
Led by PI Luis Moll, UA
- **Methodology Short Course (Uncovering Mathematical Practices, Using a Naturalistic Paradigm and Working with Video)**
Led by PI Judit Moschkovich, UCSC
- **Research Working Groups:**
 - 1) **Teaching of Mathematics in Latino Classrooms**
 - 2) **Teaching Mathematics for Social Justice**
 - 3) **Engaging with Parents in Mathematics**
 - 4) **Student Learning of Mathematics In School / After School / Out of School Settings**

Focus on Mathematics at the CEMELA School

By Judit Moschovich (UCSC), Ksenija Simic (UA), & Johnnie Wilson (UCSC)

The CEMELA School provided opportunities to explore how different theoretical traditions (ethno-mathematics, sociocultural theories, and critical pedagogy) view mathematical practices; examine everyday, school, and academic mathematics as cultural practices (Civil & Andrade, 2002; Moschkovich, 2002); and learn to uncover mathematical thinking in everyday and school settings. During the CEMELA School, Faculty suggested Fellows consider the question “Where is the mathematics?” Our goals were to facilitate communication across disciplines, uncover mathematical ideas that may not have been evident, and stimulate conversations about different ways we “see” mathematics, depending on theoretical perspectives and mathematics backgrounds. Answering this question requires examining what “mathematics” means, considering what activities we think are (and are not) “mathematics,” and describing how we saw “mathematics” in action. Below, two Fellows (Simic and Wilson) summarize responses to this question.

Responses from Fellows:

Fellows reported that they experienced “mathematics” as integrated into many aspects of the work during the School. Fellows felt familiar with the typical mathematical procedures learned in school. As reported in the research literature on everyday mathematics, these are the types of mathematical practices that are most easily identifiable as “mathematics.” Fellows reported encountering many mathematical concepts during the short courses: percentages, proportionality, area, place value, the structure of the number system, and graphical representations (during the Social Justice Short Course); graphing, proportional reasoning, scale, and slope (during Methodology); numeracy, percents, estimation, calculating discounts, patterns, attributes, and mental calculation (during Sociocultural Theory). Fellows also reported seeing applications of classical, community, and critical knowledge in the Social Justice course, mathematical communication in the Methodology course, real-life examples of the “Funds of Knowledge” concept in the Sociocultural Theory course.

Fellows reported that they were engaged in mathematics thinking in many short course activities, for example:

When describing Erin Turner’s presentation on a social justice mathematics curriculum, a Fellow explained: “This was a great example of how to apply the theory learned in the Social Justice short course. She described how she worked with the teacher to develop mathematics curriculum and then apply it to engage the students in issues relevant to their lives.”

When describing the video of a family using mathematics to buy a prom dress on a budget, a Fellow said “I found

this example of family mathematics very interesting. It showed the richness of family knowledge in applied mathematics and how math can be used as a tool to negotiate everyday challenges.”

Fellows felt that the School provided opportunities to engage in classical and school mathematics, develop an understanding of community mathematical practices, and consider how to include critical mathematical knowledge (Gutstein, 2005) during instruction. Short courses and discussions also raised many questions for Fellows that will continue to be discussed between now and the next CEMELA School. Fellows’ mathematics experiences during the CEMELA School echo the conclusions reached by researchers about mathematical practices in everyday life. Although mathematical activity was evident in many aspects of the CEMELA School, it was not immediately obvious unless the activity was examined with the goal of uncovering mathematical ideas.



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CEMELA Cross-Site Research Studies...

Los Rayos de CEMELA (UIC) and the After School Math Club (UA)

By Lena Licón Khisty (UIC) & Maura Varley (UA)



CEMELA has created after school projects at two of its sites: one in Arizona, UA's *Math Club*, and one in Chicago, UIC's, *Los Rayos de CEMELA*. UA's program began last year in February, while UIC's began earlier this year. The two after school projects form a center-wide endeavor to better understand the language and cultural resources children, undergraduate students, and parents (in the UIC project) use as they do mathematics; and to map the development and influence of networks among the different generations that come together in both Los Rayos and the Math Club. The projects also provide the context for understanding the nature of mathematical identities and how these identities relate across the different generations (Pamela Quiroz and Sonia Oliva, UIC, are taking the lead on this research).

The creation of the two after school projects is in keeping with CEMELA's goal of giving representation to and capturing the diversity of the geographic, social, economic, and cultural contexts of Latinos. The projects have design similarities: participation of undergraduate facilitators, participant researchers, third, fourth and fifth graders, and rich mathematics that provide a chance for open-ended investigations and dialogue. The projects differ from each other slightly in that UIC involves parents (in some cases, parents of the students) and teachers as researchers. However, both projects are based on the assumption that the *nature of learning is the interdependence of context, networks, and resources* (Moll, 2001). In Los Rayos and the Math Club, all participants — children, parents, university students, Fellows, and teachers — draw from their own as well each other's linguistic and sociocultural resources to collaborate in mathematical activities, which in turn creates rich zones of development. These diverse practices become the tools for mediating mathematics learning. More importantly, Los Rayos and the Math Club are both activity systems that foster and even require participants to negotiate their roles and mathematical understandings as they participate in various mathematical activities.

Los Rayos de CEMELA and the Math Club both utilize educational activities organized around learning mathematics and technology skills in a playful atmosphere. Los Rayos and the Math Club are both a general adaptation of the Fifth Dimension after school projects (Cole, 1996), and also are guided by other similar projects (e.g., Gutiérrez, Baquedano-Lopez, & Alvarez, 2001) including *La Clase Mágica* (Vasquez, 2002). Los

Rayos children meet twice a week and work with five bilingual Latino undergraduate students and four or five participant researchers (Fellows) on activities: mathematics in the community, probability, integrated science and mathematics, and patterns. The Math Club also meets twice a week. Four undergraduate students (with varying levels of proficiency in Spanish), three participant researchers (two bilingual) and one Teacher Leader who work with students on community and/or project-based activities focused on a variety of mathematics concepts.

A key feature of both programs is the children's electronic communication with a mathematics wizard, El Maga, who engages students in bilingual conversations about their mathematical experiences and other topics initiated by the students. UIC has added an additional feature: students design and present a digital story-board describing their adventures with the math wizard. Parents too will learn to do a story-board and will work with children on their projects. Teachers at Los Rayos will soon begin meeting once a week to assist in data analysis of children's approaches to doing mathematics and the language and cultural resources utilized by the children. UA plans to integrate a similar teacher professional development aspect to the Math Club during the 2006-2007 school year. We assume the interactive inquiry environment will facilitate teachers' self-generated examination of mathematics instruction.

While UA and UIC are in different stages, Fellows and faculty are already beginning to see patterns emerge in children's choices about language, engagement in community-based projects and mathematical communication. Patterns are also emerging in children's interest in creating problems of their own, the many resources children draw on for understanding, and in the nature of play in mathematics. Fellows and other researchers at both sites also are starting to conduct case studies of students and of the undergraduates—a group we had not originally thought of studying. CEMELA's After School settings are unique for their attention to Latinos and their language and cultural resources. Our collaboration between sites for the After school projects will provide rich data for all of CEMELA to use, inform CEMELA's research agenda, and lastly, generate useable knowledge for everyone.



...Projects across Two or More Sites

CEMELA works with Parents in Tucson and Albuquerque

By Marta Civil (UA) & Erin Turner (UNM)

Under the umbrella of the CEMELA-wide research question, “What is the nature of Latino parents’ perceptions of the teaching and learning of mathematics?” researchers at UA and UNM (with input from a researcher from UCSC) have embarked on a cross-site study addressing the following questions:

- How do different language policies in two settings (Arizona and New Mexico) affect Spanish-dominant parents’ engagement in their children’s mathematics education?
- What are parents’ perspectives on the role of different sociocultural contexts on children’s mathematical learning experiences?

This study advances the prior work of UA researchers on parental engagement in mathematics education by focusing on the role of language policy in two different contexts. While in New Mexico bilingual education is endorsed, in Arizona it is not. Prior research has underscored some of the effects of the policy change in Arizona, by which Spanish speaking mothers expressed frustration at not being able to understand the instruction anymore and thus, in some cases stopped visiting their children’s classrooms (Bratton, Quintos, & Civil, 2004).

Our current research has developed common parent interview protocols to use across sites. In the interviews we address parents’ perceptions and attitudes toward the teaching and learning of mathematics; their children’s attitudes towards the subject; and parents’ ideas about the language of instruction and how it impacts their own engagement and their children’s learning. Furthermore, we conducted classroom observation and debriefing sessions with small groups of parents to gain a deeper understanding of parents’ views on mathematics teaching (this is modeled after our prior work, see Civil, Quintos, & Bernier, 2003; Civil & Quintos, 2006). Across the two sites, 25 parents (24 mothers and 1 father) participated in interviews, and 16 in classroom observation and debriefing sessions.

Our findings document how parents engage in their children’s mathematics education in multiple ways, including formal, school-defined forms of participation (e.g., homework) and informal, interactions (e.g.,



offering *consejos*, using mathematics in the supermarket).

Parents from both sites drew on their own experiences and attitudes towards mathematics to shape their engagement with their children. In the context of school-defined forms of engagement (e.g., homework) tensions often arose as parents negotiated differences between how they learned particular mathematical concepts and procedures and the methods their children were learning in school. Parents of children in English-only classrooms experienced the additional challenge of how to support their children with homework in English, a language many parents were just beginning to learn. We found parents responded to these challenges with great resourcefulness: they solicited help from teachers, requested materials, and sought out other adults to support their child. However, some parents spoke adamantly about the detrimental impact of English-only instruction on their children, both academically as instructional time is “wasted” when students do not understand and as a result disengage and feel uncomfortable in school, and in some cases, even drop out. In contrast, parents of students in bilingual classrooms attested to the benefits of using two languages in instruction that supports their children’s learning.



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CEMELA Research Database

By Pamela Quiroz (UIC)

The CEMELA database is up and running! This repository of information is the result of a multi-university collaboration to aid in accomplishing CEMELA's goal – that is, to better understand the roles of language, culture, and context in the mathematics education of Latino students. All CEMELA members now have access to information for year one of the Center. The database currently contains five categories of information (with a history category to be included): demographics, resources, bibliographies, research abstracts, and policy. A multi-level, multi-year structuring of information for each category offers CEMELA researchers opportunities to compare information across sites and to chart the growth of CEMELA. Indeed, it is our intention that as CEMELA grows so too will the database.

- **Demographics** provides relevant statistics for each site, often statistics that no policymaker should find acceptable. The statistics however, are simply the structural backdrop for how education functions at the micro level of the everyday lives of Latinos.

- **Resources** offers a window into each site's available material, human, and social resources, and how these resources are mobilized to provide the support necessary for CEMELA and Latino communities to be effective in their efforts. These include (but are not limited to) all of the personnel at each site, the CEMELA schools, seminars, videoconferences, technology, and the communities of practice that evolve from our work.

- **Bibliographies** holds references that focus on mathematics education, professional development, parent or "family" learning, language, culture, and policy, as well as social justice.

- **Research Abstracts** documents all of the projects that are ongoing at the four CEMELA sites.

- **Policy** is intended to make evident how profoundly U.S. educational and social policies (e.g., NCLB, Proposition 227 in California, Sensenbrenner Bill HR 4437) shape the lives of Latino communities.

Access the database at:
<http://cemela.ed.uic.edu>
 Please contact Pamela Quiroz at
 UIC for password privileges
paquiroz@uic.edu

Thanks to Luisette Gonzalez, our database manager and creator, this information is highly-readable and user friendly. Also, many thanks to Fernando Londoño, Johnnie Wilson, Sonia Oliva, Alan Tension, Kip Tellez, Mary Elisabeth Marshall, Edgar Romero, Lena Licón Khisty, Eric Gutstein, Marta Civil, Virginia Horak, Hector Morales, Erin Turner, Kelley Merriam Castro, Ernesto Reyna, Ravi Samitama, and Laura Kondek for their assistance in this effort.

It is the hope of the CEMELA community that the database will provide a springboard for helping to broaden our understanding of the remarkable paradox of U.S. education as it is experienced by all children of color, and particularly Latinos. Education is a public good increasingly consumed privately; a process through which we assume that a child's identity can be transformed; a socio-political arrangement that focuses more on political or economic capital than on the educational needs of children; and an individualistic and liberating enterprise that also represents a mechanism for social control.

Eventually we intend to add a history section to the database that will situate policy agendas affecting Latinos within the larger and more complex socio-political histories of our sites. Our goal for the CEMELA database is that it be more than a simple storehouse of disconnected information. It will allow us to better interpret how various educational and social policy agendas exist within a matrix of history, resources and power that shape the educational realm of Latinos (and therefore their lives). In this way, we can contribute to the necessary and worthy struggle for equality and social justice.

Cross-site Communication

All CEMELA sites meet on a monthly basis via videoconferencing software. The CEMELA videoconferences are run by a multi-site team of Fellows, who share the responsibility of preparing the agenda and running the meetings.

CEMELA would like to thank CLT-Net for making available and training CEMELA researchers on the use of *Illuminate*, an online software that allows us to share desktops, documents, videos, and Powerpoint slides with multiple users across sites. CEMELA researchers have met regularly across this user-friendly platform since our training in February 2006.

CEMELA researchers have also closed the distance between them via meetings with personalized internet videoconferencing tools. A variety of messaging and chat software products also allow us to communicate across campus offices and university sites. These quick and easy interfaces between research team members have been an essential part of CEMELA's cross-site research activities.

Impact on Local Communities

Social Justice High School — UIC

CEMELA researchers Rico Gutstein (PI) and Patty Buenrostro (Fellow) are working with a new social justice high school in Chicago. At this new school, things are as interesting and complex as they could be! This is the first year of the school (one of four small high schools in a new building, each with a unique “theme”), and each school has about 100 ninth graders. The school, which grew out of a community struggle culminating in a 19-day hunger strike in 2001 by neighborhood residents, is in a Mexican immigrant community. However, the Board of Education used an existing federal desegregation mandate to “racially integrate” the school (which really meant with white students) by redrawing the attendance boundaries to include a neighboring African American community. Thus, the schools’ population is 30% African American and 70% Mexican, but some Latino/a students in the immediate neighborhood cannot attend because of the redrawn boundaries.

In January, an elected official inflamed tensions and proposed remaking the school as only serving Latinos/as, effectively excluding African American students. Black students went to teachers concerned that they would be removed from the school. One of the two mathematics teachers in the social justice school proposed a week-long mathematics project with the essential question: What is an equitable solution for both communities? Students dove into the mathematical

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Teacher Study Group—UNM

Since September 2005, CEMELA faculty and Fellows at the University of New Mexico have been conducting a study group with 12 elementary teachers from Roosevelt Elementary in Bernalillo, a small rural town about 12 miles north of Albuquerque. Roosevelt Elementary School serves a highly diverse, majority Latino/a student population in grades K-2. This year, the study group has met every other week for two-hours at Roosevelt. The focus of the group has been on expanding parental outreach efforts at the school in mathematics, enhancing teachers’ understanding of Cognitively Guided Instruction (CGI), and investigating the implementation of performance-based assessments in the early elementary grades. As many as eight parents who have students who attend Roosevelt have attended and actively participated in the Teacher Study Group meetings.

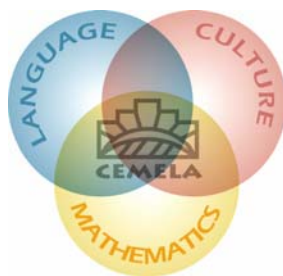
The highlight of the study group’s activities this year was a day-long conference that the group coordinated and ran for 18 teachers who attended the 2005 CEMELA Summer Institute in Albuquerque. The 12 expert teachers who have been participating in the Roosevelt study group were instrumental in both the design and implementation of the three professional

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Working with Local Teachers—UA

Fellows at The University of Arizona are engaged in working with practicing teachers in research and in professional development. This work is being done at both elementary and middle school levels through teacher study groups and lesson study. At the elementary level, teachers engage in mathematics explorations with a focus on the language demands of these activities. Examples of students working on problems serve as a catalyst for reflection on teaching practices. Doctoral Fellows Laura Kondek and Heather Cavell are documenting this elementary teacher study group, which is facilitated by two teacher leaders. These two Fellows are developing modules to be used in mathematics courses for elementary preservice teachers. Their work utilizes excerpts from fourth and fifth grade classroom teaching events, student work, and teacher study group discussions. At the middle school level, teachers participate in lesson study engaging in discussions about curriculum, teaching and the Latino/a student. The focus of the lesson study is on developing understanding of the teaching of probability concepts while utilizing Latino students’ linguistic strengths as assets for learning. Research is being conducted via lesson study on the role of language in the teaching of mathematics and on the types of questions that teachers pose during Latino students’ engagement in academic tasks. Gabriela Dumitrascu,

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Research Groups—UCSC

Teaching Research Group

The TRG group at UCSC met four times over the last quarter to develop a research plan for two studies that will contribute to the CEMELA-Wide research questions. The TRG group includes CEMELA Faculty (Julia Aguirre, Kip Téllez, and George Bunch) and CEMELA Fellow (Johnnie Wilson) and undergraduate researcher (Denisse Soto-Rodriguez).

Study 1: Language Culture and Mathematics Teaching: An investigation of teacher conceptions and practices in Latino mathematics classrooms.

Study 2: Teacher thinking and Development about academic language, native language, and culture in mathematics instruction of Pre-service teachers

Student Learning Research Group at UCSC

The SLRG group at UCSC met on a weekly basis over the last quarter to develop a research plan for one or more studies that will contribute to the CEMELA-Wide research questions. Currently, the SLRG group includes CEMELA Faculty (Judit Moschkovich, Judy Scott), a CEMELA Associate (Math Education PhD student Bill Zahner, who will be a Fellow in Fall 2006), a CILS Fellow

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Evaluator's Column

By M. Jean Young

MJ Young & Associates

Look for this column in each newsletter to receive updates on the evaluation team's activities and latest findings. The purpose of our evaluation and focus for the first few years of CEMELA is to provide on-going information for programmatic decision-making also known as 'formative evaluation.' Currently we are focused on *shadowing* CEMELA Fellows at the four sites. By shadowing Fellows we are finding out about the different roles Fellows are taking, how they are involved in the various interventions, and the research they are conducting. We are also continuing our observations of teacher and parent workshops and study groups, after-school programs, and teacher courses; attending seminars and videoconferences; and, meeting together every month to discuss what we are finding and plan next steps.

During the CEMELA School we sat in on research group meetings to begin our observations of the research that will be conducted as part of the project.



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Generally, we found the CEMELA School to be very effective, especially being the first one. Perhaps most important is that it provided an opportunity to expand upon and solidify the notion of CEMELA community. A copy of our report was sent to all the PIs. Thank you to all of you who provided information for our CEMELA School Report, especially those we interviewed. We appreciate the time you took to give us this important information.

Local Impact (continued from page 7)

Social Justice High School—UIC

complexities, such as examining the probabilities of getting accepted if a lottery system were enacted, analyzing the impact of enlarging the boundaries in various ways, looking at the percentages and ratios of suggested proposals, and studying neighborhood demographics. The real issue for us is that even with the new schools, there are not enough quality schools in the neighborhood for all students (and the Board is proposing closing a nearby high school at the same time). Students were deeply engaged, argued passionately for their views, and mathematized the situation. This was a mathematics project that built on students' real concerns, while supporting the development of critical and classical mathematical knowledge—the type of social justice mathematics teaching and learning that we want to develop and study.

Teacher Study Group—UNM

development sessions that were offered for teacher-participants in the conference. The focus of the sessions was on CGI research being done with linguistically and culturally diverse kindergarteners, performance-based assessments being used at Roosevelt, and on parental involvement in mathematics. Parents assisted with the coordination of the final session on parental involvement. The "expert-novice" teachers teaching teachers model used for the conference proved quite effective. In follow-up discussions with the teacher-experts who coordinated the conference, teachers expressed great satisfaction in having key roles in disseminating research-based work with their colleagues.



Working with Local Teachers—UA

doctoral student, and Cynthia Anhalt, post-doctoral fellow, are involved with lesson study. Matthew Ondrus, post-doctoral fellow, is conducting research in looking at effective teaching practices in predominantly Latino student population classrooms at the middle school level. Two doctoral students, Anthony Fernandes and Beatriz Quintos, are involved in conducting research with teachers. Anthony is working with a middle school teacher in utilizing mathematical tasks as a tool for reflection, and Beatriz is working with an elementary teacher to explore the influence of culturally relevant teaching practices on Latina/o students' mathematical learning and attainment.

Research Groups—UCSC

(PhD student Tamara Ball), and a CILS Post Doctoral Researcher (Flavio Azevedo).

The SLRG group at UCSC is currently working on developing three studies.

Study 1: Language and Mathematical Practices: Mathematical Reasoning and Communication among Latino Middle School Students. Moschkovich, Azevedo, Zahner.

Study 2: A review of the literature on mathematical vocabulary and reading for English Learners. Moschkovich, and UCSC Faculty Judith Scott.

Study 3: The Cultural Dimensions of Mathematical Thinking: A Transnational Study of Early Proportional and Algebraic Reasoning Practices (in collaboration with Dr. Kris Gutiérrez, UCLA). This study will begin in Fall 2006 or Winter 2007.